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31 October 2016

The President of the Legislative Council,  
Legislative Council Complex,  
Hong Kong.

Sir,

In accordance with the paper tabled in the Provisional Legislative Council on 11 February 1998 on the Scope of Government Audit in the Hong Kong Special Administrative Region — ‘Value for Money Audits’, I have the honour to submit my Report No. 67 on the results of value for money audits completed in accordance with the value for money audit guidelines laid down in the paper. These guidelines are also attached.

Yours faithfully,

David Sun

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The Director of Audit's Report No. 67 contains the following chapters:

<b>Chapter</b>	<b>Subject</b>
1	Maintenance and safety-related improvements of public rental housing flats
2	Funding of universities by University Grants Committee
3	Procurement and maintenance of fire services equipment
4	Management of abandoned construction and demolition materials
5	Hospital Authority's drug management
6	Funding of academic research projects by Research Grants Council
7	Assistance schemes for self-financing post-secondary education institutions
8	Sewerage systems in rural areas
9	Joint-office operation on water seepage in buildings
10	Audience building activities for performing arts

# VALUE FOR MONEY AUDIT GUIDELINES

## Value for money audit

Value for money audit is an examination into the economy, efficiency and effectiveness with which any bureau of the Government Secretariat, department, agency, other public body, public office, or audited organisation has discharged its functions. Value for money audit is carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and have been accepted by the Administration.

### 2. The guidelines are:

- firstly, the Director of Audit should have great freedom in presenting his reports to the Legislative Council. He may draw attention to any circumstance which comes to his knowledge in the course of audit, and point out its financial implications. Subject to the guidelines, he will not comment on policy decisions of the Executive and Legislative Councils, save from the point of view of their effect on the public purse;
- secondly, in the event that the Director of Audit, during the course of carrying out an examination into the implementation of policy objectives, reasonably believes that at the time policy objectives were set and decisions made there may have been a lack of sufficient, relevant and reliable financial and other data available upon which to set such policy objectives or to make such decisions, and that critical underlying assumptions may not have been made explicit, he may carry out an investigation as to whether that belief is well founded. If it appears to be so, he should bring the matter to the attention of the Legislative Council with a view to further inquiry by the Public Accounts Committee. As such an investigation may involve consideration of the methods by which policy objectives have been sought, the Director should, in his report to the Legislative Council on the matter in question, not make any judgement on the issue, but rather present facts upon which the Public Accounts Committee may make inquiry;
- thirdly, the Director of Audit may also consider as to whether policy objectives have been determined, and policy decisions taken, with appropriate authority;

- fourthly, he may also consider whether there are satisfactory arrangements for considering alternative options in the implementation of policy, including the identification, selection and evaluation of such options;
- fifthly, he may also consider as to whether established policy aims and objectives have been clearly set out; whether subsequent decisions on the implementation of policy are consistent with the approved aims and objectives, and have been taken with proper authority at the appropriate level; and whether the resultant instructions to staff accord with the approved policy aims and decisions and are clearly understood by those concerned;
- sixthly, he may also consider as to whether there is conflict or potential conflict between different policy aims or objectives, or between the means chosen to implement them;
- seventhly, he may also consider how far, and how effectively, policy aims and objectives have been translated into operational targets and measures of performance and whether the costs of alternative levels of service and other relevant factors have been considered, and are reviewed as costs change; and
- finally, he may also be entitled to exercise the powers given to him under section 9 of the Audit Ordinance (Cap. 122).

3. The Director of Audit is not entitled to question the merits of the policy objectives of any bureau of the Government Secretariat, department, agency, other public body, public office, or audited organisation in respect of which an examination is being carried out or, subject to the guidelines, the methods by which such policy objectives have been sought, but he may question the economy, efficiency and effectiveness of the means used to achieve them.

4. Value for money audit is conducted in accordance with a programme of work which is determined annually by the Director of Audit. The procedure of the Public Accounts Committee provides that the Committee shall hold informal consultations with the Director of Audit from time to time, so that the Committee can suggest fruitful areas for value for money audit by the Director of Audit.



# **CHAPTER 1**

**Transport and Housing Bureau  
Hong Kong Housing Authority  
Housing Department  
Buildings Department  
Fire Services Department  
Water Supplies Department**

**Maintenance and safety-related  
improvements of public rental housing flats**

**Audit Commission  
Hong Kong  
28 October 2016**

*This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.*

Report No. 67 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

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# **MAINTENANCE AND SAFETY-RELATED IMPROVEMENTS OF PUBLIC RENTAL HOUSING FLATS**

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# **MAINTENANCE AND SAFETY-RELATED IMPROVEMENTS OF PUBLIC RENTAL HOUSING FLATS**

## **Executive Summary**

1. As at 31 March 2016, the Housing Authority (HA) had provided 756,272 public rental housing (PRH) flats in 215 estates to meet the housing needs of low-income families that cannot afford private accommodation. To ensure a safe and pleasant living environment for the tenants, as well as sustain the lifespan and economic value of the PRH estates, the Housing Department (HD), as the executive arm of the HA, has introduced various maintenance and improvement programmes, the recurrent expenditure of which totalled about \$3,090 million in 2015-16. As at 1 June 2016, the HD had 4,830 staff in its Estate Management Division which is responsible for the estate management and maintenance of the PRH. The Audit Commission (Audit) has recently conducted a review to examine the HD's maintenance and safety-related improvements of PRH flats.

### **In-flat maintenance of public rental housing flats**

2. *Implementation of the Total Maintenance Scheme (TMS).* In 2006, the HA launched the TMS to improve the standard of maintenance within all PRH flats by proactively inspecting the in-flat conditions and providing comprehensive repair services. The first TMS cycle covering 177 estates was completed in 2011 at a total cost of \$912 million. As at March 2016, the first five years of the second TMS cycle had been rolled out to 134 estates, with inspections and repair works completed in 120 estates at a total cost of \$732 million (para. 1.5). Audit has found the following areas for improvement:

- (a) *Need to closely monitor the follow-up actions on inaccessible flats.* Of the 80,965 flats inaccessible for inspection in the second TMS cycle, 24,455 (30%) were also inaccessible in the first TMS cycle. According to the HD's instructions, estate offices should take follow-up actions on inaccessible flats. However, Audit sample check revealed that for 300 selected PRH flats not inspected from 2011 to 2014, the estate offices concerned had not taken the opportunity to conduct comprehensive in-flat

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inspections even when the tenants subsequently made requests for repair works in their flats under the Responsive In-flat Maintenance Services (RIMS — see para. 3 below) (paras. 2.16 to 2.18);

- (b) ***Need to improve the in-flat inspection performance of TMS teams.*** In the HD's audits of the TMS teams' performance during 2012-13 to 2015-16, low scores were given to the in-flat inspection and maintenance service process. For example, in 20 (67%) of 30 estates covered by the performance audits, the average number of flats inspected by the TMS teams could not meet the inspection standards (para. 2.19); and
  - (c) ***Need to enhance maintenance education.*** The HD's surveys showed that 38% of tenants were unclear about the tenant-to-pay items (i.e. repair works for damage arising from improper use). As they might not procure the necessary repair services, such items could deteriorate into major maintenance issues (para. 2.21).
3. ***Implementation of the RIMS.*** To further enhance the maintenance services, the HA implemented the RIMS in 2008 to provide a customer-oriented in-flat maintenance service to tenants' daily works requests. The expenditure under the RIMS was \$500.1 million in 2015-16 (para. 1.6). Audit has found the following areas for improvement:
- (a) ***Need to ascertain the reasons for the increase in repair works under the RIMS.*** In a review of the TMS in 2008, the HD anticipated that once the repair works for a PRH flat were completed under the TMS, the same flat would not need to undergo major repairs in the following years. From 2011-12 to 2015-16, the number of works orders issued under the RIMS increased from 270,815 by 55% to 420,155. According to the HD, the reasons for increase included the higher awareness of tenants in reporting defects and the ageing of the PRH stock. However, Audit noted cases of repeated works orders involving the same works types and locations within a short period of time. The HD's checking also found unsatisfactory contractors' repair works as shown in paragraph 4(b) below (paras. 2.27 and 2.28); and



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- (b) *Need to improve the RIMS service standards of estate offices.* The performance verifications by the HD of 304 selected estates from 2011 to 2015 revealed that only 25 (8%) estate offices could meet all nine service standards in respect of inspections and repairs works (para. 2.30).
4. *Monitoring of contractors' repair works.* The HD conducts checks on contractors' repair works under the TMS and RIMS periodically (para. 2.34). Audit has found the following areas for improvement:
- (a) *Need to comply with the verification requirements.* The HD's requirement to verify quarterly the effectiveness of water seepage repairs under the RIMS had not been complied with in three of six selected estates for two to six quarters from 2014 and 2015. Moreover, the same verification requirement had not been applied to water seepage repairs under the TMS (para. 2.35); and
- (b) *Need to strengthen the final inspections of repair works.* Of 133 flats selected for checking by the HD from February 2014 to March 2016, 118 (89%) flats had 385 items of unsatisfactory TMS repair works requiring replacement/rectification works. The quality of RIMS repair works was also generally unsatisfactory and on a deteriorating trend. For example, in respect of workmanship, 349 (65%) of 535 estate works orders checked by the HD from 2011 to 2015 required partial or complete replacement/rectification works. The percentage of estate works orders requiring partial or complete replacement/rectification works increased from 50% in 2011 to 88% in 2015 (paras. 2.37 and 2.40).

### Follow-up actions on public rental housing's water sampling tests for lead

5. Exposure to lead may adversely affect human health. Since the start of "excess lead in drinking water" incident in July 2015, the HA and the Government had conducted water sampling tests for all PRH estates and found that water samples from 11 PRH developments had lead content above the World Health Organization's provisional guideline value. Three investigations conducted by the Government and the HA had addressed the cause of excess lead in drinking water of PRH developments and recommended control/monitoring measures to prevent recurrence of similar problems. This audit review has focused on follow-up actions on PRH's water sampling tests for lead (paras. 1.7 to 1.9).

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6. ***Discrepancies between the announced sampling test results and source data of the sampling tests.*** The HD had provided the HA and the Legislative Council (LegCo) with regular updates on the “excess lead in drinking water” incident. In March and July 2016, the HA and the LegCo House Committee respectively were informed of the confirmed sample numbers for water sampling tests conducted from July to November 2015. In July 2016, Audit examination of the source data of the water sampling test results revealed some discrepancies with the information reported to the HA and the LegCo House Committee. In response to Audit’s enquiries in August 2016, the HD said that there was an omission in reporting two non-compliant samples taken from Kai Ching Estate after it had been declared as an affected estate. As a result, the total number of non-compliant samples taken from the 11 affected PRH developments reported to the HA and LegCo should have been 93 instead of 91. Moreover, the announced numbers of water samples taken from three developments were also inaccurate. Notwithstanding the discrepancies identified, the total number of affected PRH developments remained unchanged (paras. 3.3 to 3.6).

7. ***Records of decisions on non-compliant and discarded samples not fully maintained.*** From 20 July to 18 November 2015, 29 inter-departmental meetings which were chaired by the Permanent Secretary for Transport and Housing (Housing) and comprised representatives from the HD, the Water Supplies Department (WSD), the Government Laboratory and the Department of Health, had been held to discuss and coordinate matters relating to the sampling of drinking water in PRH developments. However, the HD only prepared decision notes for 22 inter-departmental meetings held from 12 August to 18 November 2015. Decision notes had not been prepared for 7 (24% of the total 29) inter-departmental meetings held from 20 July to 7 August 2015 where important decisions had been made on 55 non-compliant samples (taking follow-up action on 49 of them and discarding the remaining six)(paras. 3.8, 3.10 and 3.12).

8. ***Developing appropriate sampling protocol.*** In July 2016, the LegCo House Committee was informed that: (a) the WSD had commenced follow-up work on the recommendations of the Commission of Inquiry, including engaging expert consultants to conduct a study on developing an appropriate sampling protocol; and (b) the pertinent work was targeted to be completed in six to nine months. An international expert panel was also set up in June 2016 to provide advice on the

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proposed sampling protocol. As the retesting of drinking water of all PRH estates using an appropriate protocol could point to the need for further measures to be taken to safeguard tenants' drinking water safety, the WSD needs to closely monitor the progress of developing an appropriate sampling protocol to ensure that the target completion date will be met (para. 3.15).

9. ***Water sampling/screening tests not conducted for PRH flats in Tenants Purchase Scheme (TPS) estates.*** On 7 August 2015, the Secretary for Transport and Housing cum Chairman of the HA responded to the media that the nature of TPS and Home Ownership Scheme estates was more akin to private residential buildings and the decision to conduct water sampling tests rested with the Owners' Corporations (OCs) concerned. According to HD records, as at 31 March 2016, there were 54,493 PRH flats in 39 TPS estates under the ownership and management of the HA. While the mixed ownership in TPS estates might complicate the conducting of water sampling tests for pipe connections in common areas, there was no evidence to show that the HD had made efforts to liaise with the OCs concerned to sort out the issue. The HD also has full discretion to conduct tests in the same way it provides other maintenance services to the PRH flats in these estates. In response to Audit's enquiry, the HD said that there were practical and technical difficulties in conducting water sampling tests for PRH flats in TPS estates due to the mixed ownership of these estates. The HD also informed Audit that, given the wide and sustained publicity by the Government and the HA, the OCs of TPS estates had been alerted to the issue and had presumably been making decisions as they deemed fit (paras. 3.17, 3.19 and 3.20).

10. ***Relief measures and rectification works for the 11 affected PRH developments.*** Since the incident of excess lead in water came to light in July 2015, the HD and WSD had taken the following measures to provide safe drinking water to tenants of the 11 affected PRH developments:

- (a) ***Relief measures.*** Relief measures included the provision of water wagons/tanks and standpipes, supply of bottled water, installation of temporary water points on each floor of the affected PRH developments and installation of water filters for the affected domestic households free of charge. The HD had also informed tenants of the risk of taking water for consumption directly from taps in the affected estates through a number of channels. According to HD records, as at July 2016, 2,138 (7.4%) of 29,077 domestic premises in the 11 affected PRH

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developments had not been installed with water filters because some households had refused to install filters or returned filters after use or could not be contacted for arranging the installation works. Given the health risk of excess lead in drinking water, the HD needs to continue its effort in contacting households whose flats had not been installed with water filters to consider installing water filters or take other precautionary measures (paras. 3.24, 3.29 and 3.30); and

- (b) ***Permanent rectification works.*** The HA had requested the four contractors concerned to replace at their own expense the non-compliant pipes in the 11 affected PRH developments. As at July 2016, the progress of rectification works in the common areas of the 11 affected PRH developments ranged from 18.5% to 45.6%. The HD's plan was to replace the non-compliant water pipes inside domestic units after completion of the rectification works in the common areas (paras. 3.26 to 3.28).

## Management of asbestos-containing materials in public rental housing estates

11. Asbestos is a proven carcinogen when inhaled. Before the health hazard of asbestos was recognised, it had been widely used for fire-proofing and insulation purposes. Legislative control over asbestos-containing materials (ACMs) in Hong Kong is provided for under the Air Pollution Control Ordinance (APCO — Cap. 311) and the Factories and Industrial Undertakings (Asbestos) Regulation (Cap. 59AD). The HD had banned the use of ACMs in constructing public housing since 1984 and put in place procedures in handling ACMs in 1988. It also conducted a comprehensive survey on ACMs in PRH estates in 1989. According to the HD, the most common building components with ACMs were the balcony/lobby grilles and roof tiles of the HA's older properties (paras. 4.2, 4.5 and 4.6).

12. ***Monitoring of ACMs in PRH estates.*** The HD has laid down guidelines for staff in conducting half-yearly condition surveys of ACMs in balcony/lobby/staircase grilles and chimneys of PRH estates (para. 4.9). Audit has found the following issues:

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- (a) ***Previously unannounced PRH estates/block with ACMs.*** According to the condition survey records from 2010 to 2015, each survey had covered all PRH estates with ACMs as promulgated on the HA website. However, the June 2016 condition survey included five PRH estates/block which according to the HD had not been promulgated previously as their ACMs were at locations inaccessible to tenants and the public. Without proper management and monitoring through condition surveys before 2016, the condition of such ACMs could have deteriorated over the years, thus increasing the risk of asbestos exposure of construction workers and the HD's maintenance staff. Audit also noted that one of the five previously unannounced PRH estates/block with ACMs was built in 1985, suggesting that ACMs might have been used in housing structures after the HD's ban in 1984 (paras. 4.10 to 4.12);
- (b) ***Damaged balcony/lobby grille panels with ACMs.*** In the joint inspections with the HD of two estates with ACMs in balcony grille panels, Audit found six cases of damaged panels warranting more detailed inspections but had not been reported by the condition surveys conducted from 2010 to 2015 under the HD's existing assessment criteria. Audit also found unreported cases of damaged lobby grille panels with un-encapsulated ACMs on two floors of one of the two estates. In the other estate, the record of asbestos-containing balcony grilles which had all along been used for conducting condition surveys and advising tenants of the ACM locations was found to be inaccurate (paras. 4.13 to 4.16); and
- (c) ***Need to strengthen in-flat inspections of ACMs in balcony grilles.*** According to the HD, besides the half-yearly condition surveys at external elevation, asbestos-containing balcony grilles located inside flats are inspected during vacant flat refurbishment, upon request for in-flat repair and during TMS in-flat inspections. However, the condition survey reports of an estate from 2010 to 2013 showed that in-flat inspections only covered 13% of the 2,009 flats with ACMs in balcony grilles. In one case, the un-encapsulated condition of an asbestos-containing balcony grille was not reported in a timely manner (paras. 4.18 to 4.20).

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13. ***Control over works affecting ACMs in PRH estates.*** According to the APCO, all asbestos abatement works or works involving the use or handling of ACMs must be carried out and supervised by registered personnel in compliance with prescribed standards (para. 4.26). Audit has found the following issues:

- (a) ***HD contractors' works affecting ACMs of balcony grilles.*** The HD's guidelines provide that encapsulation of asbestos-containing balcony grille panels in good condition may be handled as normal maintenance works using specified methods. In a case of concrete spalling repair and encapsulation works of the asbestos-containing balcony grille panel in 2015, the photograph taken before works suggested that the condition of the panel might not have been in good condition. However, the repair and encapsulation works involving ACMs were carried out by the HD's RIMS contractor which might not have complied with the APCO requirements/HD's laid-down procedures (para. 4.27);
- (b) ***Tenants' works affecting ACMs of balcony grilles.*** While the HD had posted a notice on the HA website on PRH estates with ACMs, the notice did not contain sufficient details about the exact locations of ACMs for estates where not all flats have ACMs. Warning labels of ACMs were rarely used. Uninformed tenants may inadvertently carry out works that would disturb the ACMs. This was evidenced in 17 cases of air-conditioners and one case of towel rack found installed on the asbestos-containing balcony grille panels of an estate. There was a risk that such works could have disturbed the ACMs and exposed the installation workers/tenants to asbestos (paras. 4.28 to 4.32); and
- (c) ***Suspected case of removal of a chimney with ACMs not in compliance with the APCO requirements.*** In January 2011, the HD advised the owner of a damaged chimney with ACMs in an estate to engage a qualified contractor to rectify the problem. According to the HD, the subject chimney was removed in late July 2011. However, according to the Environmental Protection Department, it had no record of any asbestos investigation report nor an asbestos abatement plan submitted for the removal of the subject chimney, suggesting that the APCO requirements might not have been complied with. While it was the primary responsibility of the chimney owner to meet the statutory requirements under the APCO in removing the chimney, the HD also had a monitoring role to ensure that works carried out by third parties in its managed estates would not compromise tenants' safety (para. 4.34).

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14. ***Follow-up actions on un-encapsulated ACMs in balcony grille panels.*** The HD's Asbestos Management Manual of 2003 stated that "Most asbestos balcony grille panels of properties managed by Housing Department or HA's management agents have been encapsulated. It is intended that the remaining panels also be encapsulated if access and other constraints can be overcome". According to the HD's 1990 ACM records, the interior walls of the asbestos-containing balcony grille panels in 15 flats of Hing Wah (II) Estate had not been encapsulated due to problems in gaining access to these flats. In late July 2016, the HD engaged an asbestos consultant and found that the ACM balcony grille panels of these 15 flats had been fully encapsulated. However, there was no record of the encapsulation works to show whether they had been carried out in compliance with the APCO requirements/HD's laid down procedures. Furthermore, Audit noted that the two un-encapsulated cases as reported in paragraphs 12(c) and 13(a) were not among the 15 flats, indicating that there could be omissions in the HD's 1990 ACM records (paras. 4.37 to 4.39).

### Replacement of laundry pole-holders

15. Some 550,000 PRH flats in estates completed before 2005 were installed with laundry pole-holders for drying laundry. In the past years, there were safety concerns over the use of laundry pole-holders by tenants. To enhance the quality and safety of PRH flats, the HA in 2004-05 launched a one-off subsidy scheme under which each household was only required to pay \$200 (about half the cost) for replacing the pole-holders with laundry racks. In February 2014, the HA approved the replacement of laundry pole-holders with laundry racks at a total estimated cost of \$520 million (paras. 1.11 and 5.2).

16. ***Implementation of the 2004-05 subsidy scheme.*** In 2004 and 2005, the HD implemented the subsidy scheme in two phases. Audit found that the HD only maintained records of laundry rack installation for the first phase. The HA's Subsidised Housing Committee was not informed of the achievement of the subsidy scheme until 2014 when its endorsement for the 2014 replacement programme was sought. The Committee was then informed that based on a large-scale sampling survey, about 10% of the flats with laundry pole-holders had been installed with laundry racks. This was far less than the estimated 30% stated in the 2004 Subsidised Housing Committee's paper when its endorsement of the subsidy scheme was sought (paras. 5.3, 5.4, 5.6 and 5.8).

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17. ***Implementation of the 2014 replacement programme.*** In February 2014, the HD informed the Subsidised Housing Committee that: (a) free replacement would be provided for those tenants opting for the installation of laundry racks. For tenants who did not opt for a new rack, the laundry pole-holders of their flats would be sealed up to avoid further use in order to settle prolonged criticism related to the laundry pole-holders once and for all; and (b) the 2014 replacement programme would last for about three years. As at 31 July 2016, there were 493,697 PRH flats included in the 2014 programme. Among them, 249,326 flats were covered by the first batch contracts awarded in 2015 or before. For the remaining 244,371 flats, they would be covered by the second batch contracts awarded in 2016 and thereafter (paras. 5.9 and 5.11).

18. ***Need to closely monitor the progress of the 2014 programme.*** As at 31 July 2016, of the 42 estates reported having completed works or with planned works schedules which had expired, the laundry rack installation works for 2,702 opted-in flats in six estates and the pole-holder sealing-up works for 4,801 opted-out flats in 10 estates were still outstanding. Of the 15 estates with works due for completion from August to September 2016, six estates had 75% of their opted-in flats (ranging from 51% to 94%) pending laundry rack installation works and 10 estates had 76% of their opted-out flats (ranging from 51% to 99%) pending pole-holder sealing-up works (paras. 5.12 and 5.13).

19. ***Partially sealing up of laundry pole-holders.*** In a sample check of some flats on two estates reported by the HD to have completed or almost completed the sealing-up works for their opted-out flats as at 31 July 2016, Audit found 96 cases of unsealed laundry pole-holders in one estate reported to have completed sealing-up works. In another estate, there were 71 cases of partially sealed up or unsealed laundry pole-holders instead of the reported seven outstanding cases (para. 5.17).

20. ***Recent developments.*** In September 2016, the HD obtained the endorsement of the Subsidised Housing Committee to provide laundry rods at the living room façade in specified block types of the PRH estates at an estimated expenditure of \$386 million. The HD needs to take on board the observations and recommendations in this Audit Report in pursuing the new initiative of providing laundry rods in specified housing blocks (para. 5.20).



### Enhancing fire safety of old public rental housing estates

21. ***Fire Safety (Buildings) Ordinance (FS(B)O — Cap. 572) Requirements.*** Under the FS(B)O which came into effect in 2007, owners of domestic and composite buildings with three storeys or above built on or before 1 March 1987 should comply with the specified fire safety requirements. As at July 2016, there were 64 PRH estates requiring upgrading of their fire safety construction/fire service installations to meet the FS(B)O requirements (paras. 1.12 and 6.10(a)).

22. ***Implementation of the FS(B)O in PRH estates.*** In 2008, the HD agreed with the Buildings Department (BD) and the Fire Services Department (FSD) (i.e. the enforcement authorities of the FS(B)O) on a prototype approach in implementing the FS(B)O in PRH estates. In 2010 and 2014, the HD commissioned three consultancy studies to work out the fire safety improvement proposals for specific PRH block designs for the BD/FSD's vetting. According to the HD's 2014 estimate, the cost of improvement works covering fire safety construction in 51 estates of the slab block design and all fire service installation works, and related consultancy fee would be \$851.7 million (paras. 6.6, 6.7, 6.9, 6.10(d) and 6.12).

23. ***Need to closely monitor the implementation progress.*** Up to August 2016 (nine years after the FS(B)O came into effect), fire safety improvement works for the 64 PRH estates had not been fully completed for compliance with the relevant requirements of the FS(B)O. In particular, the progress in respect of fire safety construction was slow. According to the HD's 2014 tentative programme, Phase I fire safety construction works in the 51 estates of the slab block design were only targeted for completion by 2020-21. For Phase II works covering the remaining blocks, budget and programme would be reviewed upon confirmation of the scope by 2016. As for the three consultancy studies for formulating fire safety improvement proposals for specific PRH block designs which were targeted for completion in mid-2016, as at August 2016, only two studies had been completed. The HD needs to closely monitor the progress of implementing the FS(B)O to avoid further slippage (paras. 6.14 and 6.15).

## Executive Summary

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24. *Need for greater inter-departmental collaboration to implement the FS(B)O in PRH estates.* While the BD/FSD agreed to offer comments on the HD's fire safety improvement proposals for specific PRH block designs, they also remarked that the comments were to facilitate the HD's self-compliance programme of the FS(B)O in PRH estates. In other words, there was still no agreement on the formal acceptance of the fire safety improvement works for the PRH estates. As the HD's fire safety improvement proposals are intended to provide cost-effective solution to meeting the requirements of the FS(B)O in PRH estates, there is a need for greater collaboration among the HD, the BD and the FSD to ensure that the proposed works are efficiently vetted and formally accepted (para. 6.16).

### Audit recommendations

25. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Director of Housing should:**

#### *In-flat maintenance of public rental housing flats*

- (a) **closely monitor the adequacy of follow-up actions taken by the estate offices on inaccessible flats, in particular those flats which were inaccessible in both the first TMS cycle and the first five years of the second TMS cycle (para. 2.24(b));**
- (b) **conduct a review to ascertain whether there are other causes for the increase in RIMS works orders that warrant the HD's management attention (para. 2.32(a));**
- (c) **strengthen the final inspections of contractors' repair works under the TMS and the RIMS to ensure that their quality is up to standard before acceptance (para. 2.42(b));**

## **Executive Summary**

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### ***Management of ACMs in PRH estates***

- (d) for the five PRH estates/block with ACMs not previously announced, expedite action to ascertain their condition and take necessary follow-up action (para. 4.24(a));
- (e) consider providing more guidelines on assessing the nature of damage found in condition surveys of ACMs in PRH estates (para. 4.24(c));
- (f) closely monitor the extent of in-flat inspections to ensure an adequate coverage of all the asbestos-containing balcony grilles within a reasonable time frame (para. 4.24(g));
- (g) strengthen the monitoring and control of the maintenance, repair and demolition works involving ACMs in PRH estates, including those undertaken by third parties (para. 4.35(b));
- (h) take measures to prevent accidental disturbance to ACMs, including labelling all ACMs and posting the ACM notice on the notice boards of relevant estates at all times (para. 4.35(d));

### ***Replacement of laundry pole-holders***

- (i) closely monitor the works progress of the 2014 programme for replacing laundry pole-holders to ensure that the target completion date of 2017 would be met (para. 5.21(c)); and
- (j) carry out a comprehensive review of the reported cases of completed sealing-up works with a view to identifying any irregularities similar to those found by Audit for taking necessary follow-up actions accordingly (para. 5.21(d)).

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### *Follow-up actions on public rental housing's water sampling tests for lead*

26. Audit has *recommended* that the Permanent Secretary for Transport and Housing (Housing) should, when carrying out retesting of the drinking water of PRH estates in accordance with the Commission of Inquiry's recommendation:

- (a) in collaboration with the Director of Water Supplies, strengthen data validation to ensure that information provided to the HA/LegCo is accurate (para. 3.31(a)(i)); and
- (b) take measures to ensure that proper records on all discussions in respect of sampling matters are maintained to support evidence-based decision making (para. 3.31(a)(ii)).

### *Enhancing fire safety of old public rental housing estates*

27. Audit has *recommended* that the Director of Buildings and the Director of Fire Services should work in collaboration with the Director of Housing to ensure that the fire safety improvement works for meeting the FS(B)O requirements in PRH estates are efficiently vetted and formally accepted (para. 6.18).

## Response from the Government

28. The Government generally agrees with the audit recommendations.

## PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

### ***Background***

1.2 ***Hong Kong Housing Authority (HA).*** The HA (Note 1) is a statutory body established in April 1973 under the Housing Ordinance (Cap. 283). It is responsible for implementing a public housing programme to meet the housing needs of low-income families that cannot afford private accommodation. One of its missions is to provide affordable quality housing, management, maintenance and other housing-related services to meet the needs of its customers in a proactive and caring manner.

1.3 ***Housing Department (HD).*** The HD, as the executive arm of the HA, provides secretarial and executive support for the HA and its six standing committees (see Appendix A). The HD also supports the Transport and Housing Bureau in dealing with all housing-related policies and matters. As at 1 June 2016, the HD had 9,080 staff including 4,830 staff in the Estate Management Division, most of them are responsible for the estate management and maintenance of the public rental housing (PRH). An extract of the organisation chart of the HD is at Appendix B.

1.4 ***Maintenance and improvement works.*** As at 31 March 2016, the HA had 756,272 PRH flats in 215 estates (see Table 1), accommodating some two million people or 30% of Hong Kong's total population. To ensure a safe and pleasant living environment for the tenants, and sustain the lifespan and economic value of the PRH estates, the HD has introduced various maintenance and improvement programmes. The recurrent expenditure on maintenance and

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**Note 1:** *The HA has four official members and 25 non-official members. Appointments are made by the Chief Executive of the Hong Kong Special Administrative Region. The Secretary for Transport and Housing assumes the office of Chairman of the HA while the Permanent Secretary for Transport and Housing (Housing) who is also the Director of Housing assumes the office of Vice-chairman.*

## Introduction

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improvement works for all PRH totalled about \$3,090 million in 2015-16. Given the diverse nature of the HD's maintenance and improvement works, this Audit Report only focuses on in-flat maintenance and safety-related improvements of PRH flats (see paras. 1.5 to 1.12).

**Table 1**

**PRH flats in 215 estates  
(31 March 2016)**

Type of estate	Number of estates	Number of PRH flats
PRH/Interim Housing (Note 1)	173	694,433
Tenants Purchase Scheme (TPS) (Note 2)	39	54,493
Buy or Rent Option Scheme (Note 3)	2	4,549
Home Ownership Scheme (Note 4)	1	2,797
Total	215	756,272

Source: HD records

*Note 1: Interim housing is used to accommodate persons who are rendered homeless as a result of natural disasters, emergencies or government actions (such as clearance of unauthorised structures); have stayed in a transit centre for three months and fulfilled the prescribed eligibility criteria for PRH. As Po Tin Estate and Shek Lei (II) Estate comprise both PRH and interim housing blocks/flats, they are counted as two instead of four estates by the HD.*

*Note 2: The TPS was introduced in 1998 by the HA to enable PRH tenants to buy the flats they lived in at a discounted price. While the TPS was discontinued in 2005, PRH tenants of the 39 TPS estates still have the option to buy their flats. As at 31 March 2016, there were 132,770 sold flats in the 39 TPS estates. The unsold PRH flats in these 39 estates are owned and managed by the HA.*

*Note 3: The Buy or Rent Option Scheme was introduced in 1999 by the HA to offer prospective tenants (i.e. waiting list applicants who were eligible for flat allocation within the year, tenants affected by redevelopment and clearance programme, squatter clearerees who had satisfied PRH eligibility criteria and eligible civil servants) a choice to buy or rent PRH flats. The Scheme was discontinued in 2002. As at 31 March 2016, there were 1,429 sold flats in these two Buy or Rent Option Scheme estates. The unsold PRH flats in these two estates are owned and managed by the HA.*

*Note 4: In a Home Ownership Scheme estate, there are four blocks of PRH flats which are owned and managed by the HA.*

### *In-flat maintenance of PRH flats*

1.5 **Total Maintenance Scheme (TMS).** In 2006, the HA launched the TMS to improve the standard of maintenance within all PRH flats (in the four types of estates — see Table 1 in para. 1.4). Since 2009, the TMS has become a rolling programme to proactively inspect the conditions of PRH flats and provide comprehensive repair services. The objectives of the TMS are to provide customer-oriented maintenance services and, together with other planned maintenance programmes, lengthen the lifespan of the HA's assets. The first TMS cycle covering 177 estates (Note 2) was completed in 2011 at a cost of \$912 million. The second cycle was launched in 2011 with the inspection frequency revamped in 2014, taking into account the improved in-flat condition achieved through the first TMS cycle and the age profile of the PRH stock (see Table 2). Since 2014, TMS inspections have been carried out every 10 years for estates aged between 10 and 30, and every five years for those estates aged over 30. As at March 2016, the first five years of the second TMS cycle had been rolled out to 134 estates, with inspections and repair works completed in 120 estates at a cost of \$732 million.

**Table 2**

**Age profile of PRH stock  
(31 March 2016)**

Age	Number of estates	Number of PRH flats
10 years and less	26	90,365 (12%)
More than 10 years and up to 30 years	116	352,231 (47%)
More than 30 years	73	313,676 (41%)
Total	215	756,272 (100%)

Source: HD records

**Note 2:** In 2006, the HA planned to implement the TMS in all PRH flats in five years' time. In 2008, the HA decided to exclude PRH flats in estates aged less than 10.

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1.6 ***Responsive In-flat Maintenance Services (RIMS).*** To further enhance the maintenance services, the HA adopted the TMS model to implement the RIMS progressively in PRH estates in 2008. The RIMS provides a responsive, professional, and customer-oriented in-flat maintenance service to tenants' daily works requests. In 2011, the RIMS was extended to all PRH flats in the four estate types (see Table 1 in para. 1.4). The expenditure under the RIMS was \$500.1 million in 2015-16.

### ***Excess lead found in fresh water samples of 11 PRH developments***

1.7 In July 2015, a Legislative Council (LegCo) Member announced that water samples from a PRH estate (i.e. Kai Ching Estate) had been found to have lead in excess of the World Health Organization (WHO)'s provisional guideline value (PGV) (Note 3). Exposure to lead may adversely affect human health (Note 4). From July to November 2015, the HA and the Government completed water sampling tests for all PRH estates and found that water samples from 11 PRH developments (Note 5) had lead content above the WHO's PGV.

1.8 ***Investigations conducted.*** In view of the excess lead found in the water samples in PRH estates, the Government and the HA respectively conducted the following investigations:

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**Note 3:** *The WHO produces reference values on water quality and human health in the form of guidelines that are used as the basis for regulation and standard setting in developing and developed countries worldwide. The PGV of lead in drinking water set out in the WHO's Guidelines for Drinking-water Quality published in 2011 is 10 micrograms per litre.*

**Note 4:** *Three groups of human population are particularly vulnerable to lead exposure including children, pregnant women and lactating mothers. For example, children with high blood lead level may have adverse neurological effects including reduced intelligence, neuropsychological function and academic achievements, and increased incidence of attention-related and other problem behaviours.*

**Note 5:** *The 11 PRH developments were Ching Ho Estate Phase 1, Choi Fook Estate, Hung Hom Estate Phase 2, Kai Ching Estate, Kwai Luen Estate Phase 2, Lower Ngau Tau Kok Estate Phase 1, Shek Kip Mei Estate Phase 2, Tung Wui Estate, Un Chau Estate Phases 2 and 4, Wing Cheong Estate and Yan On Estate. They were all completed after 2005.*



- (a) ***Task Force on Investigation of Excessive Lead Content in Drinking Water (hereinafter referred to as the Task Force — Note 6).*** The Task Force was set up by the Government in July 2015 to carry out an investigation to ascertain the causes in relation to incidents of lead in drinking water in PRH estates, and recommend measures to prevent recurrence of similar incidents in future. The Task Force published its final report in October 2015;
- (b) ***Review Committee on Quality Assurance Issues Relating to Fresh Water Supply of Public Housing Estates (hereinafter referred to as the Review Committee — Note 7).*** The Review Committee was set up by the HA in July 2015 to review the arrangements for quality control and monitoring in relation to the installation of fresh water supply systems in PRH estates. The Review Committee published its final report in January 2016; and
- (c) ***Commission of Inquiry into Excess Lead Found in Drinking Water (hereinafter referred to as the Commission of Inquiry — Note 8).*** The Commission of Inquiry was appointed by the Chief Executive in Council in August 2015 under the Commissions of Inquiry Ordinance (Cap. 86) to ascertain the causes of excess lead found in drinking water in PRH developments, review and evaluate the adequacy of the regulatory and monitoring system of drinking water, and make recommendations with regard to the safety of drinking water. The Commission of Inquiry issued its report in May 2016.

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**Note 6:** *The Task Force was chaired by the Deputy Director of Water Supplies and its membership included representatives from the Buildings Department, the Department of Health, the Electrical and Mechanical Services Department, the Government Laboratory, the HD and the Water Supplies Department, and academics/experts outside the Government.*

**Note 7:** *The Review Committee comprised the Chairman and seven members, who were members of the HA.*

**Note 8:** *The Commission of Inquiry comprised two Commissioners, one of whom was also the Chairman.*

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1.9 Both the Task Force and the Commission of Inquiry concluded that leaded solder and/or poor workmanship was the direct cause of excess lead found in drinking water in all the 11 PRH developments (Note 9). In their final reports, the Task Force, the Review Committee and the Commission of Inquiry made a number of recommendations with regard to the safety of drinking water in PRH estates and other developments in Hong Kong. As the causes of excess lead in drinking water of PRH developments and the control/monitoring measures necessary to prevent recurrence of similar problems have been adequately addressed by these investigations, this Audit Report mainly focuses on the follow-up actions on the PRH's water sampling tests for lead.

### *Management of asbestos-containing materials in PRH estates*

1.10 Asbestos is a proven carcinogen which can cause asbestosis, lung cancer and mesothelioma (Note 10) when inhaled. Since 1984, the HD has banned the use of asbestos-containing materials (ACMs) in constructing public housing. According to the HD, the majority of ACMs used in pre-1984 PRH estates were either removed, encapsulated or left intact and under monitoring, with the remaining ACMs mainly found in the balcony grilles, lobby or staircase grilles and chimneys of 36 blocks in 17 PRH estates (see Appendix C).

### *Replacement of laundry pole-holders*

1.11 Some 550,000 PRH flats in estates completed before 2005 were installed with laundry pole-holders for drying laundry (see Photograph 1). Laundry pole-holder design had been replaced by laundry racks for PRH estates completed between 2005 and 2010 and by parallel type laundry rods for PRH estates completed from 2011 onwards. In the past years, there were safety concerns over the use of laundry pole-holders by tenants. To encourage the change of laundry pole-holders to laundry racks, the HA in 2004-05 launched a one-off subsidy scheme under which each household was only required to pay \$200 (about half the cost) for

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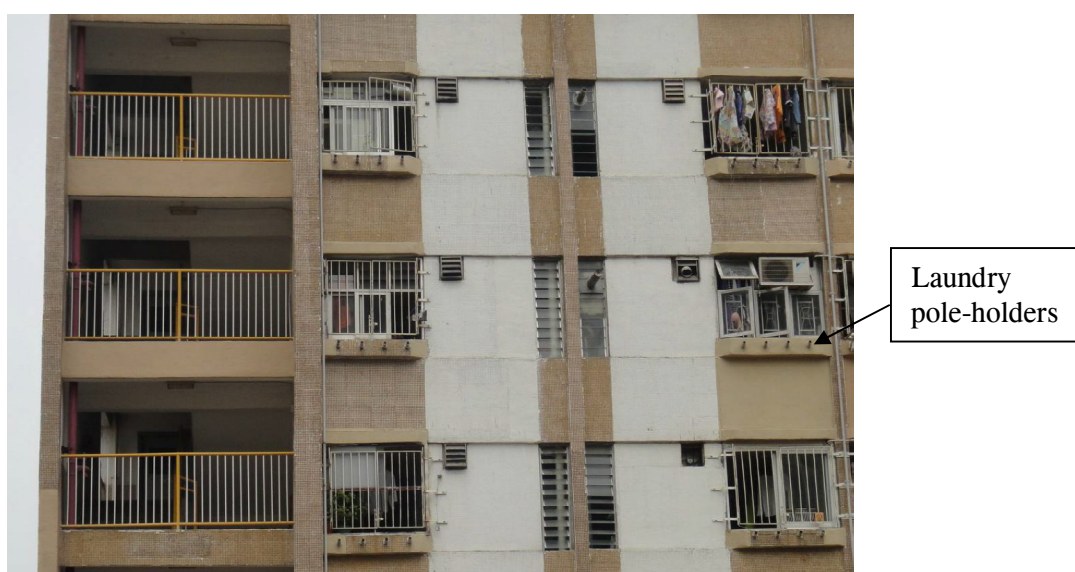
**Note 9:** *According to the Task Force, solder materials could seep into the pipes due to poor workmanship by overheating for an extended period of time and/or applying excessive solder.*

**Note 10:** *Mesothelioma is a rare form of cancer that develops from the protective lining that covers body's internal organs mainly caused by exposure to asbestos.*

replacing the pole-holders with laundry racks (see Photographs 2 and 3 for examples). Tenants might also install the HD's approved types of laundry racks at their own costs. According to the HD, up to February 2014 about 55,000 PRH flats had carried out the replacement works. To enhance the quality and safety of PRH flats, the HA in February 2014 approved the replacement of laundry pole-holders with laundry racks at a total estimated cost of \$520 million.

### Photograph 1

#### Laundry pole-holders



*Source: HD records*

**Photograph 2**

**Perpendicular-type laundry rack**



*Source: HD records*

**Photograph 3**

**Parallel-type laundry rack**



*Source: HD records*

### *Enhancing fire safety of old PRH estates*

1.12 Under the Fire Safety (Buildings) Ordinance (FS(B)O — Cap. 572) which came into effect in 2007, owners of domestic and composite buildings with three storeys or above built on or before 1 March 1987 should comply with the specified fire safety requirements. According to the HD's implementation programme in 2014, there were 62 PRH estates involving 238,034 flats built on or before 1 March 1987 which required the upgrading of their fire safety construction/fire service installations (Note 11). Two estates (Ping Shek and Fuk Loi) had been selected as pilot projects (see para. 6.8) for fire safety construction/fire service installations, which were scheduled for completion in 2018-19 and 2019-20 at a total estimated cost of \$27.2 million. For the remaining 60 estates, the fire safety construction would be carried out in two phases. Phase I fire safety construction covering the blocks with slab block design in 51 estates were targeted for completion by 2020-21. Review on budget and programme for Phase II fire safety construction covering the other blocks with non-slab block design would be conducted upon confirmation of the scope by 2016. All fire service installation works for 60 estates were scheduled for completion within Phase I. The total estimated cost of Phase I works and related consultancy fee was \$851.7 million.

### **Audit review**

1.13 In April 2016, the Audit Commission (Audit) commenced a review to examine the HD's maintenance and safety-related improvements of PRH flats with a view to identifying room for improvement. The review has focused on the following areas:

- (a) in-flat maintenance of PRH flats (PART 2);
- (b) follow-up actions on PRH's water sampling tests for lead (PART 3);
- (c) management of ACMs in PRH estates (PART 4);

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**Note 11:** *Fire safety construction refers to structurally built fire safety elements. Examples are means of escape and fire fighting access. Examples of fire service installations are fire alarm system, fire hydrant and hose reel system.*

## Introduction

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- (d) replacement of laundry pole-holders (PART 5); and
- (e) enhancing fire safety of old PRH estates (PART 6 — Note 12).

Audit has found room for improvement in the above areas and has made a number of recommendations to address the issues.

## General response from the Government

1.14 The Director of Housing in general agrees with the observations and recommendations in this Audit Report. He has said that:

- (a) the audit review has been of great value to the HD; and
- (b) on PART 4 of the Audit Report, as management of ACMs concerns the health of tenants and workers, the HD has been working with relevant government departments to identify issues and act on them as soon as possible.

## Acknowledgement

1.15 Audit would like to acknowledge with gratitude the assistance and full cooperation of the staff of the HD, the Buildings Department (BD), the Environmental Protection Department (EPD), the Fire Services Department (FSD) and the Water Supplies Department (WSD) during the course of the audit review.

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**Note 12:** *In October 2013, Audit completed a review of “Government’s efforts to enhance fire safety of old buildings” focusing on the implementation of the Fire Safety (Commercial Premises) Ordinance (Cap. 502) and the FS(B)O by the Buildings Department and the Fire Services Department.*

## **PART 2: IN-FLAT MAINTENANCE OF PUBLIC RENTAL HOUSING FLATS**

2.1 This PART examines the in-flat maintenance provided for PRH flats, focusing on the following areas:

- (a) implementation of the TMS, including access rate, inspection standard/quality control, education and manpower arrangements (paras. 2.12 to 2.23);
- (b) implementation of the RIMS, including increase in repair works and compliance with service standards (paras. 2.26 to 2.31);
- (c) monitoring of the contractors' repair works, including compliance with verification requirements and unsatisfactory repair works (paras. 2.34 to 2.41); and
- (d) management information system (paras. 2.44 to 2.46).

### **Maintenance programmes for public rental housing flats**

#### ***TMS***

2.2 In 2006, the HA launched the TMS with the objectives to provide customer-oriented maintenance services and, together with other planned maintenance programmes, lengthen the lifespan of the HA's assets. A TMS Unit (Note 13) was set up in the Estate Management Division to implement the initiatives.

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**Note 13:** *The TMS Unit, headed by a Senior Maintenance Surveyor, is now under the Project Management Section of the Estate Management Sub-Division (3) (see Appendix B). As at 30 June 2016, the TMS Unit had a strength of 70 professional, technical and supporting staff, 115 In-flat Inspection Ambassadors and 16 Building Services Ambassadors.*

## **In-flat maintenance of public rental housing flats**

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**2.3 Operational arrangements of the TMS.** According to the inspection cycle of the TMS (Note 14), the TMS Unit coordinates with the HD's estate offices (Note 15) or Property Services Agents (PSAs — Note 16) to arrange in-flat inspections of PRH flats in estates. The inspection is carried out by TMS teams, each comprising an In-flat Inspection Ambassador (IIA — see para. 2.22) and two staff of the HD's maintenance contractor. According to the inspection checklist issued to the TMS teams, the inspection covers 12 common wear-and-tear elements which may affect the in-flat structural, safety and hygiene conditions, including ceiling, wall, floor, window, drainage, plumbing, door, gate, electrical installation, communal aerial broadcast distribution, security system and gas installation. The major stages of the TMS's work in an estate are shown at Appendix D.

**2.4 Progress of the TMS.** The first five-year cycle of the TMS was launched in 2006 and completed in 2011, with 468,622 (77.6%) of the 603,792 PRH flats in 177 estates inspected and provided with repair services. The second TMS cycle commenced in 2011. As at 31 March 2016, the first five years of the second TMS cycle had been rolled out to 134 estates (in accordance with the revised inspection frequency — see para. 1.5) with inspections and repair works completed in 294,738 (78.4%) of 375,703 PRH flats in 120 estates. A comparison of the operational data of the first TMS cycle and the first five years of the second TMS cycle (including the number of flats inspected, works orders issued and costs involved) is shown at Appendix E.

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**Note 14:** *According to the HD, older estates would be given higher priority for in-flat inspection. To spread out the workloads amongst regions, the oldest estates of each region would be selected for in-flat inspection first.*

**Note 15:** *Each estate office of the HD is responsible for the tenancy and property management in an estate.*

**Note 16:** *The HD has outsourced the property management of about 60% of the PRH estates to PSAs. Depending on the scope of services under the PSA contracts, they may perform a range of property management duties including cleaning, security, rent collection, minor maintenance and repairs, and improvement works. The PSAs are supervised by the HD's Property Service Administration Unit under the six regions (see Appendix B).*



2.5 ***HD's reviews of the TMS.*** The HD had conducted reviews of the TMS from time to time. In its review of January 2008, the HD recommended the implementation of the TMS as a permanent programme and the launch of the RIMS (see para. 2.7). In another review after completion of the first cycle of the TMS in March 2011, the HD recommended:

- (a) making arrangements to ensure access for inspection/repair to previously inaccessible flats. For the enhancement of access rate, a new promotion and publicity exercise should be re-introduced. For un-cooperative tenants who persistently denied access to their flats for inspection/repair, consideration should be given to imposing penalty (see para. 2.14);
- (b) inclusion of the requirements of the Mandatory Window Inspection Scheme (MWIS — Note 17) in the window inspections and repair works of the TMS (see para. 2.15);
- (c) enhancing publicity in estates where the TMS was about to start to arouse tenants' interest in in-flat maintenance (see para. 2.20); and
- (d) conducting more frequent quality auditing and performance verifications to ensure that the TMS's work would be carried out with quality (see para. 2.34).

In the 2014 review, the HD noted that works orders issued for four major repair items (including water seepage and concrete spalling) in 48 estates (for which in-flat inspections under the two TMS cycles had been completed as at December 2014) had decreased from 146,680 in the first cycle by 43% to 83,750 in the second cycle. The HD's inspection findings also revealed that the physical quality of the PRH estates had been greatly improved with the implementation of the TMS.

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**Note 17:** *The MWIS introduced under the Buildings Ordinance (Cap. 123) requires owners of buildings aged 10 or above and served with statutory notices to appoint a Qualified Person to carry out the prescribed inspection and supervise the prescribed repair works found necessary of all windows of the buildings. Under a Memorandum of Understanding between the HA and the BD, the HA is committed to adhering to the requirements of the Buildings Ordinance. For PRH estates which were partly or wholly sold, such as estates under the TPS, they are subject to the Buildings Ordinance.*

## **In-flat maintenance of public rental housing flats**

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2.6 *User surveys.* The HA conducts regular customer satisfaction surveys to collect tenants' opinions on the implementation of the TMS. The survey covers the scope and workflow of the TMS teams, the standard of service, the satisfactory level on the repair works, tenants' awareness regarding their responsibility for the in-flat facilities, and tenants' expectation on the TMS. According to the results of the surveys conducted during 2011 to 2015, the overall satisfaction rate of respondents was maintained at about 80%.

### ***RIMS***

2.7 Drawing on the success of the TMS and aiming at enhancing the maintenance services for PRH flats, the HD rolled out the RIMS in 2008. The RIMS aims to provide quality minor in-flat maintenance service in a responsive manner through prompt response to works requests, close liaison with tenants and better control of works quality.

2.8 *Operational arrangements of the RIMS.* Dedicated In-flat Technical Teams (ITTs) mirroring the TMS teams have been set up in District Maintenance Offices (DMOs — see Appendix B) or PSAs (see Note 16 to para. 2.3) of the HD to promptly respond to tenants' repair requests. Each ITT, comprising a DMO/PSA staff and one or two maintenance contractor's staff, carries out in-flat inspections of the PRH flats and issues minor works orders or estate works orders (for more complicated works) to the contractors to carry out the repair works. ITTs make use of the Personal Digital Assistant and the HD's computer system for the processing of works requests, inspection and repair works. The major stages of the RIMS's work are shown at Appendix F.

2.9 *Progress of the RIMS.* The RIMS was introduced progressively for existing estates in 2008 and extended to newly completed PRH estates in 2011. As at March 2016, the RIMS was fully implemented in the 215 estates with PRH flats. An analysis of operational data of the RIMS from 2011-12 to 2015-16 (including the number of works orders issued and costs involved) is shown at Appendix G.

2.10 ***HD's reviews of the RIMS.*** In January 2011, the HD conducted a review to determine the workflow and the way forward for the RIMS. It was proposed to implement the RIMS for all newly completed PRH estates upon handover to the Estate Management Division. In May 2012, the HD conducted a review of service standards of the RIMS (see para. 2.29).

2.11 ***User surveys.*** The HA conducts regular customer satisfaction surveys to collect tenants' views on the RIMS. According to the results of the surveys conducted during 2012 to September 2015, the overall satisfaction rates of respondents on the RIMS ranged from 75% to 81.5%.

### **Implementation of the Total Maintenance Scheme**

2.12 The implementation of the TMS uses a three-pronged approach: (a) identifying maintenance problems by proactively inspecting PRH flats; (b) responding promptly to tenants' maintenance requests; and (c) enhancing publicity and education. Audit has found room for improvement in a number of areas (see paras. 2.13 to 2.23).

#### ***Measures to improve the access rate of in-flat inspections***

2.13 The TMS, together with other planned maintenance programmes, would help lengthen the lifespan of the HA's assets. To this end, in-flat inspections and repair works should be completed for all PRH flats. The HD has laid down the following guidelines on conducting in-flat inspections:

- (a) three attempts to visit each PRH flat should be made by the TMS teams. Tenants may also make appointments for in-flat inspections; and
- (b) inspections should be conducted generally from 9:30 a.m. to 5:00 p.m. from Monday to Saturday. Inspection operations on Sundays or public holidays shall be made by appointment and agreed by the HD's Assistant Clerk of Works in-charge or above.

## **In-flat maintenance of public rental housing flats**

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2.14 *HD's measures to enhance access rate.* In the 2011 review of the TMS, the HD proposed the following improvement measures to enhance the access rate of the TMS and to ensure access for inspection/repair for those inaccessible flats:

- (a) introducing an incentive scheme (e.g. giving award to the block with the highest access rate) to encourage tenants giving access for inspection;
- (b) re-introducing a new promotion and publicity exercise in the coming programme; and
- (c) considering imposing penalties on un-cooperative tenants who deny the TMS teams' access to their flats for inspection or repair. These include issuing warnings, deducting points under the Marking Scheme for Estate Management Enforcement (hereinafter referred to as the Marking Scheme — Note 18) and enforcing the Tenancy Agreement as the last resort to gain access to their flats.

According to the HD, over the years, Estate Management Advisory Committees' (Note 19) members were requested to encourage tenants to allow access for the TMS. To promote the TMS, a mini Mobile Education Booth (see Note 24 to para. 2.20) was set up at the lobby of the block running the TMS. In respect of the proposed penalties, the HD informed Audit in August 2016 that warning letters had been issued on some occasions. However, no points had been deducted under the Marking Scheme in relation to the TMS inspections and repairs.

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**Note 18:** *The Marking Scheme was introduced by the HA to ensure environmental hygiene and effective management of PRH estates. The Marking Scheme covers 28 misdeeds, each of which carries 3, 5, 7 or 15 penalty points according to the degree of seriousness involved. When a PRH household has accrued 16 points within two years, its tenancy is liable to termination.*

**Note 19:** *The Estate Management Advisory Committee, comprising HD staff and representatives of tenants, is an estate-based committee. The establishment of such committees aims to promote communication between tenants and front-line management staff, and encourage tenants' participation in estate matters with a view to enhancing effectiveness and efficiency of estate management.*

2.15 The 2011 review also endorsed the inclusion of the requirements of the MWIS in the window inspections and repair works of the TMS (see para. 2.5(b)). The Independent Checking Unit (Note 20) under the Permanent Secretary for Transport and Housing (Housing)'s Office was responsible for selecting blocks in estates for MWIS inspection. For PRH blocks selected for MWIS inspection, a Qualified Person would join the relevant TMS team to conduct a TMS cum MWIS inspection of each PRH flat. For the inaccessible flats, the HD takes stringent actions including deducting points under the Marking Scheme and enforcing the Tenancy Agreement. Audit analysed the access rates for the TMS in-flat inspections with and without MWIS inspections and the results are shown in Table 3.

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**Note 20:** *The Independent Checking Unit was set up by the HA in 2000 for implementing administrative building control measures in parallel to the practices of the BD on the HA's new construction projects and alteration and addition works for existing properties in estates which are not subject to the Buildings Ordinance. The Unit subsequently also took up the role for enforcing the Buildings Ordinance under the authority delegated by the BD concerning existing properties in estates and courts which were developed by the HA and had been partly or wholly sold (e.g. processing of applications for approval and consent of alteration and addition works). The Unit has been further detached from the HD in organisation and placed under the Transport and Housing Bureau since 2015.*

**Table 3**

**Comparison of access rates for  
TMS in-flat inspections with and without MWIS inspections  
(2011 to March 2016)**

<b>Item</b>	<b>TMS in-flat inspections</b>		
	<b>With MWIS inspections</b>	<b>Without MWIS inspections</b>	<b>Overall</b>
Number of estates involved (a)	18	102	120
Number of flats involved (b)	32,894	342,809	375,703
Number of flats inspected (c)	31,857	262,881	294,738
Access rate (d) = ((c)/(b) × 100%)	96.8%	76.7%	78.4%

*Source: Audit analysis of HD records*

2.16 **Areas for improvement.** As can be seen from Table 3, TMS in-flat inspections with MWIS inspections which were backed up by penalty measures for inaccessible flats achieved a higher access rate of 96.8% than the 76.7% for those without MWIS inspections. This shows that penalty measures could serve as an effective deterrent for inaccessible cases. While the overall access rate for in-flat inspections was 78.4% which was higher than 77.6% of the first TMS cycle (see Appendix E), the lower access rate of 76.7% for the TMS without MWIS inspections warranted the HD's management attention. In particular, of the 80,965 (375,703 minus 294,738) inaccessible flats, 24,455 (30%) flats were inaccessible in both the first TMS cycle and the first five years of the second TMS cycle. In Audit's view, the HD needs to step up measures to improve the access rate of in-flat inspections, including imposing penalty on those repeatedly un-cooperative tenants. In this connection, Audit noted other areas for improvement:

- (a) *Appointment services.* The HD's guidelines have provided for inspections on Sundays and public holidays on an appointment basis (see para. 2.13(b)). In response to Audit's enquiries, the HD in August 2016 said that inspections were not normally arranged on Sundays and public holidays as repair works causing noise nuisance could not be carried out due to legislative control. In Audit's view, there is still a need to arrange inspections/repair works on Sundays and public holidays as far as practicable to cater for tenants' genuine needs; and
- (b) *Use of management information.* While the TMS teams had input into the HD's computer system the reasons for not gaining access for each unsuccessful visit, the management report generated by the computer system only showed the total numbers of unsuccessful visits, tenants' refusal cases and not-at-home cases. There was no analysis on an individual-flat basis to facilitate the identification of which inaccessible flats were due to tenants' refusal or not-at-home for planning specific follow-up actions (see para. 2.46).

2.17 *Need to closely monitor the follow-up actions on inaccessible flats.* After completion of TMS in an estate, the estate office or PSA concerned should take follow-up actions on the following cases of inaccessible flats:

- (a) according to the briefing materials for staff when launching the RIMS, for flats inaccessible for inspection after three unsuccessful attempts by the TMS teams, the estate office or PSA should watch out for any requests for repair works from the tenants concerned under the RIMS and take the opportunity to conduct a comprehensive in-flat inspection (see para. 2.3); and
- (b) according to HD guidelines, for flats inaccessible for TMS repair works (e.g. due to tenants' refusal), the estate office or PSA should continue to arrange access to the flats concerned for the necessary repair works.

2.18 Audit sample check of the records in six selected estate offices (Note 21) revealed that:

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**Note 21:** *The selected estates cover the six regions of the Estate Management Division (see Appendix B).*

## **In-flat maintenance of public rental housing flats**

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- (a) for 300 selected PRH flats which had not been inspected under the TMS from 2011 to 2014, no comprehensive in-flat inspection was conducted even when the tenants concerned subsequently made requests for repair works in their flats under the RIMS; and
- (b) for another 300 selected PRH flats of which TMS repair works on concrete spalling could not proceed due to tenants' refusal or flats inaccessible from 2011 to 2014, the estate offices/PSAs were only able to complete the repair works for 76 (25%) flats. Concrete spalling poses a safety risk to tenants.

In Audit's view, the HD needs to closely monitor the adequacy of follow-up actions taken by the estate offices/PSAs on inaccessible flats, in particular those flats which were inaccessible in both the first TMS cycle and the first five years of the second TMS cycle.

### ***Need to improve the in-flat inspection performance of TMS teams***

2.19 The HD has set inspection standards for monitoring the performance of the TMS teams. The Service Audit Team set up under the TMS Unit conducts performance audits regularly to assess the service level of the TMS teams (Note 22). Eight estates should be selected for performance audits each year. In each performance audit, the Service Audit Team assesses the activities of the TMS team including the preparation process, in-flat inspection and maintenance service process, and handy works monitoring process and closure arrangement. Audit review of the results of the Service Audit Team's checking of the TMS teams' performance in 30 estates during 2012-13 to 2015-16 revealed that the TMS teams achieved total scores of 60 to 90 marks for each of the 30 estates (against a passing mark of 60). However, the Service Audit Team generally gave low scores to the TMS teams' in-flat inspection and maintenance service process as follows:

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**Note 22:** *The Service Audit Team, comprising professional, site supervisory staff and Assistant Training Managers, assesses the service level of the TMS teams by means of actual field observations and collecting information and records from relevant personnel. On completion of a performance audit, the Service Audit Team submits a report summarising the findings with recommendations to the management of the TMS Unit.*



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- (a) in 20 (67%) estates, the average number of flats inspected by the TMS teams per day could not meet the inspection standards (see Appendix H); and
- (b) in 23 (77%) estates, the performance of the IIAs could not meet the service standard mark of 65 (i.e. ranging from 51 to 64.7 — Note 23).

In light of the checking results, there is a need for the HD to strengthen the training and assistance for the TMS teams with a view to improving their performance in the in-flat inspection and maintenance service process.

### ***Need to enhance maintenance education programme***

2.20 ***Greater efforts needed to set up Mobile Education Booths.*** Maintenance education is one of the main objectives of the TMS (see para. 2.12(c)). The HD has used Mobile Education Booths (Note 24) in estates to promote the TMS and solicit tenants' cooperation for smooth implementation of the TMS. Prior to the commencement of the TMS in an estate, a Mobile Education Booth should be set up in the estate for two days to strengthen communication with the tenants. From May 2011 to March 2016, the TMS was rolled out in 134 estates. However, a Mobile Education Booth was not set up in 25 (19%) estates, of which 22 were TPS estates and three were on outlying islands. Of these 25 estates, nine had access rates below the average of 78.4% (see Table 3 in para. 2.15), ranging from 42% to 78%. In response to Audit's enquiries, the HD said that a Mobile Education Booth was not set up in these estates because it was considered less economical to do so as there were fewer PRH flats, and the legitimate right of Owners' Corporations (OCs) in TPS estates for not granting access for the set up of booths needed to be respected. However, Audit noted from the HD's 2011 review that more than 95% of respondents had expressed that the Mobile Education Booth should be regularly held at their estates in view of its usefulness. In view of the users' positive feedback, the HD needs to make greater efforts to set up a Mobile Education Booth

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**Note 23:** *During the performance audit, the Service Audit Team participates in the in-flat inspections and evaluates the performance of the IIAs. If the scores of the IIAs are below the service standard mark, responsible Clerk of Works staff will be informed to coach and guide the IIAs to improve their customer service skill.*

**Note 24:** *A Mobile Education Booth provides exhibition panels, model of water closet, wash basin, aluminium window and an interactive game to promote in-flat maintenance of the TMS.*

## **In-flat maintenance of public rental housing flats**

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in estates (in particular those with records of below-average access rates) with a view to promoting the TMS and soliciting the tenants' cooperation for its implementation.

**2.21     *Need to enhance education for tenants on tenant-to-pay items.*** The repair works of PRH flats might involve some tenant-to-pay items (e.g. for wilful damage or damage arising from improper use). There are 24 tenant-to-pay items (e.g. replacement of door lock and water cistern) and the amounts chargeable to tenants per item range from \$300 to \$4,950. Charges are reduced for households with financial hardship. During the in-flat inspections, the TMS teams would explain the arrangement of the tenant-to-pay items to the tenants. However, according to the HD's 2011 to March 2015 customer satisfaction surveys on TMS (see para. 2.6), on average, 38% of the tenants expressed that they were unclear/very unclear about the tenant-to-pay items. According to the HD, for defects which belonged to the tenant-to-pay items, tenants might not procure the necessary repair services. However, such minor tenant-to-pay items, if not tackled properly, could deteriorate into major maintenance issues. In Audit's view, the HD needs to enhance the education for tenants on their responsibility for the tenant-to-pay items and on home caring to help them prevent damage arising from improper use.

### ***Need to review manpower arrangements for the TMS***

**2.22     *Need to address high turnover of IIAs.*** As at March 2016, the HD engaged a total of 114 IIAs from the consultancy firms for carrying out in-flat inspections. Over the years, there was a high turnover of IIAs. From 2011-12 to 2015-16, on average, 57 (50%) of the 114 IIAs resigned each year. The high turnover of the IIAs could result in low productivity of in-flat inspections and wastage of the HD's resources on their training. In the 2011 review, in view of the TMS becoming a regular programme, the HD considered that it was more desirable for the in-flat inspections and arrangement of repair works to be taken up by the in-house staff rather than the staff from the consultancy firms. The HD subsequently converted 10 IIA posts into civil service posts. In Audit's view, the HD needs to take effective measures to address the high turnover of IIAs with a view to minimising the adverse effects on the operation of the TMS.

2.23 *Need to review manpower requirement of IIAs and TMS teams.* The HD has engaged, on average, 114 IIAs each year since 2011-12 for carrying out the in-flat inspections of PRH flats. Audit review of the TMS records noted the following:

- (a) *Reduced workload due to revised inspection frequency.* Following the revamp of inspection frequency in 2014, in-flat inspections would be conducted every 10 years (instead of five years in the first TMS cycle) for estates aged between 10 and 30 years (see para. 1.5). As a result, the number of estates completed in the first five years of the second TMS cycle from 2011 up to March 2016 was 120, i.e. 57 (32%) less than the 177 in the first cycle (see para. 2.4); and
- (b) *Reduced workload due to fewer works orders.* According to the HD, the physical quality of PRH estates had been greatly improved since the implementation of the first TMS cycle. As a result, works orders issued for four major repair items in 48 PRH estates in the second TMS cycle had dropped by 43% when compared with those in the first cycle (see para. 2.5).

In view of the above observations, the HD needs to review the manpower requirement for the TMS's work with a view to optimising the TMS resources.

### **Audit recommendations**

2.24 *Audit has recommended that the Director of Housing should:*

- (a) **step up measures to improve the access rate of in-flat inspections, including imposing penalty on those repeatedly un-cooperative tenants;**
- (b) **closely monitor the adequacy of follow-up actions taken by the estate offices/PSAs on inaccessible flats, in particular those flats which were inaccessible in both the first TMS cycle and the first five years of the second TMS cycle;**
- (c) **strengthen the training and assistance for the TMS teams with a view to improving their performance in the in-flat inspections and maintenance service process;**

- (d) **make greater efforts to set up a Mobile Education Booth in estates (in particular those with records of below-average access rates) with a view to promoting the TMS and soliciting the tenants' cooperation for its implementation;**
- (e) **enhance the education for tenants on their responsibility for the tenant-to-pay items and on home caring to help them prevent damage arising from improper use; and**
- (f) **take effective measures to address the high turnover of IIAs with a view to minimising the adverse effects on the operation of the TMS and review the manpower requirement for the TMS's work with a view to optimising the TMS resources.**

## **Response from the Government**

2.25 The Director of Housing agrees with the audit recommendations. He has said that:

- (a) the TMS is a proactive customer-oriented maintenance services scheme. The HD has from time to time reviewed the effectiveness of the scheme and devised measures to increase the access rate of in-flat inspections. It will continue to implement these measures and explore opportunities to enhance the access rate. It will also review the effectiveness of the current operations and may consider setting target on access rate as a key performance indicator for the TMS;
- (b) the HD will continue to review the current operations to ensure that repairs are carried out in a cost-effective way and seek opportunity to enhance the follow up process for inaccessible flats. However, the TMS and the RIMS are designed for different purposes and hence their set-ups are different. The TMS is a planned maintenance service while the RIMS aims to provide quick responses to tenants' requests. Due to tenants' preference, the HD can only take the RIMS as the occasion to remind the tenants for arrangement of a comprehensive inspection;

- (c) for the continued improvement in the TMS, the HD has initiated the internal audit by the Service Audit Team to review the service standard, explore areas for improvement and identify training needs to TMS teams. The HD agrees to continue to strengthen the training and assistance for the TMS teams especially for those relatively inexperienced IIAs as necessary;
- (d) the HD agrees to set up a Mobile Education Booth in all estates, including TPS estates subject to permission of their OCs;
- (e) the HD agrees to continue to educate tenants about their responsibility of proper in-flat maintenance. Customer satisfaction surveys have been regularly used as a tool to identify areas for improvement. Education effort in the past enabled the majority of tenants understand the tenant-to-pay items; and
- (f) the HD has noted the high turnover of IIAs and has explored measures to tackle the situation, including reviewing the means for better mode of process control for TMS inspection and works supervision. The HD agrees to continue to review the function of IIAs and their effectiveness with a view to optimising the TMS resources.

### **Implementation of the Responsive In-flat Maintenance Services**

2.26 The objective of the RIMS is to provide responsive quality in-flat minor maintenance services to PRH tenants. Audit noted an increasing trend of repair works orders and service standards not always met.

#### ***Need to ascertain the reasons for the increase in repair works under the RIMS***

2.27 In the 2008 review of the TMS (see para. 2.5), the HD anticipated that once the repair works for a PRH flat were completed under the TMS, the same flat would not need to undergo major repairs in the following years. The increase of the cost for PRH flats under the TMS was considered justifiable as it reflected the cost involved in providing proactive and prompt services. In the 2014 review, the HD noted that despite the improved internal condition of domestic flats through the implementation of the TMS, works orders issued under the RIMS had increased by 26.7% from 2012 to 2013. The HD attributed the increase to the following:

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- (a) one of the objectives of the TMS was to educate tenants on the basic maintenance knowledge during the in-flat inspections so as to raise their awareness in reporting defects inside their flats for timely repair thus preventing minor maintenance problems developing into serious ones; and
- (b) the increase in works orders under the RIMS reflected tenants' higher awareness in reporting the in-flat defects.

2.28 Audit noted that the works orders issued under the RIMS had increased from 270,815 in 2011-12 by 55% to 420,155 in 2015-16 (see Appendix G). In response to Audit's enquiry, the HD said that the RIMS performance in estates had been regularly reviewed by making reference to the flats with large number of works orders issued (i.e. 10 or more). The HD considered that the reasons for the increase of RIMS works orders also included:

- (a) ***Ageing of the PRH stock.*** The PRH stock over 30 years of age increased from 24% in March 2011 to over 40% in March 2016;
- (b) ***Increase of the PRH stock.*** Between 2011-12 and 2015-16, there was an increase of 4.6% of PRH flats; and
- (c) ***Effect of the initial pick up upon the full implementation of RIMS in 2011.*** With the success of its promotion and improved maintenance service to tenants, the number of works orders increased progressively in the first two years and became more or less steady from 2013-14.

However, as shown in Appendix G, the average number of works orders issued per PRH flat continued to increase from 0.50 in 2013-14 to 0.56 in 2015-16. Audit also noted from the HD's reviewed cases that there were some repeated orders involving the same works types and locations within a short period of time (Note 25), suggesting that there could be unsatisfactory contractors' repair works (also see para. 2.40). In Audit's view, the HD needs to conduct a further review to ascertain whether there are other causes for the increase in RIMS works orders that warrant the HD's management attention. In this connection, the HD may make use of the

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**Note 25:** *For example, in one case, three works orders for the replacement of drainage pipes for the toilet of a flat were issued on 22, 27 September and 16 December 2011.*

Maintenance Information Sub-system (see para. 2.46) to assist in trend analysis of repair works by works types and identifying cases of recurring defects after repair works. The HD may also consider including questions in the customer satisfaction surveys to gauge tenants' views.

### ***Need to improve the RIMS service standards of estate offices***

2.29 In March 2011, the Estate Management Division of the HD issued an instruction setting out nine service standards which would be applicable to all works requests referred to the ITTs under the RIMS. The six regions of the Estate Management Division (see Appendix B) should aim to meet the service standards each month. The Performance Verification Team of the Estate Management Division conducts performance verifications periodically (Note 26) in selected estates to review the operation of DMOs/PSAs including the evaluation of target achievement and repair works of the RIMS. In each month, the HD compiles management reports showing the achievement of three service standards of the RIMS (i.e. in respect of inspection, minor repair works and estate works orders — see Items 1 to 3 in Appendix I) in all estate offices. For the other six service standards (i.e. Items 4 to 9 in Appendix I), the HD assesses the achievement of selected estate offices based on the results of performance verifications conducted by the Performance Verification Team.

2.30 ***Service standards not always met in estates.*** According to the HD's monthly management reports from 2011 to 2015, the service standards 1 to 3 had been met since December 2012 each month. However, Audit review of the results of performance verifications conducted in 304 selected estates (Note 27) during 2011 to 2015 revealed that only 25 (8%) of them could meet all the nine service

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**Note 26:** *The Performance Verification Team, comprising Chief Technical Officers, Maintenance Surveyors and site staff, conducts performance verifications to review the operation of DMOs, PSAs and TMS teams periodically on the quality of works performance monitoring and staff management. Performance verification reports summarising the findings and recommendations are distributed to the relevant Senior Clerk of Works and Clerk of Works for taking follow-up actions. According to the HD, the performance verifications will be utilised as a training tool to cultivate a quality culture amongst technical staff and promote quality consciousness but not fault findings.*

**Note 27:** *Some estates were selected more than once for conducting performance verifications.*

standards (see Appendix I). For the remaining 279 (304 minus 25) selected estates not fully meeting the nine services standards, their overall non-compliance rates for individual service standards ranged from 14% to 57%. In Audit's view, the HD needs to take measures to improve the performance of the estate offices, in particular those which failed to meet the service standards repeatedly.

### ***Need to review the arrangements of selecting estates for conducting performance verifications***

2.31 From 2011 to 2015, the Performance Verification Team conducted performance verifications in 131 (65%) of the 202 estates with PRH flats completed on or before 2011. While 71 (202 minus 131) estates were not selected for performance verification for the past five years, 85 (65%) of the 131 estates were each selected twice or more. In Audit's view, the HD needs to review the arrangements of selecting estates for performance verification taking into account the need to cover all estates within a reasonable time frame among other risk factors.

## **Audit recommendations**

2.32 **Audit has recommended that the Director of Housing should:**

- (a) **conduct a review to ascertain whether there are other causes for the increase in RIMS works orders that warrant the HD's management attention;**
- (b) **take measures to improve the performance of the estate offices, in particular those which failed to meet the service standards repeatedly; and**
- (c) **review the arrangements of selecting estates for performance verification taking into account the need to cover all estates within a reasonable time frame among other risk factors.**



## **Response from the Government**

2.33 The Director of Housing generally agrees with the audit recommendations. He has said that:

- (a) the HD will continue to review the RIMS operation regularly to explore areas for improvement;
- (b) the service standards were internal targets set when the RIMS was launched in 2011. In light of the experience of the past years, the HD will review these targets taking into consideration the resource input and other constraints; and
- (c) the identification of target estates for performance verification is on a need basis. Estates suspected with performance issue or with higher potential risk will warrant more frequent visits. The HD agrees to continue to review from time to time the selection criteria of estates for performance verification.

## **Monitoring of contractors' repair works**

2.34 Through tendering, the HD awards district term maintenance contracts to contractors for carrying out maintenance and improvement works for PRH flats under the TMS and the RIMS. For monitoring the contractors' repair works for PRH flats under the TMS and the RIMS, the TMS teams and ITTs check the process of all concrete spalling repair works, water seepage repair works and tiling works. The TMS teams and ITTs also select at least 5% to 10% of completed works orders for final inspection before certification of works completion (see Appendices D and F). The Performance Verification Team and Surprise Check Teams conduct periodic checking to review the operation of the TMS and RIMS including the quality of repair works (see paras. 2.29 and 2.36).

### ***Need to comply with the requirements of verifying contractors' repair works***

2.35 According to the HD, water seepage warrants special attention due to the possible nuisance caused. The HD's guidelines require DMOs' or PSAs' staff to

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verify the effectiveness of seepage repairs carried out under the RIMS (by revisiting the lower flat to measure its moisture level) for not less than 10% of the repaired flats on a quarterly basis. Audit examination of the records of the quarterly verification work conducted in the six selected estates (see Note 21 to para. 2.18) from 2014 and 2015 revealed that the verification requirement had not been complied with in three estates for two to six quarters. Audit also noted that the verification requirement had not been applied to water seepage repairs carried out under the TMS. In Audit's view, the HD needs to take measures to ensure that the verification requirement on water seepage repairs under the RIMS is complied with. The HD also needs to consider applying the same verification requirement to water seepage repairs under the TMS.

### ***Unsatisfactory contractors' repair works under the TMS***

2.36 The Surprise Check Teams of the TMS Unit (Note 28) conduct surprise checks of at least one PRH estate each month with a view to aligning the technical standards of the TMS services and ensuring timely correction to be made. The scope of the surprise checks includes quality of works, site administration, works supervision and documentation. Repair works in progress and completed repair works in selected PRH flats are examined for assessing their quality. Responsible Clerk of Works staff are required to review the non-compliance and deficiencies as highlighted in the surprise check reports and take follow-up action. Audit examination of the monthly surprise check reports from February 2014 to March 2016 revealed room for improvement as set out in paragraphs 2.37 and 2.38.

2.37 ***Need to strengthen the final inspections of TMS repair works.*** From February 2014 to March 2016, on average, about five PRH flats in a selected estate were chosen for monthly inspection by the Surprise Check Teams. Of 133 flats chosen for inspection, 385 items of unsatisfactory repair works were found in 118 (89%) flats. On average, about three items of repair works in each of these 118 flats required replacement/rectification works, mainly for doors, water cistern, concrete spalling, windows and re-tiling. In addition, 107 items of repair works were found to have improper work practices (such as inadequate protective

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**Note 28:** *Surprise Check Teams (each comprising a Chief Technical Officer or two Senior Clerk of Works staff as leaders and staff of the Clerk of Works and Assistant Clerk of Works ranks) visit the estates regularly for conducting in-flat inspections. The aim of the surprise checks is to give technical support to the TMS teams.*

measures and improper use of tools). Audit review of the records of the unsatisfactory repair works also revealed that some cases could give rise to safety concerns (Note 29). In view of the unsatisfactory repair works found in a large number of selected flats, the HD needs to strengthen the final inspections of contractors' repair works to ensure that their quality is up to standard before acceptance. The HD also needs to consider taking regulatory actions against those contractors found with frequent unsatisfactory repair works.

2.38 *Need to ensure that deficiencies identified are rectified.* Audit review of the surprise check records revealed that in some cases, the deficiencies (Note 30) identified were found again in subsequent surprise checks. These indicated that the deficiencies might not have been properly followed up by the contractors concerned. In Audit's view, the HD needs to remind the TMS teams to follow up with the contractors concerned on deficiencies identified in surprise checks to ensure that they are rectified in a timely manner.

### ***Unsatisfactory contractors' repair works under the RIMS***

2.39 As mentioned in paragraph 2.29, the Performance Verification Team conducts performance verifications periodically in selected estates including the review of the target achievement and repair works of the RIMS. In each selected estate, the Performance Verification Team reviews the minor works orders of two flats and estate works orders of another two flats to assess the quality of repair works on material used and workmanship. Audit examination of the records of repair works checked by the Performance Verification Team during 2011 to 2015 revealed room for improvement as set out in paragraphs 2.40 and 2.41.

2.40 *Need to strengthen the final inspections of RIMS repair works.* Of the 531 minor works orders and 535 estate works orders selected by the Performance Verification Team for assessing the quality of the repair works, the following issues were noted:

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**Note 29:** *For example, in three cases, the earth bonding was not properly connected. In another case, all window grilles were taken away for repair but no safety precautions were taken.*

**Note 30:** *For example, material storage areas were not tidied up by contractors and material checking records of the estates were not available.*

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- (a) regarding the workmanship, 84 (16%) of the 531 minor works orders and 349 (65%) of the 535 estate works orders were rated Grades C or D, requiring partial or complete replacement/rectification works (see Appendix J). Of the defective repair works identified in 349 estate works orders, 25 cases had potential safety concerns (Note 31);
- (b) the percentages of minor works orders rated Grades C or D in respect of material and workmanship increased from 6% and 17% in 2011 to 33% and 22% in 2015 (see Appendix J). Similarly, the percentage of estate works orders rated Grades C or D in respect of workmanship increased from 50% in 2011 to 88% in 2015; and
- (c) for seven categories of repair works (including water seepage and concrete spalling repair), more than 50% of works orders required replacement or rectification works.

The results of the Performance Verification Team's assessments indicated that the quality of RIMS repair works was generally unsatisfactory and on a deteriorating trend. In Audit's view, the HD needs to step up the final inspections of the contractors' repair works to ensure that their quality is up to standard before acceptance. The HD also needs to consider taking regulatory actions against those contractors found with frequent unsatisfactory repair works.

2.41 *Need to strengthen training for ITTs.* In examining the estate works orders checked by the Performance Verification Team, Audit found that two works orders had also been subject to the ITT's final inspections. For both works orders, the material and workmanship were all rated Grade A by the ITT. However, the Performance Verification Team rated both works orders Grade D in material and Grade C/D in workmanship, suggesting that there had been over-rating by the ITT. The HD needs to strengthen training for ITTs on assessing the quality of contractors' repair works.

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**Note 31:** *For example, in 22 cases, the earth bonding was not provided or not properly connected.*

## **Audit recommendations**

**2.42      Audit has *recommended* that the Director of Housing should:**

- (a)      take measures to ensure that the requirement of verifying the effectiveness of water seepage repairs under the RIMS is complied with and consider applying the same verification requirement to those repairs under the TMS;**
- (b)      strengthen the final inspections of contractors' repair works under the TMS and the RIMS to ensure that their quality is up to standard before acceptance and consider taking regulatory actions against those contractors found with frequent unsatisfactory repair works;**
- (c)      remind the TMS teams to follow up with the contractors concerned on deficiencies identified in surprise checks to ensure that they are rectified in a timely manner; and**
- (d)      strengthen training for ITTs on assessing the quality of contractors' repair works.**

## **Response from the Government**

**2.43      The Director of Housing generally agrees with the audit recommendations. He has said that:**

- (a)      the requirement of verifying the effectiveness of water seepage repairs in certain period after completion of works was introduced as an additional procedure on top of the routine site supervision during progress of works and the certification of completed works. This is a proactive approach to study the frequency and possible causes of relapse cases. Past experience has demonstrated that the routine site supervision and certification of works upon completion have provided adequate control for quality assurance of the effectiveness of water seepage repairs. The HD will review the need to maintain additional verification under the RIMS and whether this extra assurance procedure provides value for money;**

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- (b) monthly inspection by the Surprise Check Teams for the purpose of performance verification of repair orders has been used by the HD as an internal monitoring tool to enhance the quality of works. The HD agrees to continue to review the site supervision to ensure that the repair works are at an acceptable standard. For unsatisfactory repair works, the HD will continue to follow up and hold the concerned contractors accountable as part of the contract administration;
- (c) the HD has recognised the need to monitor contractors' works. Deficiencies in materials and/or workmanship may be observed in different estates under different contractors. The HD always instructs the contractors to rectify the defects in accordance with the contract requirements as soon as they are identified; and
- (d) the HD will continue to arrange training for the ITTs and strengthen the aspects of assessing the quality of contractors' repair works.

## **Management information system**

2.44 Since 2007, the HD has developed a computerised TMS System at a cost of \$7.2 million to facilitate the effective management of in-flat inspection records, issuing and processing of works orders, and scheduling of inspection and repair works appointment under the TMS and the RIMS. The TMS System comprises the In-flat Inspection Sub-system, Appointment and Scheduling Sub-system and Maintenance Information Sub-system. The Maintenance Information Sub-system can generate a number of management information reports on the TMS and the RIMS.

2.45 *Need to address the software problems of the Maintenance Information Sub-system.* In May 2016, Audit obtained from the HD management reports generated by the Maintenance Information Sub-system for analysing the in-flat inspections. However, Audit found that some information in the reports was inaccurate (e.g. the numbers of flats in some PRH estates were double-counted). Upon enquiry, the HD informed Audit that there were software problems in the Sub-system. While the HD subsequently provided Audit with the requested information in July 2016 without using the Sub-system, the HD still needs to address the software problems to ensure that the functionality of the Sub-system is not compromised.

### **2.46      *Need to make effective use of the Maintenance Information Sub-system.***

In response to Audit's enquiry on the inaccurate reports generated from the Maintenance Information Sub-system in August 2016, the HD informed Audit that its staff did not use the management reports generated by the Sub-system often and hence the software problems had not been identified earlier. Audit noted that the Sub-system had captured various TMS and RIMS data that could be used for compiling management information for monitoring and planning the in-flat maintenance and repair works. For example, the reasons for not gaining access to individual flats in TMS inspections could be used for formulating specific follow-up action (see para. 2.16(b)). The Maintenance Information Sub-system may also be used for analysing the contributing factors to the continued increase in RIMS works orders (see para. 2.28). In Audit's view, the HD needs to make effective use of the Sub-system for monitoring and planning the in-flat maintenance and repair works under the TMS and the RIMS.

## **Audit recommendations**

### **2.47      *Audit has recommended that the Director of Housing should:***

- (a)      address the software problems of the Maintenance Information Sub-system to ensure that its functionality is not compromised; and**
- (b)      make effective use of the Sub-system for monitoring and planning the in-flat maintenance and repair works under the TMS and the RIMS.**

## **Response from the Government**

**2.48      The Director of Housing agrees with the audit recommendations. He has said that the HD:**

- (a)      has reviewed the existing management reports in the Maintenance Information Sub-system and will remove those which are no longer used and re-test all the remaining reports to ensure the software problems are rectified; and**
- (b)      will continue to seek opportunity for better use of the data as management information.**

## **PART 3: FOLLOW-UP ACTIONS ON PUBLIC RENTAL HOUSING'S WATER SAMPLING TESTS FOR LEAD**

3.1 This PART examines the follow-up actions on the PRH's water sampling tests for lead, focusing on:

- (a) discrepancies between the announced sampling test results and source data of the sampling tests (paras. 3.5 to 3.7);
- (b) arrangements for reviewing the water sampling test results (paras. 3.8 to 3.20);
- (c) re-sampling arrangements for discarded samples (paras. 3.21 to 3.23); and
- (d) relief measures and rectification works for the 11 affected PRH developments (paras. 3.24 to 3.30).

### ***Water sampling tests***

3.2 Since the start of the “excess lead in drinking water” incident in July 2015 (see para. 1.7), the HA and the Government had conducted water sampling tests, initially for Kai Ching Estate (where excess lead in drinking water was first found) and then a number of developments with pipes installed by the same Licensed Plumber. On 24 July 2015, the Chairman of the HA announced that the water sampling tests (Note 32) would be carried out for all PRH estates in a systematic way. The tests were completed in two stages as follows:

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**Note 32:** *While the tests focused on the domestic blocks of PRH estates, tests were also conducted for the non-domestic facilities used for commercial, social services and educational purposes in PRH estates. Starting from August 2015, the tests for the non-domestic facilities were conducted in a more systematic manner.*



## **Follow-up actions on public rental housing's water sampling tests for lead**

- (a) *Systematic sampling tests for 83 developments in 46 PRH estates.*  
According to the Task Force, leaded solder used on water pipe joints was found to be the cause of excess lead in drinking water (see para. 1.9). In general, water pipes in PRH estates completed in or after 2005 are mainly copper pipes joined by soldering. On 24 September 2015, the HA announced that systematic water sampling tests for each block of 83 PRH developments, which comprised: (i) 80 PRH developments completed in or after 2005 (although 12 of them did not use soldering); and (ii) three PRH developments completed before 2005 but used soldering in their pipe connections, had been completed. Of a total of 4,740 water samples taken, 91 were found to contain lead in excess of WHO's PGV; and
- (b) *Screening tests for 144 PRH estates (Note 33) completed before 2005.*  
In general, water pipes in PRH estates completed before 2005 are connected mechanically and not by soldering. It was believed that there was a lower risk leading to excess lead in drinking water for these estates. Such a lower risk was confirmed by the test results of water samples (all below the WHO's PGV) taken from the 12 PRH developments that did not use soldering but had also been covered under the systematic water sampling tests (see (a) above). The two-step water screening test involved firstly a representative screening of these estates by batches. Depending on the size of the estates, the HD would select several blocks from each of them, and water samples would be taken from each of the selected blocks. If individual estates were found to have water samples containing excess lead in the first stage, systematic water sampling tests (as with tests conducted for estates completed in or after 2005) would be conducted for each block within that estate. On 18 November 2015, the HA announced that water screening tests for 144 PRH estates, which were completed before 2005 and did not use soldering, had been completed. A total of 2,634 water samples were taken and all of them complied with the WHO's PGV.

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**Note 33:** *Among the 144 estates, 16 estates had some of their developments completed in or after 2005 and such developments had been covered in the systematic sampling tests (see para. 3.2(a)). The screening tests covered Shek Lei (II) Estate and Shek Lei (2) Estate (Interim Housing) which are separate blocks with their own water supply systems. They are counted as two estates for screening test purpose although they are normally counted as one estate by the HD (see Note 1 to Table 1 in para. 1.4).*

## **Follow-up actions on public rental housing's water sampling tests for lead**

### ***Announced test results***

3.3 Since the “excess lead in drinking water” incident, the HD had been updating the public through various channels (including press releases and press conferences) on the latest developments of the various follow-up actions. It had also provided the HA and LegCo with regular updates on the incident (Note 34). According to the HD/WSD, the total number of samples taken for all PRH estates (including non-domestic portions) was only finalised by March 2016. The HD then took the earliest opportunity to update the public of the finalised statistics. In March 2016, the HD informed the HA of the confirmed sample numbers (Note 35) for water sampling tests conducted from July to November 2015 for all PRH estates (including non-domestic portions) totalling 7,456 (Note 36), as follows:

- (a) ***Systematic sampling test results for 83 developments of 46 PRH estates.*** A total of 4,821 water samples were taken from the 83 developments in the 46 PRH estates. Amongst them, 91 water samples taken from 11 PRH developments (see Note 5 to para. 1.7) exceeded the WHO's PGV of 10 micrograms per litre (µg/L); and
- (b) ***Screening test results for 144 PRH estates.*** A total of 2,635 water samples were taken from the 144 PRH estates completed before 2005, and all of them met the WHO's PGV.

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**Note 34:** *For example, updates on the incident were provided to LegCo at its meetings on 14 and 16 October 2015, at the LegCo Panel on Housing's meetings on 22 July 2015, 2 November 2015 and 1 February 2016, as well as at the special House Committee meetings on 1 September 2015, 8 October 2015 and 11 July 2016.*

**Note 35:** *In its paper issued to the HA on 4 March 2016, the HD mentioned that the confirmed number of samples taken for the 46 PRH estates involving 83 developments for which systematic sampling tests had been conducted was 4,821, as opposed to 4,740 announced earlier. The confirmed number of samples taken for the 144 PRH estates for which screening tests had been conducted was 2,635, as opposed to 2,634 announced earlier.*

**Note 36:** *With the exception of 22 samples which were collected and tested by two laboratories commissioned by the HD, all other samples were collected by the WSD and tested by the WSD or the Government Laboratory.*

## **Follow-up actions on public rental housing's water sampling tests for lead**

A breakdown of the 7,456 samples taken (i.e. a list of the sampled PRH developments with the corresponding number of samples taken and for each of the 11 affected PRH developments, also the number of samples found with excess lead) was also provided to the HA.

3.4 In its updates on “excess lead in drinking water” incident of May 2016, the HD informed the HA that:

- (a) during the hearings of the Commission of Inquiry, there were queries about certain water samples being discarded. In response to press enquiries, the HD issued a press statement on 5 February 2016 to repeat some of the information that had previously been published and the reasons for discarding some water samples; and
- (b) based on the WSD's confirmation, 49 samples were discarded (Note 37). Among them, 27 (Note 38) were discarded for two main reasons, namely: (i) the samples were affected by environmental factors; or (ii) the fresh water supply systems from which the samples were taken were installed by the tenants themselves. Another 22 were discarded as they had been taken inadvertently from premises that were not existing PRH estates (Note 39).

In July 2016, the LegCo House Committee was also updated on the confirmed number of samples. The information provided to the LegCo House Committee was the same as that provided to the HA in March 2016 (see para. 3.3). Audit noted that the information provided to the HA/LegCo House Committee was compiled by the HD, and the HD had sought comments from the WSD in regard to their updated sample numbers for water sampling tests for the HA paper of March 2016.

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**Note 37:** *All 49 samples were not included in the 7,456 water sampling test results reported to the HA in March 2016 (see para. 3.3) because they had been discarded.*

**Note 38:** *These 27 samples were all taken from the PRH developments completed in or after 2005 (see para. 3.2(a)).*

**Note 39:** *Of the 22 discarded samples, 14 were taken from a block uncompleted at the time, and 8 were taken from Link's properties.*

## **Discrepancies between the announced sampling test results and source data of the sampling tests**

3.5 On 21 July 2016, Audit obtained through the HD the source data of the water sampling test results which were prepared by the WSD for examination. After cross-checking the source data against the test results reported to the HA in March 2016 and the LegCo House Committee in July 2016 (see paras. 3.3 and 3.4), Audit found some discrepancies and sought clarifications through the HD on 1 August 2016. In response to Audit's enquiries, the inter-departmental meeting chaired by the Permanent Secretary for Transport and Housing (Housing) (see para. 3.8) re-visited the relevant data and the HD informed Audit on 25 August 2016 of the reasons for the discrepancies as shown in Table 4:

**Table 4**

### **Discrepancies between the announced test results and source data**

Item	Estate	Sampling test results		Reasons for the discrepancies provided by the HD
		Per information reported to the HA and LegCo (see paras. 3.3 and 3.4)	Per WSD's source data	
1.	Kai Ching	7 of 121 samples taken were found with excess lead	9 of 121 samples taken were found with excess lead	On 11 July 2015, it was announced that 115 samples were taken from the estate, of which seven had excess lead and the estate was classified as an affected PRH estate. Subsequently, six more samples were taken from the non-domestic facilities in the estate, of which two had excess lead. These two non-compliant samples taken from non-domestic units located on ground floor of domestic blocks sharing the same water supply system with the domestic units already found with excess lead were inadvertently left out from the figure announced previously. However, this did not affect the categorisation of Kai Ching Estate as an affected estate because these samples were taken on 15 August 2015, which was after declaration of Kai Ching Estate as an affected estate at the press conference held on 11 July 2015.

## Follow-up actions on public rental housing's water sampling tests for lead

**Table 4 (Cont'd)**

Item	Estate	Sampling test results		Reasons for the discrepancies provided by the HD
		Per information reported to the HA and LegCo (see paras. 3.3 and 3.4)	Per WSD's source data	
2.	Yan On	74 samples taken	73 samples taken	On 7 August 2015, it was announced that 69 samples were taken, of which five samples had excess lead. Subsequently, five more samples were taken (making up a total of 74 samples), of which one non-domestic sample had excess lead but was discarded because tenant's alteration was involved. The discarded sample which should have been excluded (see Note 37 to para. 3.4(b)) had been inadvertently included in the figure announced previously.
3.	Shek Kip Mei Phase 2	59 samples taken	54 samples taken	On 3 August 2015, it was announced that 59 samples were taken. Subsequently, one more non-domestic sample was taken from the estate. Of the total 60 samples, six were taken from the Ancillary Facilities Block (see Item 4 below) but had been inadvertently included whereas the non-domestic sample which should be included had been inadvertently left out from the figure announced previously.
4.	Shek Kip Mei Phase 2 (Ancillary Facilities Block)	6 samples taken	12 samples taken	Six samples were inadvertently included in the 59 samples in Item 3 above.

*Source: HD records and source data provided by the WSD*

**3.6 Need to strengthen data validation.** As a result of the omission of two non-compliant samples for Kai Ching Estate mentioned in Item 1 of Table 4 in paragraph 3.5, the total number of non-compliant samples for the 11 affected PRH developments reported to the HA and LegCo should have been 93 instead of 91 (see paras. 3.3(a) and 3.4). The announced numbers of samples taken from

## **Follow-up actions on public rental housing's water sampling tests for lead**

three developments (Yan On, Shek Kip Mei Phase 2 and Shek Kip Mei Phase 2 (Ancillary Facilities Block)) were also inaccurate (see Items 2 to 4 of Table 4). Audit noted that notwithstanding the discrepancies identified, the total number of affected PRH developments remained unchanged. However, as the announced sampling test tallies were important for the public's understanding of the extent of the "excess lead in drinking water" problem in PRH estates, the HD, in collaboration with the WSD, needs to make improvement in this regard, e.g. by strengthening data validation to ensure that information provided to the HA/LegCo is accurate.

### ***Recent developments***

3.7 On 11 October 2016, the HD provided the HA with an update on the issues arising from the "excess lead in drinking water in PRH estates" incident. In the update, the HA was informed of the discrepancies between the water sampling source data and the information reported to the HA in March 2016 and the LegCo House Committee in July 2016.

## **Arrangements for reviewing the water sampling test results**

3.8 Since the discovery of excess lead in water samples in July 2015, inter-departmental meetings which were chaired by the Permanent Secretary for Transport and Housing (Housing) and comprised representatives from the HD, the WSD, the Government Laboratory and the Department of Health, had been held to discuss and coordinate matters relating to the sampling of drinking water in PRH developments.

3.9 For the purpose of determining whether follow-up actions were required on the water sampling test results of a PRH development, the Government had adopted an action level that as long as there was a sample exceeding the WHO's PGV of 10 µg/L for lead, the entire PRH development would be classified as an affected estate, regardless of the number of blocks within the PRH development concerned. According to the Commission of Inquiry, this was a cautious approach given that in the United States, the authorities would only be required to take steps to reduce exposure if the lead concentration of more than 10% of the samples collected had exceeded the action level of 15 µg/L.

## **Follow-up actions on public rental housing's water sampling tests for lead**

3.10 In June and August 2016, Audit requested the HD to provide details of the inter-departmental meetings' deliberations of the water sampling test results. In July and August 2016, the HD informed Audit that:

- (a) the first inter-departmental meeting was held on 20 July 2015. Initially these inter-departmental meetings were held on a need basis. From 6 August to 24 September 2015, they had been held regularly twice a week. From 20 July to 18 November 2015, a total of 29 inter-departmental meetings (Note 40) had been held to review the water sampling test results and decide on the follow-up actions required; and
- (b) after consolidating experiences in early August 2015, the HD saw the need to start consolidating and recording the water sampling data discussed at the inter-departmental meetings in order to advise the HA and the public. For the 22 inter-departmental meetings held from 12 August to 18 November 2015, the HD prepared 15 decision notes (Note 41) which had been agreed by all attending parties.

### ***Audit examination of decision notes of the inter-departmental meetings***

3.11 As the inter-departmental meeting was set up to review the water sampling tests results and determine the follow-up actions required to safeguard tenants' drinking water safety, Audit examined the 15 decision notes of the meetings provided by the HD, which documented the inter-departmental meetings' deliberations and the decisions on the non-compliant samples and the discarded

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**Note 40:** *The 29 inter-departmental meetings comprised: (a) seven meetings held from 20 July to 7 August 2015; (b) seven Technical Review Meetings to review preliminary results and seven Final Conclusion Meetings on the following days to conclude results for announcement held from 12 August to 24 September 2015; and (c) eight meetings held from 30 September to 18 November 2015.*

**Note 41:** *One set of decision notes was prepared for each pair of Technical Review Meeting and Final Conclusion Meeting which were held consecutively to discuss the same batch of water samples. Thus, for these 14 meetings held from 12 August to 24 September 2015, seven decision notes were prepared. For the eight meetings held from 30 September to 18 November 2015, decision notes were prepared for each of them.*

## **Follow-up actions on public rental housing's water sampling tests for lead**

samples, against the source records provided by the WSD. Audit's findings are summarised in Table 5.

**Table 5**

**Audit analysis of the documentation of  
the inter-departmental meetings' review of water sampling test results**

<b>Water sampling test results per WSD source data  (a)</b>	<b>Water sampling test results reviewed by the inter-departmental meetings</b>	
	<b>As recorded in the 15 decision notes of 22 meetings (b)</b>	<b>Without decision notes prepared for 7 meetings (c) = (a) – (b)</b>
93 non-compliant samples (see para. 3.6)	44 non-compliant samples	49 non-compliant samples (Note 1)
49 discarded samples (see para. 3.4(b))	43 discarded samples (Note 2)	6 discarded samples (Note 3)

*Source: Audit analysis of HD and WSD records*

*Note 1: According to the WSD's source data, the sampling dates of all 49 samples were before the HD started to maintain decision notes. These 49 samples were included in the water sampling test results reported by the WSD to the HD/Department of Health/Government Laboratory in its e-mails of 14 July 2015 to 7 August 2015.*

*Note 2: According to the WSD's source data, of the 43 discarded samples, 15 had lead levels exceeding the WHO's PGV and the remaining 28 were compliant samples.*

*Note 3: According to the WSD's source data, the sampling dates of the six samples were before the HD started to maintain decision notes and all of them had lead levels exceeding the WHO's PGV (see paras. 3.12 and 3.13 for details of these six samples).*

**3.12 Records of decisions on non-compliant and discarded samples not fully maintained.** As mentioned in paragraphs 3.8 to 3.10, of the 29 inter-departmental meetings held since 20 July 2015 to discuss and coordinate matters relating to the sampling of drinking water in PRH developments, decision notes were only prepared for 22 inter-departmental meetings starting from 12 August 2015 (see para. 3.10(b)). No decision notes were prepared for the seven meetings held from



## **Follow-up actions on public rental housing's water sampling tests for lead**

20 July to 7 August 2015, and therefore the relevant deliberations and decisions were not recorded. Given the great public concern over the “excess lead in drinking water” incident and the significant role of the inter-departmental meetings in determining the follow-up actions on water sampling test results, it was unsatisfactory that decision notes were not maintained for 7 (24% of the total 29) inter-departmental meetings where important decisions had been made on 55 non-compliant samples, i.e. taking follow-up actions on 49 of them and discarding the remaining six (see column (c) of Table 5 in para. 3.11). For the 6 discarded samples reviewed by the inter-departmental meetings but for which decision notes had not been prepared, the HD provided Audit with the details as shown in Table 6.

**Table 6**

**Details of the six samples discarded but  
without decision notes of the inter-departmental meetings**

Sample	Location	Lead level ( $\mu$ g/L)	Sampling date	Reason for being discarded by the inter-departmental meetings
4 of the 6 discarded samples taken from 2 of the 11 affected PRH developments				
1	Shek Kip Mei Estate Phase 2	100	28/7/2015	Environmental contamination and sampling issues
2	Shek Kip Mei Estate Phase 2	830	28/7/2015	
3	Hung Hom Estate Phase 2 (a store room)	713	30/7/2015	
4	Hung Hom Estate Phase 2 (meter position outside a store room)	88	31/7/2015	
2 of the 6 discarded samples taken from 2 unaffected PRH developments				
5	Shui Chuen O Estate	14	13/7/2015	Environmental contamination and sampling issues
6	Yee Ming Estate	15	20/7/2015	

*Source: HD and WSD records*

## **Follow-up actions on public rental housing's water sampling tests for lead**

3.13 In September and October 2016, the HD and the WSD also informed Audit that:

- (a) for Samples 1 to 3 of Table 6, the reasons for discarding them were recorded in the WSD's e-mail of 2 August 2015 to members of the inter-departmental meeting (Note 42);
- (b) the reason for discarding Sample 5 of Table 6 was announced by the WSD in the press conferences on 14 and 15 July 2015;
- (c) for Sample 6 of Table 6, according to the WSD's internal e-mail of 23 July 2015 which was also copied to the HD, the test result was considered doubtful by the WSD, taking into account the sampling condition (a vacant flat), other test results in the flat and in other flats in the estate; and
- (d) for Sample 4 of Table 6, neither the HD nor the WSD could find any relevant e-mail correspondence concerning the reason for discarding the sample. Nevertheless, according to recollection of the concerned staff of the WSD, Sample 3 of Table 6 was taken on 30 July 2015 from a store room. It was discarded due to environmental contamination and sampling issues as stated in Table 6 in paragraph 3.12 and item (a) above. Further samples were taken on 31 July 2015, i.e. one sample inside the store room and another sample (i.e. Sample 4) at the meter position outside the store room. Both samples were found to have lead content in excess of the WHO's PGV. The test result of the sample taken inside the store room was later accepted as the result representing the quality of water supplied to the store room while Sample 4 taken at the meter position outside the store room was discarded due to the inappropriate sampling location given the circumstances.

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**Note 42:** *As stated in the e-mail, the preliminary investigation revealed that unsatisfactory sampling environment (dirty air filter above the sampling point), transient surge of accumulated lead deposit in the system, low water usage, small number of users in the supply zone etc. might have contributed to the abnormal results which were not considered valid and representative of the consistent quality of water at taps. In view of this and lack of repeatability, the abnormal results at these points should be superseded by the consistent test results of re-sampling.*

## **Follow-up actions on public rental housing's water sampling tests for lead**

3.14 One of the recommendations of the Commission of Inquiry (see para. 1.9) is that given the inadequacy of the sampling protocol adopted by the WSD in 2015, the Government should undertake to test the drinking water of all PRH estates again using an appropriate sampling protocol that would include the testing of stagnant water. In Audit's view, to prevent recurrence of similar problems mentioned in paragraph 3.12 when carrying out retesting of the drinking water of PRH estates in accordance with the Commission of Inquiry's recommendation, the HD needs to take measures to ensure that proper records on all discussions in respect of sampling matters are maintained to support evidence-based decision making.

3.15 *Developing appropriate sampling protocol.* In July 2016, the LegCo House Committee was informed that: (a) the WSD had commenced follow-up work on the recommendations of the Commission of Inquiry, including engaging expert consultants to conduct a study on, among other things, developing an appropriate sampling protocol; and (b) the pertinent work was targeted to be completed in six to nine months (i.e. by March 2017). An international expert panel was also set up by the Development Bureau in June 2016 to provide advice on the proposed sampling protocol. As the retesting of drinking water of all PRH estates using an appropriate protocol could point to the need for further measures to be taken to safeguard tenants' drinking water safety, the WSD needs to closely monitor the progress of developing an appropriate sampling protocol to ensure that the target completion date will be met.

3.16 In September and October 2016, the WSD informed Audit that:

- (a) there were different sampling protocols being adopted overseas. Since the release of the Commission of Inquiry Report, the WSD had been working on a tight schedule and in full swing, amongst others, to develop an appropriate sampling protocol for investigating lead contamination in the plumbing systems of the PRH estates; and
- (b) in conjunction with the development of this sampling protocol, other key water safety issues had to be holistically reviewed and studied, such as the drinking water quality standards, the formulation of a territory-wide compliance monitoring programme and water safety plan. The WSD had engaged an expert consultant from the United Kingdom to review, amongst others, the water sampling protocols of various organisations (e.g. the European Union) and developed countries. The Development

## **Follow-up actions on public rental housing's water sampling tests for lead**

Bureau, the WSD, the international expert panel and the United Kingdom expert consultant were deliberating on the relevant issues, including the purposes and limitations of the various sampling protocols, and their applicability in Hong Kong's situation. The WSD was fully aware of the need to accomplish these tasks as quickly as possible and was making full effort to complete the work by March 2017.

### ***Water sampling/screening tests not conducted for PRH flats in TPS estates***

3.17 According to the HA Chairman's announcement of 24 July 2015, water sampling tests would be carried out for all PRH estates in a systematic way. In November 2015, the Transport and Housing Bureau informed the LegCo Panel on Housing that the Government had been attaching great importance to the incident of excess lead in drinking water and adhered to three principles in addressing the issues of "excess lead in drinking water" incident, i.e. keeping information open and transparent, adopting a people-oriented approach, and carrying out thorough investigations. On 7 August 2015, in response to media enquiries, the Secretary for Transport and Housing cum Chairman of the HA said that the nature of TPS and Home Ownership Scheme estates was more akin to private residential buildings and the decision to conduct water sampling tests rested with the OCs concerned. At that time, the HA was conducting systematic water sampling tests for PRH estates completed in and after 2005. The 39 TPS estates concerned were all completed before 2005 which did not use soldering in general. In response to Audit's enquiries on the position of water sampling tests for the 39 TPS estates (see Note 2 to Table 1 in para. 1.4), the HD replied the same in June and July 2016.

3.18 On 3 August 2016, Audit requested the HD to make enquiries with the OCs concerned on whether they had carried out water sampling tests for lead in their estates and if so the results of the tests. On 17 August 2016, the HD reiterated that the decision to conduct water sampling tests in TPS estates rested with the OCs concerned.

3.19 According to HD records, as at 31 March 2016, there were 54,493 PRH flats in 39 TPS estates under the ownership and management of the HA. While the mixed ownership in TPS estates might complicate the conducting of water sampling tests for pipe connections in common areas, there was no evidence to show that the HD had made efforts to liaise with the OCs concerned to sort out the issue. As for

## **Follow-up actions on public rental housing's water sampling tests for lead**

the pipe connections in individual PRH flats, the HD has full discretion to conduct any tests deemed necessary in the same way it provides other maintenance services (e.g. TMS and RIMS) for these flats. In fact, for the non-domestic portion of PRH estates where only the fresh water supply systems of the common areas were installed by the HD's contractors, the HD also conducted water sampling tests for its responsible areas. Given the large number of PRH flats in the 39 TPS estates, Audit enquired whether the HD would reconsider conducting water sampling tests/screening tests for the PRH flats in the TPS estates and other estates under the HA's ownership and management if the OCs concerned had not done so.

3.20 In October 2016, the HD informed Audit that:

- (a) it understood Audit's concern regarding the safety of drinking water for TPS tenants. However, there were practical and technical difficulties in conducting water sampling tests for units occupied by HA tenants given the mixed ownership of these estates. This was because the level of lead in the water of such a unit was affected by parts of the water supply system outside of these HA rental units. Given the wide and sustained publicity in the press and the information published by the Government and the HA, the OCs of TPS estates along with owners of private housing had been alerted to the issue and had presumably been making decisions as they deemed fit; and
- (b) in the case of TPS estates, relevant information that had been published by the Government and HA included:
  - (i) according to the Task Force, leaded solder used on water pipe joints was found to be the cause of excess lead in drinking water;
  - (ii) water pipes in PRH estates completed before 2005 did not use soldering in general; and
  - (iii) in the water sampling tests completed for PRH estates last year, all samples taken from PRH estates completed before 2005 complied with the WHO's PGV.

## **Re-sampling arrangements for discarded samples**

3.21 Based on information provided by the HD, 28 of the 49 discarded samples had not exceeded the WHO's PGV of 10 µg/L (see Note 2 to Table 5 in para. 3.11). They were discarded because 6 of them were taken from flats with tenants' alteration to the original plumbing fittings, 14 from uncompleted housing flats and 8 from premises that were not the HA's properties. For the remaining 21 discarded samples, their test results had exceeded the WHO's PGV. There were no decision notes for six non-compliant samples discarded (see Table 6 in para. 3.12). Audit reviewed the 15 decision notes to ascertain the reasons for discarding the other 15 non-compliant samples and whether re-sampling had been carried out. The findings are summarised in Table 7.

## Follow-up actions on public rental housing's water sampling tests for lead

**Table 7**

**Reasons for discarding 21 samples  
which had exceeded the WHO's PGV of 10  $\mu$ g/L**

Sample	Location	First sample		Re-sample		Decision note	Reason for being discarded
		Lead level ( μ g/L)	Sampling date	Lead level ( μ g/L)	Sampling date		
8 of the 21 samples taken from 4 of the 11 affected PRH developments							
1	Shek Kip Mei Estate Phase 2	100	28/7/2015	11	30/7/2015	No	Environmental contamination and sampling issues (see para. 3.12)
2	Shek Kip Mei Estate Phase 2	830	28/7/2015	3	30/7/2015		
3	Hung Hom Estate Phase 2	713	30/7/2015	17	31/7/2015		
4	Hung Hom Estate Phase 2	88	31/7/2015	13	1/8/2015		
5	Un Chau Estate	47	7/8/2015	Re-sampling not conducted (see para. 3.23)		Yes	Tenants’ alteration
6	Un Chau Estate	11	7/8/2015				
7	Un Chau Estate	36	11/8/2015				
8	Yan On Estate	11	12/8/2015				
13 of the 21 samples taken from 7 unaffected PRH developments							
9	Shui Chuen O Estate	14	13/7/2015	2	15/7/2015	No	Environmental contamination and sampling issues (see para. 3.12)
10	Yee Ming Estate	15	20/7/2015	2	21/7/2015		
11	Tin Ching Estate Phase 3	46	5/8/2015	3	6/8/2015	Yes	Discarded after re-sampling (Note 1)
12	Choi Tak Estate	19	5/8/2015	9	6/8/2015		Samples were considered outliers and discarded after re-sampling (Note 1)
13	Choi Tak Estate	30	5/8/2015	< 1	6/8/2015		

## Follow-up actions on public rental housing's water sampling tests for lead

**Table 7 (Cont'd)**

Sample	Location	First sample		Re-sample		Decision note	Reason for being discarded
		Lead level ( $\mu$ g/L)	Sampling date	Lead level ( $\mu$ g/L)	Sampling date		
14	Yat Tung (II) Estate	14	27/8/2015	1	1/9/2015	Yes	Re-sampling was taken to confirm the repeatability of the data. The first sampling results were discarded after re-sampling (Note 1).
				< 1	4/9/2015		
15	Yat Tung (II) Estate	17	28/8/2015	< 1	11/9/2015		
				5	15/9/2015		
16	Kwai Chung Estate	12	29/8/2015	2	4/9/2015		
				< 1	7/9/2015		
17	Kwai Chung Estate	150	31/8/2015	Re-sampling not conducted (see para. 3.23)			Tenants' alteration and sampling issues (Note 2)
18	Kwai Chung Estate	65	31/8/2015				
19	Kwai Chung Estate	72	31/8/2015				
20	Kwai Chung Estate	110	31/8/2015				
21	Kwai Chung Estate	51	31/8/2015	< 1	4/9/2015		Re-sampling was taken to confirm the repeatability of the data. The first sampling result was considered an outlier and discarded after re-sampling (Note 1).
				< 1	7/9/2015		

*Source: Audit analysis of HD and WSD records*

*Note 1: In October 2016, the HD informed Audit that in essence, the reasons for discarding these samples could be categorised as environmental contamination and sampling issues.*

*Note 2: According to the inter-departmental meeting, one of the reasons for discarding these samples was that they were inadvertently taken from the water meter position and improper sampling method was used, namely, flushing for two to five minutes had not been carried out. In October 2016, the HD informed Audit that the reasons for discarding this sample also included environmental contamination.*

*Remarks: The re-sampling results for Items 1, 3 and 4 were counted towards the 93 non-compliant samples.*



## **Follow-up actions on public rental housing's water sampling tests for lead**

3.22 As shown in Table 7 in paragraph 3.21, of the 21 discarded samples not complying with the WHO's PGV, re-sampling had been conducted for 13 flats concerned for testing the repeatability of the first sample results before the first non-compliant test results were discarded.

3.23 For the remaining 8 of the 21 discarded samples where tenants' alteration to the original plumbing fittings was the sole reason or a contributing factor for being discarded (see Items 5 to 8 and 17 to 20 of Table 7 in para. 3.21), re-sampling had not been conducted for the eight flats concerned. Instead, water samples were taken from adjacent flats (i.e. those without alteration to their original plumbing fittings) to confirm that their lead levels did not exceed the WHO's PGV before the inter-departmental meetings decided to discard the non-compliant test results of the eight flats. Audit understood that for the purpose of obtaining reference of the water supply system of the PRH estates concerned, sampling tests for flats with the original plumbing fittings unaltered were more relevant than those with alteration made to the original plumbing fittings. Of the eight flats without re-sampling conducted, four were not within the 11 affected PRH developments (Items 17 to 20 of Table 7). On 30 September 2016, the HD informed Audit that: (a) alterations to the plumbing fittings of the three flats (Items 17, 18 and 20 in Table 7) were observed by the WSD/HD staff on the dates of sampling and these were recorded in the WSD's e-mail of 9 September 2015 to members of the inter-departmental meeting; and (b) while there was no similar record for the remaining flat (Item 19 in Table 7), the HD had checked with its staff who were present on the date of sampling that alteration to the plumbing fitting of the flat was observed on site.

## **Relief measures and rectification works for the 11 affected public rental housing developments**

### ***Relief measures***

3.24 Since the incident of excess lead in water came to light in July 2015, the HD and the WSD had taken a series of measures to minimise the inconvenience caused to tenants of the 11 affected PRH developments in gaining access to safe drinking water. These measures included the provision of water wagons/tanks and

## **Follow-up actions on public rental housing's water sampling tests for lead**

standpipes, supply of bottled water, requesting the contractors concerned to install temporary water points by connecting pipes from the roof-top tank to each floor at their own expense, as well as to install water filters and replace filter cartridges for two years after installation for the affected domestic households free of charge.

3.25 In July 2016, the LegCo House Committee was informed of the latest position of the relief measures as follows:

- (a) ***Water wagons/tanks and standpipes.*** Currently, only the standpipes remained in use. With the installation of water filters and temporary water points (see (c) and (d) below), water consumption through the standpipes had also decreased gradually;
- (b) ***Bottled water.*** On 28 December 2015, the distribution of bottled water was ceased. The HA had distributed 9.96 million bottles of bottled water to the affected tenants at a total cost of some \$60 million;
- (c) ***Water filters.*** Filter installation had been completed in all 11 affected PRH developments by October 2015, save for a small number of households who refused the installation of filters and those with whom the HD had difficulty in getting in touch (Note 43). To ease tenants' concerns about the effectiveness of the water filters, water tests were conducted again for the units in the 11 affected PRH developments in which samples with excess lead content had been found and filters were subsequently installed by the contractors. On 2 November 2015, the HA announced that all test results complied with the WHO's PGV; and
- (d) ***Temporary water points on each floor.*** The temporary water points in all 11 affected PRH developments had been put into use by 9 December 2015.

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**Note 43:** *According to the HD, it had notified the affected households of the arrangements for installing water filters by posting notices in the lobbies of the 11 affected PRH developments and distributing newsletters to tenants' mailboxes. As at October 2015, 1,030 households had refused to install filters and 679 could not be contacted, making up a total of 1,709 (or 6% of the 29,077 affected households).*

## **Follow-up actions on public rental housing's water sampling tests for lead**

### ***Permanent rectification works***

3.26 In order to rectify the problem of excess lead in water, the HA had requested the four contractors concerned to replace at their own expense the non-compliant pipes in the 11 affected PRH developments. In February 2016, the HA obtained performance bonds from the contractors as an additional commitment for providing safe water supply to the affected residents (see para. 3.25(c) and (d)) and completing the necessary rectification works.

3.27 ***Works in common areas.*** On 14 March 2016, the four contractors started rectification works in the common areas of the 11 affected PRH developments. Since February 2016, the HD has set up a liaison group on the rectification works to improve communication with the contractors and to resolve important issues promptly through regular biweekly meetings. According to information provided by the contractors to the liaison group meeting, the progress of works in the common areas of the 11 affected PRH developments ranged from 18.5% to 45.6% as at July 2016.

3.28 ***Works inside flats.*** The current plan of the HD was to replace the non-compliant water pipes inside domestic units after completion of the rectification works for those in the common areas. According to the HD, there were some issues that would have to be resolved first. For example, some tenants had expressed concern about damage that might be caused to their furnishings by the rectification works. The HA had asked the contractors to assess the different scenarios that might be encountered inside flats. To prepare for the eventual works inside flats, the four contractors had each chosen a vacant flat to carry out trial works. In July 2016, the LegCo House Committee was informed that the HA would closely monitor the progress of works in order to ensure that the rectification works could be completed as soon as possible. In its update to the HA of October 2016 (see para. 3.7), the HD announced that the rectification works in the common area of Kwai Yuet House at Lower Ngau Tau Kok Estate Phase I had been substantially completed. A trial for works inside flats to test contractors' method would be conducted there. Works inside flats for the rest of the affected PRH developments would be rolled out subsequently in light of the experiences of the trial works at Kwai Yuet House.

## **Follow-up actions on public rental housing's water sampling tests for lead**

### ***Need to follow up with affected premises not installed with water filters***

3.29 According to HD records, there are 29,077 domestic premises in the 11 affected PRH developments. Based on information provided by the HD, as at July 2016, 2,138 domestic premises (7.4% of the 29,077 affected premises) had not been installed with filters provided by the contractors (because 1,117 households had refused to install filters, 846 households had returned filters after use and 175 households could not be contacted for arranging the installation works). In July 2016, the LegCo House Committee was informed that a small number of households refused the installation of filters and the HD also had difficulty in contacting some other households for arranging the installation works (see para. 3.25(c)). In response to Audit's enquiry on the position of water filter installation for the premises found with non-compliant water samples, the HD said that as at September 2016, of the 86 premises found with non-compliant water samples (Note 44), 69 out of 75 domestic premises (92%) had been installed with water filters as shown in Table 8. According to the HD, it had informed the tenants/users of the 86 affected premises that the water samples taken from their flats had exceeded the WHO's PGV.

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**Note 44:** *Among the 86 premises found with non-compliant water samples, more than one sample had been taken from six premises (i.e. one additional sample each from five premises and two additional samples from one premises) and all of which exceeded the WHO's PGV. So the total number of non-compliant samples for the 86 premises was 93 (86 + 5 + 2).*

## Follow-up actions on public rental housing's water sampling tests for lead

Table 8

### Water filters installation for 86 premises found with non-compliant samples (September 2016)

Type	Number of premises		
	found with non-compliant water samples (a)	installed with water filters (b)	not installed with water filters (c) = (a) – (b)
Domestic	75	69	6 (Note 1)
Non-domestic	11	2	9 (Note 2)
Total	86	71	15

Source: Audit analysis of HD records

Note 1: According to the HD, of the six domestic premises, tenants of five premises had returned the filter after use and one had refused the installation of filter.

Note 2: According to the HD, all water points within the nine non-domestic premises were not used for drinking purposes (e.g. guard toilets, cleansing contractors' workshops and maintenance storeroom). There was no request from the tenants/users of these nine non-domestic units for filter installation. In addition, the water filters provided by the four contractors were not suitable or in some cases technically not feasible for installation in the non-domestic units.

3.30 Audit was concerned that 2,138 (7.4%) of the 29,077 domestic premises in the 11 affected PRH developments had not been installed with water filters (see para. 3.29). According to the HD, it had informed tenants of the risk of taking water for consumption directly from taps in the affected estates through a number of channels including paying visits to households for which the water test results exceeded the WHO's PGV, posting notices on the ground floor lobby, distribution of health advice leaflets to letter boxes, holding resident forums at which representatives of Department of Health were present to provide health advice and respond to enquiries, holding press conferences and issuing press releases.

## **Follow-up actions on public rental housing's water sampling tests for lead**

However, given the health risk of excess lead in drinking water, there is still a need to continue the effort in contacting households, whose flats had not been installed with water filters, to consider installing water filters or take other precautionary measures such as drawing water from the temporary water points for consumption.

### **Audit recommendations**

**3.31      Audit has *recommended* that the Permanent Secretary for Transport and Housing (Housing) should:**

- (a)      when carrying out retesting of the drinking water of PRH estates in accordance with the Commission of Inquiry's recommendation:**
  - (i)      in collaboration with the Director of Water Supplies, strengthen data validation to ensure that information provided to the HA/LegCo is accurate; and**
  - (ii)     take measures to ensure that proper records on all discussions in respect of sampling matters are maintained to support evidence-based decision making; and**
- (b)      continue the effort in contacting those households in the 11 affected PRH developments, whose flats had not been installed with water filters, to consider installing water filters or take other precautionary measures such as drawing water from the temporary water points for consumption.**

**3.32      Audit has also *recommended* that the Director of Water Supplies should closely monitor the progress of developing an appropriate sampling protocol to ensure that the target completion date of March 2017 will be met.**

## **Response from the Government**

3.33 The Permanent Secretary for Transport and Housing (Housing) agrees with the audit recommendations in paragraph 3.31. He has said that:

- (a) at the start of the “excess-lead-in-water” incident, inter-departmental meetings were held irregularly on a need basis. At the time, efforts were focused on taking follow-up actions in respect of the water sampling test results. Records on decisions made at the inter-departmental meetings had been maintained since mid-August 2015 when the HD started to consolidate the discussions and decisions on water sampling data; and
- (b) for those households with whom the HD has had difficulty in getting in touch, the HD has been trying to contact them outside working hours including on Sundays and would continue to do so. The HD has also requested contractors to post notices at the lobbies and distribute notices to tenants’ mail boxes to encourage households whose premises had not been installed with water filters to consider installing water filters. The HD will also continue to provide health advice tips in the newsletters for the 11 affected PRH developments from time to time.

3.34 The Director of Water Supplies agrees with the audit recommendation in paragraph 3.32 and will closely monitor the progress of developing the sampling protocol. He has said that:

- (a) in order to ensure the timely completion of developing sampling protocol, and reviewing and studying of the key water safety issues, the WSD had implemented the following:
  - (i) increasing staff resources by employing retired officers and redeploying existing staff;
  - (ii) personal participation of senior management (including the Director, the Deputy Director and relevant Assistant Directors of the WSD) in collaboration with the expert consultants and international expert panel; and

### **Follow-up actions on public rental housing's water sampling tests for lead**

- (iii) implementation of a progress monitoring mechanism involving branch/section heads responsible for taking follow-up actions of respective water safety issues to update the progress reports every week using a web-based system; and
- (b) on 11 October 2016, the Development Bureau issued a press release to provide an update on the follow-up work taken by the Development Bureau and the WSD in response to the recommendations by the Commission of Inquiry, which included the development of the sampling protocol. As announced in the press release, the WSD has been making full effort, and will strive to develop the sampling protocol and put forward the proposal by March 2017.



## **PART 4: MANAGEMENT OF ASBESTOS-CONTAINING MATERIALS IN PUBLIC RENTAL HOUSING ESTATES**

4.1 This PART examines the HD's management of ACMs in PRH estates, focusing on:

- (a) monitoring of ACMs in PRH estates (paras. 4.10 to 4.23);
- (b) control over works affecting ACMs in PRH estates (paras. 4.26 to 4.34);  
and
- (c) follow-up actions on un-encapsulated ACMs in balcony grille panels (paras. 4.37 to 4.39).

### **Legislative control over asbestos-containing materials**

4.2 Asbestos is a proven carcinogen which can cause asbestosis, lung cancer and mesothelioma when inhaled. Before the health hazard of asbestos was recognised, it had been widely used in fire-proofing, thermal and electrical insulation, and sound absorption materials. Legislative control over ACMs in Hong Kong is provided for under the Air Pollution Control Ordinance (APCO — Cap. 311) as follows:

- (a) import, transshipment, supply and use of asbestos are banned in Hong Kong (Note 45);

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**Note 45:** *Asbestos is a generic group of naturally occurring fibrous material. The three most common types of asbestos are white asbestos, brown asbestos and blue asbestos. According to the HD, the former type (white asbestos) is the least harmful to health and was the major type of asbestos adopted in the grille panels in PRH estates. The latter two are regarded as more hazardous types of asbestos. Since 1996, the importation and sale of brown and blue asbestos have been banned. With effect from April 2014, the import, transshipment, supply and use of all forms of asbestos have been banned.*

## Management of asbestos-containing materials in public rental housing estates

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- (b) asbestos works are controlled by a registration system administered by the EPD. Asbestos consultants, contractors, supervisors and laboratories must register if they want to practice in the asbestos abatement profession;
- (c) before carrying out any asbestos removal/abatement works or works involving the use or handling of ACMs, the owner of the premises concerned is required to submit an asbestos investigation report and abatement plan prepared by a registered asbestos consultant to the EPD at least 28 days in advance. The owner is also required to notify the EPD of the date of commencement of such works at least 28 days in advance. All asbestos abatement works or works involving the use or handling of ACMs must be carried out and supervised by registered personnel in compliance with prescribed standards; and
- (d) for premises found with ACMs and required by the Ordinance, the owner concerned shall submit to the EPD an asbestos management plan prepared by a registered asbestos consultant. The asbestos management plan shall include:
  - (i) an operation and maintenance plan for ACMs not requiring removal works; and
  - (ii) an abatement plan for asbestos abatement works or works involving the use or handling of ACMs.

4.3 In exercise of the power under section 69(2) of the APCO in 1997, the then Secretary for Planning, Environment and Lands (Note 46) exempted the HD from the requirement of submitting an asbestos investigation report and an abatement plan for maintenance, repair, handling or abatement of balcony/staircase asbestos cement grille panels.

4.4 The EPD has issued guidance on the content of the statutorily required operation and maintenance plan (see para. 4.2(d)(i)), summarised as follows:

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**Note 46:** *The policy responsibilities for environment have now been taken up by the Secretary for the Environment.*

## Management of asbestos-containing materials in public rental housing estates

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- (a) ***Policies and procedures.*** Policies and procedures tailored to the need of the specific building should be laid down;
- (b) ***Details of identified ACMs.*** The type, quantity and physical condition of all identified ACMs should be depicted clearly on building plans or sketches to indicate their exact locations. The remedial abatement method to be adopted for each identified ACM, such as removal, encapsulation (Note 47), or deferred action should be included. Asbestos abatement works can be deferred when the exposure risk is considered negligible or the ACM is well-protected so that fibre release is very unlikely. However, the situation should be monitored by regular surveillance to make sure no disturbance would be made to the ACMs during normal use, repair or refurbishment;
- (c) ***Surveillance scheme.*** A registered asbestos consultant should be appointed to carry out a comprehensive re-inspection of all the ACMs at least once every two years;
- (d) ***Advising all people who may be affected.*** It is always advisable to take an honest and open approach to keep workers, tenants and other users of the premises fully informed of the locations and physical condition of ACMs which they might disturb, and to encourage them to report any evidence of disturbance or damage of ACMs to the owner for corrective action;
- (e) ***Labelling the ACMs.*** All identified ACMs not requiring removal should be labelled (in English and Chinese) to the specifications as shown in Figure 1;
- (f) ***Methods to avoid disturbing the ACMs.*** Workers, tenants and other users of the premises should be encouraged to notify the owner of even small planned maintenance and renovation before any works are carried out. In addition, an authorisation system should be adopted to monitor any operation and maintenance, and prevent accidental disturbance of the ACMs; and

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**Note 47:** *Encapsulation means treatment of the ACMs with a sealant that surrounds or embeds asbestos fibres in an adhesive matrix to prevent the release of fibres.*

## Management of asbestos-containing materials in public rental housing estates

- (g) **Record keeping scheme.** The scheme should include all asbestos management documents, e.g. investigation and assessment reports, and maintenance and renovation notifications.

Figure 1

### ACM warning label recommended by the EPD



Source: EPD records

4.5 **Factories and Industrial Undertakings (Asbestos) Regulation (Cap. 59AD).** The Commissioner for Labour is responsible for enforcing the Regulation which requires a proprietor of an industrial undertaking (including any construction works) to notify the Commissioner at least 28 days before the commencement of asbestos works and to prevent/reduce workers' exposure to asbestos.

## Management strategy for handling asbestos-containing materials in public rental housing estates

4.6 Since 1984, the HD had banned the use of ACMs in constructing public housing. Since 1988, the HD had also put in place procedures in handling ACMs. In 1989, the HD appointed an asbestos consultant to conduct a comprehensive

## Management of asbestos-containing materials in public rental housing estates

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survey on ACMs in PRH estates. In 1990, in collaboration with the EPD and the Labour Department, the HD promulgated an asbestos manual. In March 2009, there were public and media concerns about ACMs in the older PRH estates drawing particular attention to Ngau Tau Kok Lower (II) Estate which was included in a demolition programme, and the potential hazard to the health of workers and nearby public in ACM removal during demolition. In April 2009, the HD informed the Building Committee of the HA of the then practices in handling ACMs within PRH estates and in removing ACMs during demolition, as follows:

- (a) ***Established practice.*** Most of the existing ACMs within the HA's older properties had been identified and the type, location and condition recorded. The most common building components with ACMs were the staircase or lift lobby grilles, balcony grilles and roof tiles. The asbestos in these building materials was mainly white asbestos (see Note 45 to para. 4.2(a)) with fibres embedded in cement and posed no risk to health when being left intact. Broadly speaking, treatments to ACMs in older estates included the following:
  - (i) ACMs vulnerable to deterioration were encapsulated by cement plaster, e.g. the balcony grilles;
  - (ii) ACMs in good condition were left intact without any treatment, e.g. the staircase and lift lobby grilles; and
  - (iii) the remaining ACMs in the older estates were being regularly monitored to ensure that they would be maintained in a safe condition until demolition of the buildings.

An Asbestos Working Group comprising representatives of the HD (as Chairman), the EPD and the Labour Department had been set up to advise on the HD's ACM abatement strategy, receive and consider ACM data and review ACM removal procedures; and

- (b) ***Control of removal works.*** The HD had proven experience in removal of ACMs. It had developed with advice from the EPD and the Labour Department detailed procedures to ensure compliance with all relevant regulations and ordinances and to safeguard the well-being of the workers, the nearby tenants and the public. Such requirements had been clearly specified in the demolition contracts.

## Management of asbestos-containing materials in public rental housing estates

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4.7 In June 2009, the HD's Estate Management Division also reviewed the management strategy for handling ACMs in PRH estates and formulated the following improvement measures:

- (a) ***Improvement to regular monitoring and abatement plan.*** Basically visual inspections would continue to be adopted to verify the surface integrity of the ACMs against cracks and broken parts that might result in friable asbestos releasing into the air:
  - (i) ***For staircase grilles and chimneys.*** In the course of daily patrol by the estate office staff, any suspected defects would be referred to the relevant DMO for further checking. In addition, DMO staff would conduct half-yearly inspections to the staircase grilles and chimneys and update the condition records accordingly; and
  - (ii) ***For encapsulated balcony grilles.*** Encapsulated balcony grilles located inside flats would be inspected half-yearly at external elevation, during vacant flat refurbishment, upon request for in-flat repair (i.e. RIMS) and during TMS in-flat inspections.

In case of doubts, staff might seek advice from the Research and Development Unit (RDU — Note 48) to engage a registered asbestos consultant for detailed inspections and recommended actions;

- (b) ***Engagement of a term registered asbestos consultant.*** To ensure the remaining ACMs in PRH estates would be managed properly and effectively, a term consultancy on a yearly basis for the advisory, monitoring and removal/repair works supervision to ACM-related issues was proposed to provide specialist support when necessary; and
- (c) ***Enhanced communication.*** Measures to enhance communication included the following:

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**Note 48:** *The RDU, under the Estate Management Division of the HD, is responsible for maintaining the asbestos abatement programme.*

- (i) ***Internal staff briefing.*** Briefing sessions would be conducted to refresh those technical and management staff concerned on detailed guidelines and arrangements of monitoring and handling asbestos; and
- (ii) ***Communication to public.*** Apart from the current practice of keeping ACM records of individual estates at estate offices for viewing by tenants, the ACM records would be posted up on notice boards of estates and the full set of ACM records would be uploaded to the HA website for public information (Note 49).

4.8 From 2011-12 to 2015-16, the Transport and Housing Bureau submitted a total of four reports (Note 50) on the HA's environmental performance to the LegCo Panel on Housing informing members that the ACMs in existing PRH estates had been maintained in satisfactory condition by conducting two condition surveys each year.

### ***Condition surveys of ACMs in PRH estates***

4.9 The HD has laid down the following guidance for staff in conducting half-yearly condition surveys of ACMs in balcony/lobby/staircase grilles and chimneys of PRH estates:

- (a) ***Assessment criteria.*** An ACM unit (e.g. a whole panel or a roof tile) is initially inspected and considered independently. Those damaged parts that are clustered at one point are defined as localised. Single cracks that can be found in various locations on the ACM unit are taken as scattered. If localised damage exceeds 10% of the total area or length of that ACM unit, or if scattered damage exceeds 5% of the total area or length of that ACM unit, that ACM unit will be considered as in poor condition. For balcony and lobby/staircase grilles, initial inspection is conducted on the exterior using binoculars. For those grilles classified as poor (e.g. with major cracks or chipping), they are to be inspected at close range. The

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**Note 49:** *According to the HD, only estates with ACMs accessible to tenants and the public would be promulgated on the HA website for public information.*

**Note 50:** *No such report was submitted for the year 2012-13.*

## Management of asbestos-containing materials in public rental housing estates

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potential for further deterioration is assessed. Those that can be easily reached by occupants are classified as accessible. Where this is the case, the grille is recorded and put on an immediate removal programme. For chimneys, every section of the chimney body is surveyed if applicable;

- (b) **Reporting of survey results.** DMO/PSA staff are responsible for conducting half-yearly condition surveys of ACMs and recording the results in a specified report form (Form F04) for submission to the RDU. Form F04 has stipulated that the results of in-flat inspections of balcony grilles conducted during routine in-flat repair and vacant flat refurbishment (see para. 4.7(a)(ii)) should be included therein together with the condition survey results; and
- (c) **Random check of survey results.** The RDU carries out a random check of the submitted survey results as contained in Form F04s and advises the DMO/PSA of any discrepancies.

## Monitoring of asbestos-containing materials in public rental housing estates

### *Previously unannounced PRH estates/block with ACMs*

4.10 In June 2016, Audit obtained from the HD the results of half-yearly condition surveys conducted from 2010 to 2015 for examination. Audit noted that each survey covered all the PRH estates containing ACMs as promulgated on the HA website (see para. 4.7(c)(ii)). With the redevelopment programme, the number of estates with ACMs posted on the HA website decreased from 20 in June 2010 to 17 in October 2013 which had since remained unchanged up to 17 October 2016. The building elements with ACM in the 17 PRH estates were balcony grilles, staircase/lobby grilles and chimneys (see Appendix C). However, according to the list of PRH estates with ACMs distributed to the DMOs/PSAs for conducting the June 2016 condition survey, the number of PRH estates with ACMs was 21, four more than the 17 then promulgated on the HA website (Note 51). One of the promulgated 17 estates (i.e. Fu Shan Estate) was also shown to have ACMs in an additional block (i.e. Fu Lai House). The details of the five unannounced PRH estates/block with ACMs are shown in Table 9.

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**Note 51:** On 18 October 2016, the number of PRH estates with ACMs on the HA's website was updated to 21.



## Management of asbestos-containing materials in public rental housing estates

**Table 9**

**Five unannounced PRH estates/block with ACMs  
(June 2016)**

<b>Estate</b>	<b>Number of blocks</b>	<b>Year of completion of construction</b>	<b>Building element with ACMs</b>
Choi Hung	9	1962	Roof vent pipe
Fu Shan (Fu Lai House)	1	1978	Internal chimney
Fuk Loi	2	1963	Roof vent pipe of refuse chute
Tai Yuen	1	1980	Corrugated cement sheet
Long Bin Interim Housing	1 (Note 1)	1985 (Note 2)	Corrugated cement sheet

*Source: HD records*

*Note 1: The Long Bin Interim Housing has 9 blocks, 8 of which were built in 1999. The remaining block with ACM is a single-storey structure which was part of the former Long Bin Temporary Housing Area but retained for use as an estate office and a non-government organisation facility. In May 2016, the Long Bin Interim Housing was vacated pending redevelopment.*

*Note 2: According to the authorised drawing provided by the HD, the design of Long Bin Temporary Housing Area was approved in August 1984. According to the HD's press release of July 1985, construction of the single-storey structure of the Long Bin Temporary Housing Area for use as an office was completed at that time.*

4.11 On 16 August 2016, Audit requested the HD to provide the background information of the five unannounced PRH estates/block with ACMs. In August and September 2016, the HD informed Audit that:

## Management of asbestos-containing materials in public rental housing estates

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- (a) ACMs in the five unannounced PRH estates/block were at roofs/refuse room inaccessible to tenants and the public. In July 2016, the HD engaged a consultant to survey and review the existing ACM monitoring system. The HD would discuss the review findings with the EPD and the Labour Department (see para. 4.6(a)); and
- (b) according to the HD's records, the five unannounced PRH estates/block with ACMs were not newly identified cases and there were no other unannounced estates with ACMs.

On 27 September 2016, the HD provided Audit with records on PRH estates/block with ACMs. However, such records could not clearly show when the ACMs in five unannounced PRH estates/block were identified, and that there were no other unannounced estates with ACMs.

4.12 Based on information available, Audit had the following concerns on the previously unannounced PRH estates/block with ACMs:

- (a) *Use of ACMs after the HD's ban.* According to the HD, ACMs had been used for housing estates built before 1984 and banned thereafter (see para. 4.6). However, as shown in Table 9, the single-storey structure with ACMs within the Long Bin Interim Housing was built in 1985, suggesting that ACMs might have been used in housing structures after the HD's ban; and
- (b) *Possible deterioration over the years.* The five previously unannounced PRH estates/block with ACMs were built from 1962 to 1985. Without proper management and monitoring through condition surveys before 2016, their condition could have deteriorated over the years, thus increasing the risk of asbestos exposure of construction workers and the HD's maintenance staff.

The HD needs to expedite action to ascertain the condition of ACMs in these estates/block and take necessary follow-up action.

***Damaged balcony/lobby grille panels with ACMs***

4.13 ***Damaged balcony grille panels with ACMs.*** On 7 July and 10 August 2016, Audit carried out joint inspections with HD staff of Hing Wah (II) Estate and Shek Lei (2) Estate (Interim Housing) (the two estates with ACMs in balcony grille panels). Based on visual inspections from the ground level using binoculars, the following problems were identified in six flats:

- (a) ***Hing Wah (II) Estate.*** A flat was found with two drilled holes and another one with cracks on the asbestos-containing balcony grille panels (see Photographs 4 and 5); and
- (b) ***Shek Lei (2) Estate (Interim Housing).*** Two flats were found with damaged parts on the asbestos-containing balcony grille panels (see an example in Photograph 6) and two other flats were found with objects protruding from the panels (see an example in Photograph 7 showing a protruding pipe).

**Photograph 4**

**Drilled holes on asbestos-containing balcony grille panel  
in Hing Wah (II) Estate**



*Source: Photograph taken by Audit staff on 7 July 2016*

**Photograph 5**

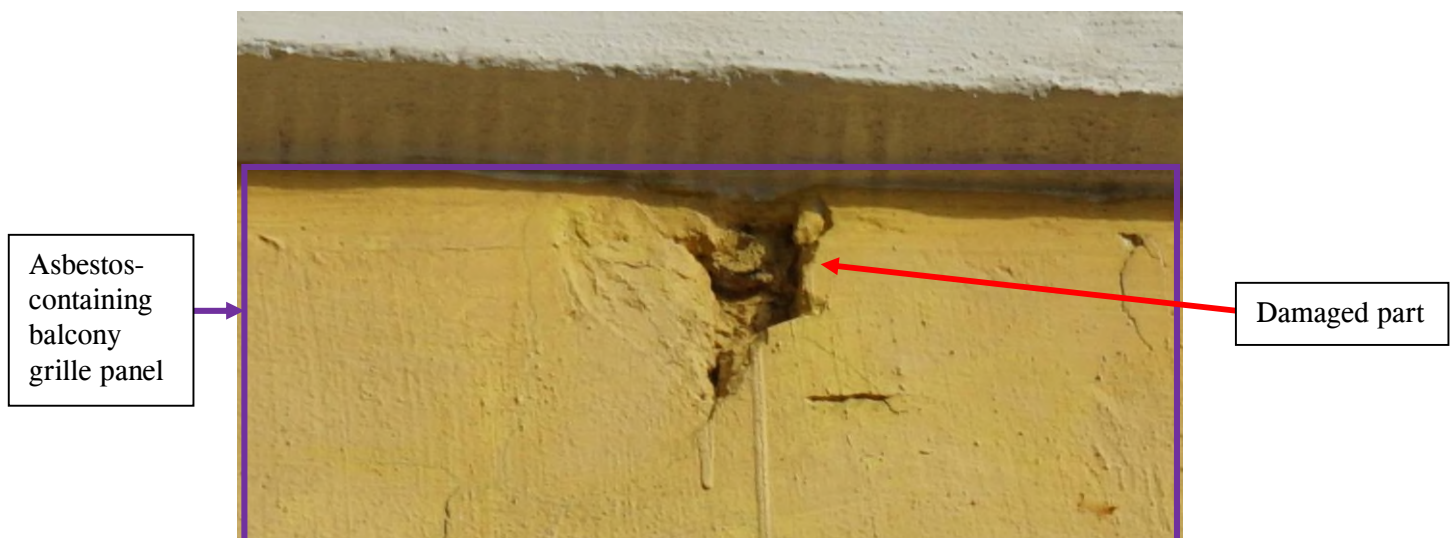
**Cracks on asbestos-containing balcony grille panel  
in Hing Wah (II) Estate**



*Source: Photograph taken by Audit staff on 7 July 2016*

**Photograph 6**

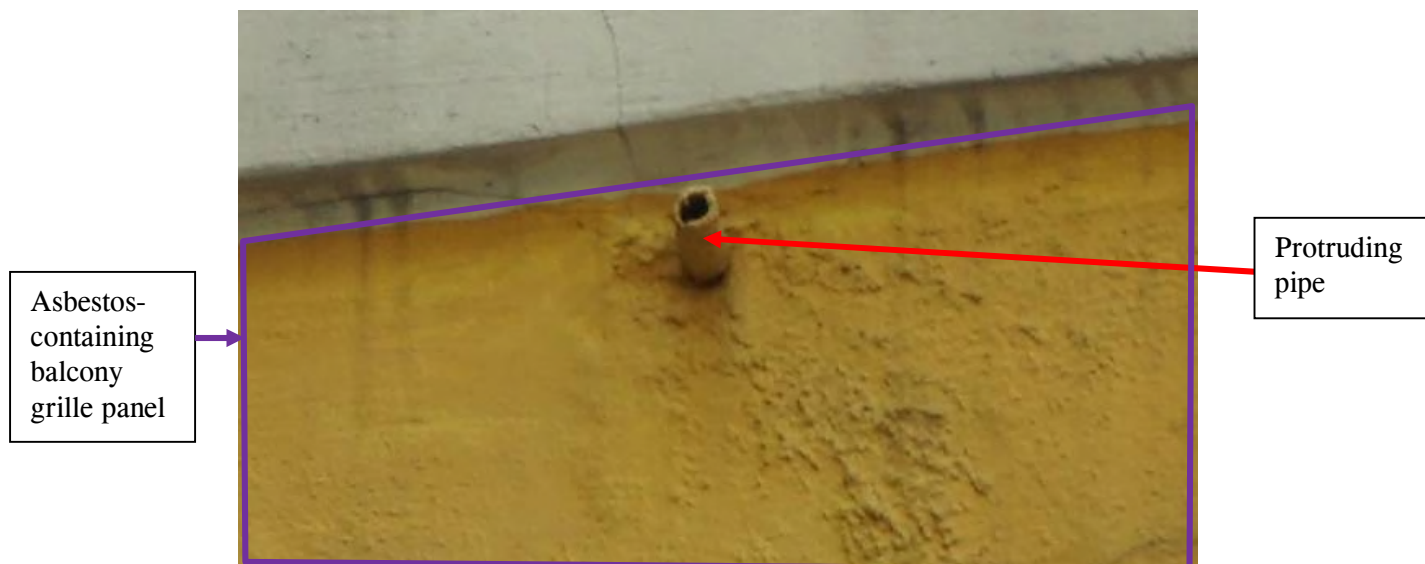
**Damaged part on asbestos-containing balcony grille panel  
in Shek Lei (2) Estate (Interim Housing)**



*Source: Photograph taken by Audit staff on 10 August 2016*

**Photograph 7**

**Protruding pipe on asbestos-containing balcony grille panel  
in Shek Lei (2) Estate (Interim Housing)**



*Source: Photograph taken by Audit staff on 10 August 2016*

4.14 All these six cases had not been reported by the HD's condition surveys conducted from 2010 to 2015 under the HD's existing assessment criteria (which were based on the length and surface area of the damage) for triggering a close range inspection (see para. 4.9(a)). However, the nature of these damaged parts (e.g. the drilled holes and protruding objects) suggested that there could be damage beneath the surface that warranted more detailed inspections. In Audit's view, the HD needs to review these six cases to see if any necessary follow-up action is required. The HD also needs to consider providing more guidelines on assessing the nature of damage found in condition surveys in light of the six cases.

4.15 In the joint inspection of Shek Lei (2) Estate (Interim Housing) (see para. 4.13), Audit also noted that a railing was installed on the balcony grille panel of a ground floor flat, which according to the records kept by the PSA (see Note 16 to para. 2.3), contained ACMs (see Photograph 8). In September 2016, the HD informed Audit that after verification, the PSA's records were found to be

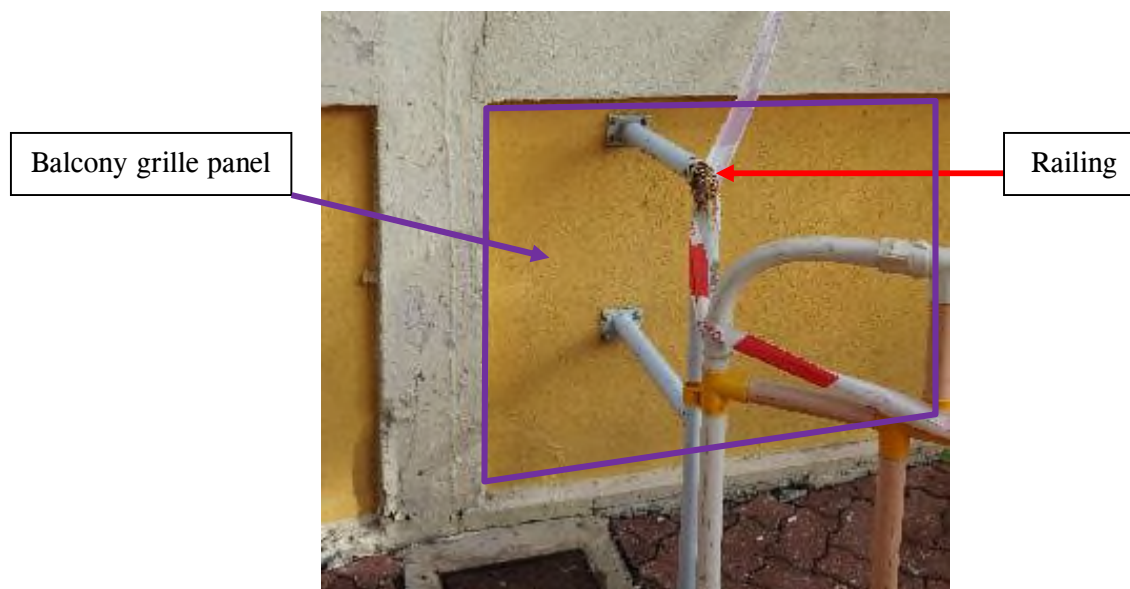
## Management of asbestos-containing materials in public rental housing estates

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inaccurate and the balcony grille panel in question did not contain ACMs (Note 52). It was unsatisfactory that the ACM records which had all along been used by the Shek Lei (2) Estate (Interim Housing) PSA for conducting condition surveys and advising tenants of the ACM locations were inaccurate. In Audit's view, the HD needs to carry out a review on all ACM records maintained by its PSA/DMO/estate offices to ascertain their accuracy and completeness.

### Photograph 8

**Railing installed on the balcony grille panel  
of a ground floor flat  
in Shek Lei (2) Estate (Interim Housing)**



*Source: Photograph taken by Audit staff on  
10 August 2016*

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**Note 52:** *In response to Audit's request for viewing the supporting records that the balcony grille panel in question did not contain ACMs, the HD could only provide Audit with the building plan of a Mark V type PRH estate which had the same design as Shek Lei (2) Estate (Interim Housing).*

4.16 *Damaged lobby grille panel with un-encapsulated ACMs.* According to the HD, ACMs in good condition such as the lobby/staircase grilles could be left intact without any treatment (see para. 4.6(a)(ii)). As set out in the EPD's guidelines, the situation of untreated ACMs should be monitored by regular surveillance to make sure that no disturbance would be made to the ACMs during normal use, repair or refurbishment (see para. 4.4(b)). However, Audit's inspection of selected lobby/staircase grilles of Hing Wah (II) Estate (Note 53) revealed that an asbestos-containing lobby grille on the seventh floor of Fung Hing House had two damaged parts. One of them appeared to be an opening to allow room for the running of a drainage pipe from inside to the exterior (see Photograph 9). Another asbestos-containing lobby grille on the twelfth floor of Yu Hing House was found to have one damaged part (see Photograph 10). There was a risk of exposure to asbestos for workers/tenants nearby when the damage was inflicted/opening was made. However, these damaged parts had not been reported in the condition surveys from 2010 to 2015 under the HD's existing assessment criteria (see para. 4.9(a)).

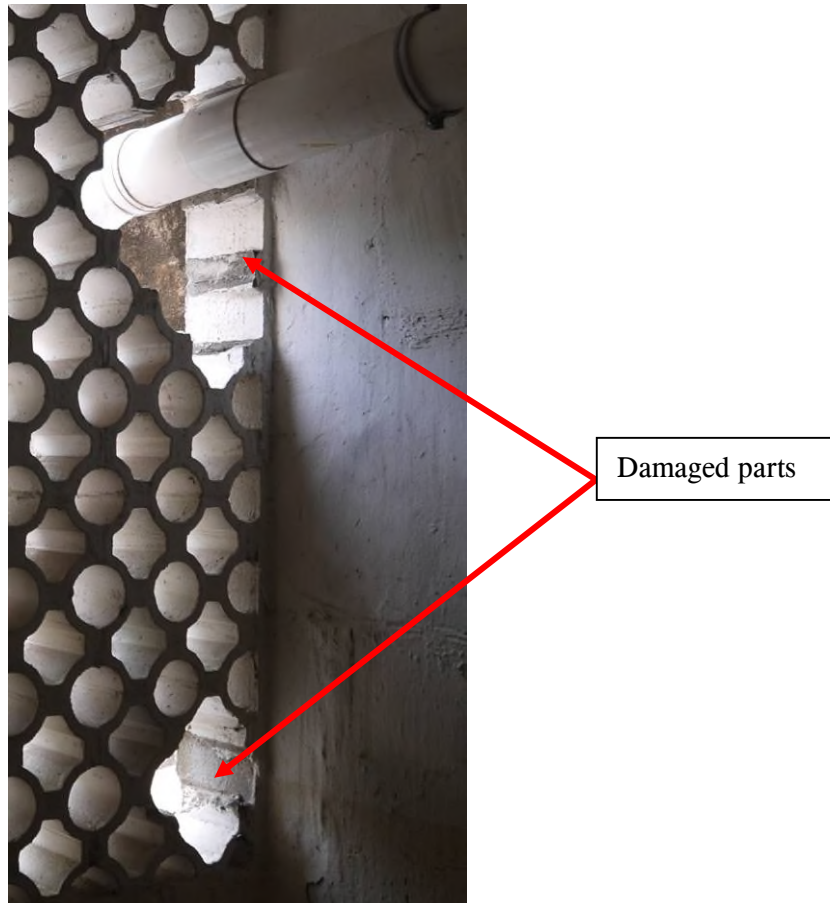
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**Note 53:** *The inspection conducted on 8 August 2016 covered the seventh, eighth and twelfth floors in each of Fung Hing House, Lok Hing House and Yu Hing House selected from the HD's ACM records.*



**Photograph 9**

**Asbestos-containing lobby grille with  
damaged parts on the seventh floor of  
Fung Hing House, Hing Wah (II) Estate**

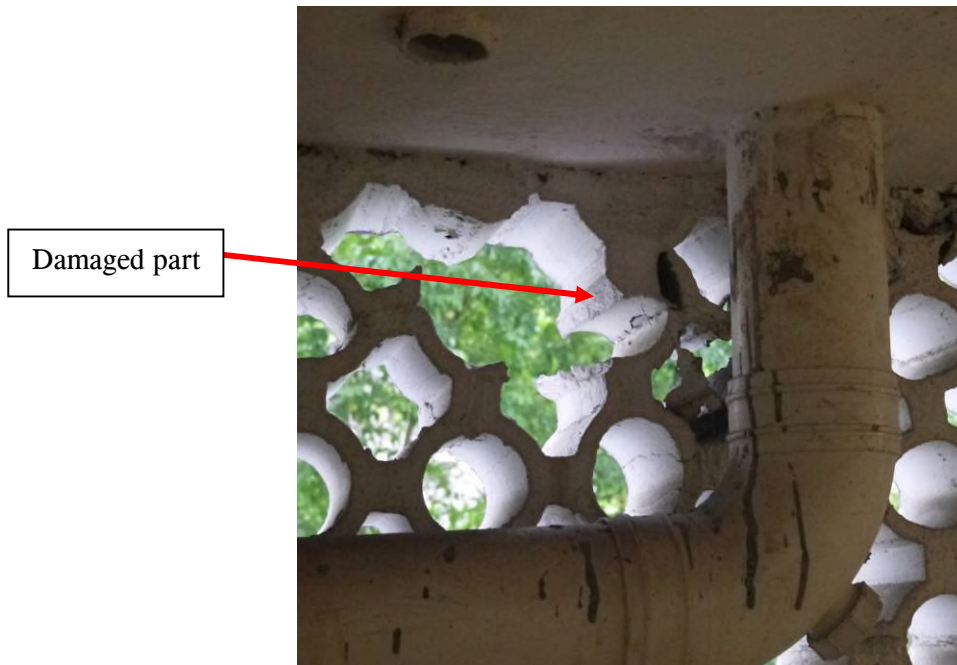


*Source: Photograph taken by Audit  
staff on 8 August 2016*



**Photograph 10**

**Asbestos-containing lobby grille with  
a damaged part on the twelfth floor of  
Yu Hing House, Hing Wah (II) Estate**



*Source: Photograph taken by Audit staff on  
8 August 2016*

4.17 The damaged lobby grilles with un-encapsulated ACMs could increase the risk of tenants' exposure to asbestos. On 25 August 2016, the HD informed Audit that:

- (a) during the HD's June 2016 condition survey, the lobby grilles with ACM on the seventh floor of Fung Hing House and the twelfth floor of Yu Hing House were found to have some parts removed and openings left at several spots. DMO staff assessed that the localised damage was less than 10% of the grille panel and thus concluded that the grille panels were in satisfactory condition. For the replacement of the drain pipe completed last year at the seventh floor of Fung Hing House, there was no damage to the exiting grilles during the replacement work. No sign of deterioration was observed; and

## **Management of asbestos-containing materials in public rental housing estates**

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- (b) the said grille panels in Hing Wah (II) Estate had been inspected recently by its consultant who advised that the hazard level of ACM at the grille panels was low and no immediate action was required.

In Audit's view, the HD needs to inspect all lobby/staircase grilles with un-encapsulated ACMs to ascertain whether there are similar damaged cases and take follow-up actions as needed.

### ***In-flat inspections of ACMs in balcony grilles***

4.18 According to the HD, besides the half-yearly condition surveys at external elevation, asbestos-containing balcony grilles located inside flats are inspected during vacant flat refurbishment, upon request for in-flat repair and during TMS in-flat inspections (see para. 4.7(a)(ii)). The results of these in-flat inspections should also be recorded in the Form F04s used for reporting the condition survey results (see para. 4.9(b)). Based on a review of the Form F04s submitted to the RDU from 2010 to 2015, Audit found that there is room for improvement in conducting the in-flat inspections (see paras. 4.19 to 4.21).

4.19 ***Need to strengthen TMS in-flat inspection procedures.*** In the Form F04 of December 2012, it was reported that part of the asbestos-containing balcony grille of a flat in Hing Wah (II) Estate was exposed inside the flat. In 2013, the asbestos-containing balcony grille in the subject flat, which had been confirmed to be un-encapsulated during vacant flat refurbishment, was removed. Audit found that an in-flat inspection of the same flat was also conducted by the TMS team in 2007 but the un-encapsulated ACM condition was not reported for carrying out necessary abatement works in a timely manner (see Case 1 for details).

**Case 1**

**Un-encapsulated ACMs found in  
the balcony grille of a flat of Hing Wah (II) Estate**

1. In May 2012, a flat of Hing Wah (II) Estate was surrendered to the HD. In the HD's inspection of the flat for refurbishment, the asbestos-containing balcony grille panel was found to be un-encapsulated and spalling/cracks were apparent (see Photograph 11). In an internal e-mail of the HD of October 2012, the RDU advised the estate office that the un-encapsulated grille panel had been missed for encapsulation works in the early 1990s (see para. 4.39). The HD sought advice from its asbestos consultant who recommended the removal of ACMs in the balcony grille panel due to poor condition of concrete of the balcony.

2. In August 2013, the HD obtained the EPD's approval of the asbestos investigation report and asbestos abatement plan in accordance with the APCO requirements. In September 2013, the asbestos removal works by a registered asbestos contractor were completed and the flat was then refurbished for letting.

***Audit comments***

3. According to the HD's Asbestos Management Manual issued in 2003, un-encapsulated asbestos-containing balcony grille panels should be encapsulated if access and other constraints could be overcome (see para. 4.37). Audit examined the TMS records and found that an in-flat inspection of the subject flat was conducted in May 2007. However, the un-encapsulated condition of the balcony grille panel was not reported in 2007. In this connection, Audit noted that the inspection checklist for TMS staff had not drawn their attention to the asbestos management manual requirements. As asbestos in balcony grilles is vulnerable to deterioration (see para. 4.6(a)(i)), spalling/cracks were apparent when the un-encapsulated condition was detected and reported during vacant flat refurbishment in 2012. In Audit's view, the HD needs to draw lessons from this case and take measures to strengthen the TMS in-flat inspection procedures of asbestos-containing balcony grilles.

*Source: Audit analysis of HD records*

**Photograph 11**

**Condition of asbestos-containing balcony grille panel  
before and after ACM removal works  
in a vacated flat of Hing Wah (II) Estate in 2013**

**Before works**

**After works**



*Source: HD records*

4.20 *Need to closely monitor the extent of in-flat inspections of asbestos-containing balcony grilles.* According to HD records, 2,009 flats (74% of the total 2,710 flats) in four blocks of Hing Wah (II) Estate have ACMs in balcony grilles. However, based on the submitted Form F04s from 2010 to 2015, only 266 in-flat inspection results of balcony grilles had been reported during the four years from 2010 to 2013 (see para. 4.21). As the 266 reported results included both those with defects found (one case) and those without (265 cases), they were indicative of the total number of in-flat inspections conducted in these four years, which only covered 13% of the 2,009 flats with ACMs in balcony grilles in Hing Wah (II) Estate. In Audit's view, the HD needs to closely monitor the extent of in-flat inspections to ensure an adequate coverage of all the asbestos-containing balcony grilles within a reasonable time frame.

4.21 *Need to always report in-flat inspection results.* As the HD's guidelines require the RDU to conduct a random check on the submitted inspection results (see para. 4.9(c)), it is necessary to report the inspection results on Form F04s even when no defects have been found. Otherwise, the RDU would not be in a position to select samples for conducting the stipulated random check. However, for Shek Lei (2) Estate (Interim Housing) which has ACMs in the balcony grilles of 1,143 flats (59% of the total 1,928 flats), no in-flat inspection results had been

reported throughout the six years from 2010 to 2015. For Hing Wah (II) Estate, no in-flat inspection results had been reported in the submitted Form F04s for two years in 2014 and 2015. In this connection, Audit found an unreported case of un-encapsulated asbestos-containing balcony grilles in Hing Wah (II) Estate in 2015 which apparently had gone unnoticed by the RDU (see Case 2 in para. 4.27). In Audit's view, the HD needs to remind staff concerned to always report in-flat inspection results in Form F04.

4.22 ***Monitoring of ACM condition surveys.*** In June and September 2016, in response to Audit's request for records of the RDU's random check on ACM condition surveys, the HD said that:

- (a) the RDU scrutinised the half-yearly condition survey forms submitted by front-line staff and requested clarification from them in case of discrepancies found in the forms;
- (b) the RDU selected the estates randomly and arranged a registered asbestos consultant to carry out condition surveys and air sampling/monitoring tests to ascertain the condition of the ACMs in the estates; and
- (c) the consultant's random checks from 2011 to 2015 covered the following:
  - (i) air sampling/monitoring tests at Hing Wah (II) Estate and Shek Lei (2) Estate (Interim Housing) in 2015;
  - (ii) air sampling/monitoring tests at Tung Tau (I) Estate, Hing Wah (II) Estate and Shek Lei (2) Estate (Interim Housing) in 2012; and
  - (iii) condition surveys at five estates in 2011 including chimneys of Wah Fu (I) Estate and Wan Tsui Estate, staircase grilles of Yue Wan Estate and Kwai Shing West Estate, and balcony grilles of Hing Wah (II) Estate (1 of the 4 blocks).

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4.23 In Audit's view, the HD needs to step up monitoring of ACM condition surveys, because the RDU's scrutiny of the half-yearly condition survey forms (without cross-checking other relevant documents, e.g. RIMS records) could not detect unreported problems (such as Case 2 in para. 4.27). The HD consultant's condition surveys were conducted only once in the past five years whereas the EPD's guidance advises that a registered asbestos consultant should be appointed to carry out a comprehensive re-inspection of all the ACMs at least once every two years (see para. 4.4(c)). Audit also noted that in the condition survey report of Hing Wah (II) Estate of April 2011 (see para. 4.22(c)(iii)), the consultant submitted close-up photos of some inspected balcony grille panels. However, all the panels shown in these photos were on the lower floors which according to the HD's ACM records did not contain ACMs (see para. 4.20). There was no record to show that the HD had sought clarification from the consultant concerned. The HD needs to step up monitoring of the condition surveys conducted by consultants to prevent recurrence of similar problem.

### **Audit recommendations**

4.24 **Audit has *recommended* that the Director of Housing should:**

- (a) **for the five PRH estates/block with ACMs not previously announced, expedite action to ascertain their condition and take necessary follow-up action;**
- (b) **review the six cases of damaged asbestos-containing balcony grille panels in Hing Wah (II) Estate and Shek Lei (2) Estate (Interim Housing) (see para. 4.14) to see if any necessary follow-up action is required;**
- (c) **consider providing more guidelines on assessing the nature of damage found in condition surveys of ACMs in PRH estates in light of the six cases;**
- (d) **carry out a review on all ACM records maintained by the PSA/DMO/estate offices to ascertain their accuracy and completeness;**

- (e) **inspect all lobby/staircase grilles with un-encapsulated ACMs to ascertain whether there are damaged cases similar to those mentioned in paragraph 4.16 for taking necessary follow-up actions;**
- (f) **strengthen the TMS in-flat inspection procedures, such as stipulating in the inspection checklist a requirement of examining/reporting on the condition of asbestos-containing balcony grilles;**
- (g) **closely monitor the extent of in-flat inspections to ensure an adequate coverage of all the asbestos-containing balcony grilles within a reasonable time frame;**
- (h) **remind staff concerned to always report all in-flat inspection results of asbestos-containing balcony grilles in Form F04; and**
- (i) **step up monitoring of ACM condition surveys conducted by HD staff and consultants.**

## **Response from the Government**

4.25 The Director of Housing agrees with the audit recommendations. He has said that:

- (a) for the five previously unannounced PRH estates/block, the HD has been fully aware of the existence of ACMs and their locations. These ACMs have been incorporated in the HD's established monitoring list. Site inspection has been conducted to all these five estates/block and ascertained that they are in good condition. The HD will continue to monitor the condition of ACMs and carry out half-yearly inspections;
- (b) the HD had requested the asbestos consultant to specifically examine the six cases. The consultant advised that the defects were minor in nature and did not exceed the 10% or 5% assessment criteria (see para. 4.9(a)). The HD will continue to monitor the grille panels with ACMs and issue additional guidelines on the assessment method on the condition of ACMs;

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- (c) the HD has reviewed the ACM records kept at the PSA/DMO/estate offices to ensure their accuracy and completeness;
- (d) the HD had already arranged the asbestos consultant to conduct a comprehensive inspection in July 2016. The lobby/staircase grilles with ACMs at all three estates (see Appendix C) had been inspected by the consultant and confirmed that no major defects/damage of lobby/staircase grilles which exceeded the 10% or 5% assessment criteria were identified. All air samples collected were in order. The HD will continue to monitor the grille panels with ACMs;
- (e) the condition of the balcony grilles with ACMs had been included in the TMS in-flat inspection. The HD considers that the TMS in-flat inspection is not an adequate means to monitor the condition of the balcony grilles with ACMs in view of its functions and frequency. The HD will introduce new measures to step up the monitoring of the balcony grilles with ACMs:
  - (i) including in-flat inspections of the balcony grilles with ACMs in the half-yearly condition survey;
  - (ii) assigning an Asbestos Manager for each of the concerned estates to coordinate ACMs matters;
  - (iii) enhancing training for the front-line staff to raise awareness;
  - (iv) labelling all ACMs; and
  - (v) enhancing publicity to alert tenants not to disturb the ACMs at balcony grilles and to report any defects indentified; and
- (f) the HD will review and enhance the existing monitoring system and implement the new measures mentioned in (e) above. Training classes and seminars will be arranged for the front-line staff to enhance their awareness and remind the technical staff about the key points in preparing the inspection report.



## **Control over works affecting asbestos-containing materials in public rental housing estates**

4.26 According to the APCO, all asbestos abatement works or works involving the use or handling of ACMs must be carried out and supervised by registered personnel in compliance with prescribed standards (see para. 4.2(c)). The EPD's guidelines have advised that workers, tenants and other users of the premises should be encouraged to notify the owner of even small planned maintenance and renovation before any works are carried out (see para. 4.4(f)). In addition, an authorisation system should be adopted to monitor any operation and maintenance, and prevent accidental disturbance of ACMs.

### ***HD contractors' works affecting ACMs of balcony grilles***

4.27 ***Repair works for balcony grille panel with un-encapsulated ACMs.*** With the assistance of the DMO, Audit selected records of balcony wall concrete spalling repair works carried out by the HD in Hing Wah (II) Estate from 2014 to 2015 for examination. Audit found a case of concrete spalling repair works for balcony grille panel with un-encapsulated ACMs in 2015. The repair and encapsulation works were carried out by the HD's RIMS contractor which might not have complied with the APCO requirements/HD's laid-down procedures (see Case 2 for details).

## **Case 2**

### **Concrete spalling repair and encapsulation works of asbestos-containing balcony grille panel carried out by the RIMS contractor**

1. In July 2015, the HD's RIMS contractor carried out repair of concrete spalling of the balcony grille panel of a flat in Hing Wah (II) Estate. According to HD records, the balcony grille panel of the subject flat contained asbestos. The HD's photograph taken before works (see Photograph 12) showed that the ACMs were un-encapsulated.

**Case 2 (Cont'd)**

2. According to the HD's Asbestos Technical Guides, where the asbestos-containing balcony grille panels are in good condition, encapsulation may be handled as normal maintenance works using specified methods (Note). While Photograph 12 suggested that the condition of the panel before encapsulation works might not have been in good condition, there was no record to show that the RDU or the Maintenance Surveyor of the DMO concerned had been consulted before proceeding with the repair and encapsulation works by the RIMS contractor instead of a registered asbestos contractor in accordance with the APCO requirements. There was also no record to show that the specified methods had been used for the encapsulation works and the prescribed encapsulation works report form had been submitted by a project Maintenance Surveyor to the RDU after works.

***Audit comments***

3. Audit was concerned that the repair and encapsulation works involving ACMs might not have complied with the APCO requirements or the HD's encapsulation works procedures. The case indicated that HD front-line staff concerned did not have adequate training/alertness in handling repair works in PRH estates with ACMs despite the HD's undertaking to enhance staff training in monitoring and handling asbestos in 2009 (see para. 4.7(c)(i)).

4. As mentioned in paragraphs 4.21 and 4.23, the RDU failed to detect this case as in-flat inspection results were not reported in Form F04s for Hing Wah (II) Estate in 2015.

5. In Audit's view, the HD needs to draw lessons from this case and strengthen the monitoring and control of maintenance and repair works involving ACMs.

*Source:* Audit analysis of HD records

*Note:* According to the HD, the Asbestos Technical Guides had been agreed with the EPD.

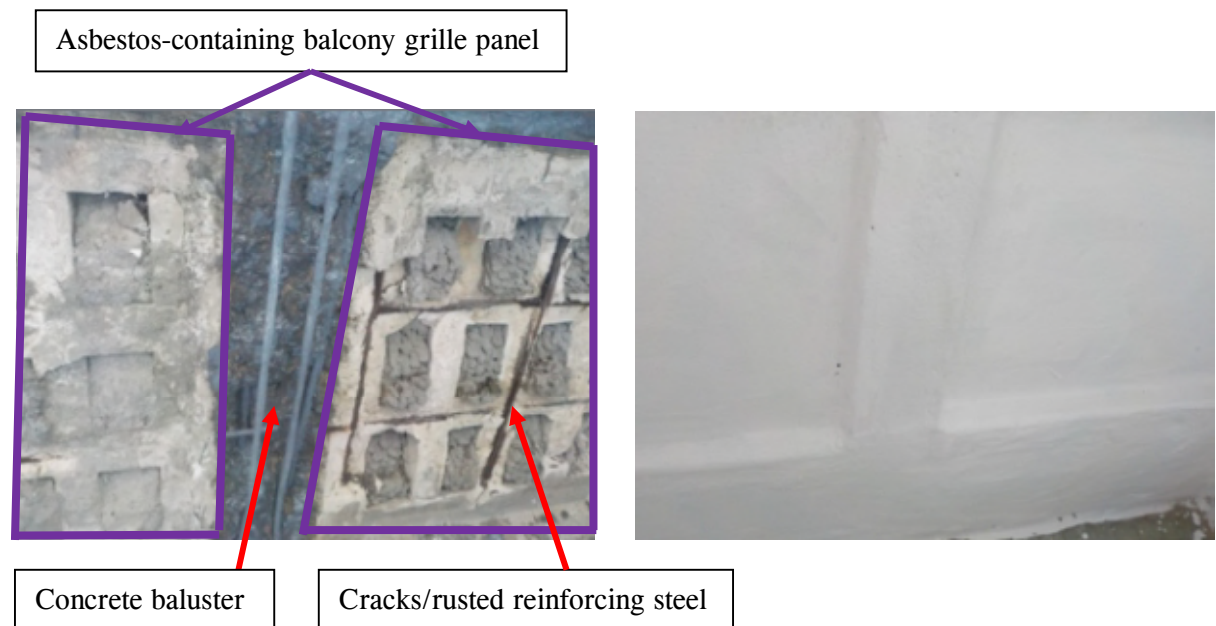
*Remarks:* Similar to Case 1 in paragraph 4.19, an in-flat inspection of the flat was conducted under the TMS in June 2007 but the un-encapsulated ACM condition had not been reported.

Photograph 12

Condition of balcony grille with un-encapsulated ACMs  
before and after encapsulation works in 2015  
in Hing Wah (II) Estate

Before encapsulation

After encapsulation



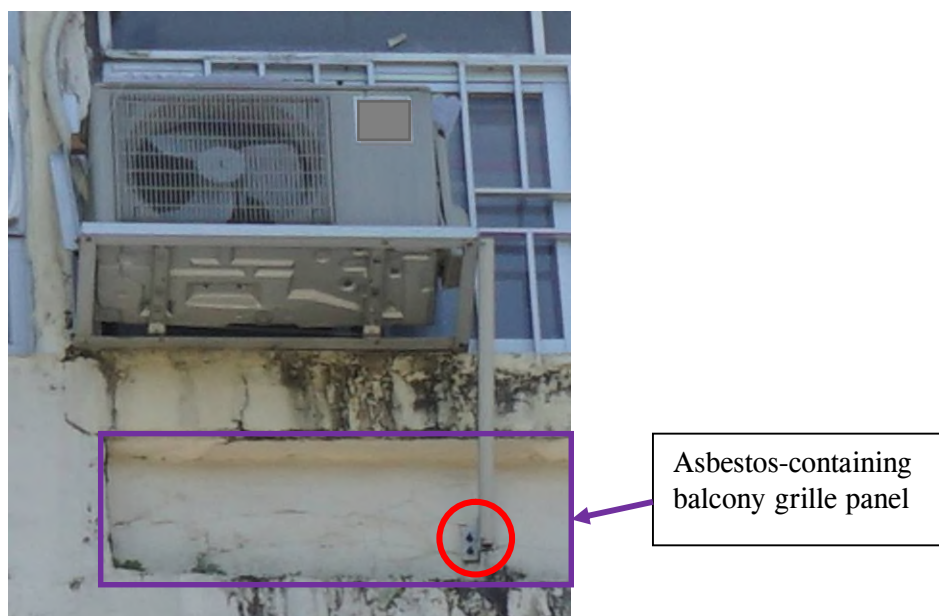
Source: HD records

### ***Tenants' works affecting ACMs of balcony grilles***

4.28 ***Air-conditioner works outside flat.*** In the joint inspection of Hing Wah (II) Estate on 7 July 2016 (see para. 4.13), Audit found that air-conditioner supporting frames were mounted on the asbestos-containing balcony grille panels of 11 flats (see Photograph 13 for an example). On 8 July 2016, HD staff found 6 other similar cases in Hing Wah (II) Estate, making up a total of 17 such cases.

**Photograph 13**

**Air-conditioner supporting frame mounted  
on asbestos-containing balcony grille panel  
in Hing Wah (II) Estate**



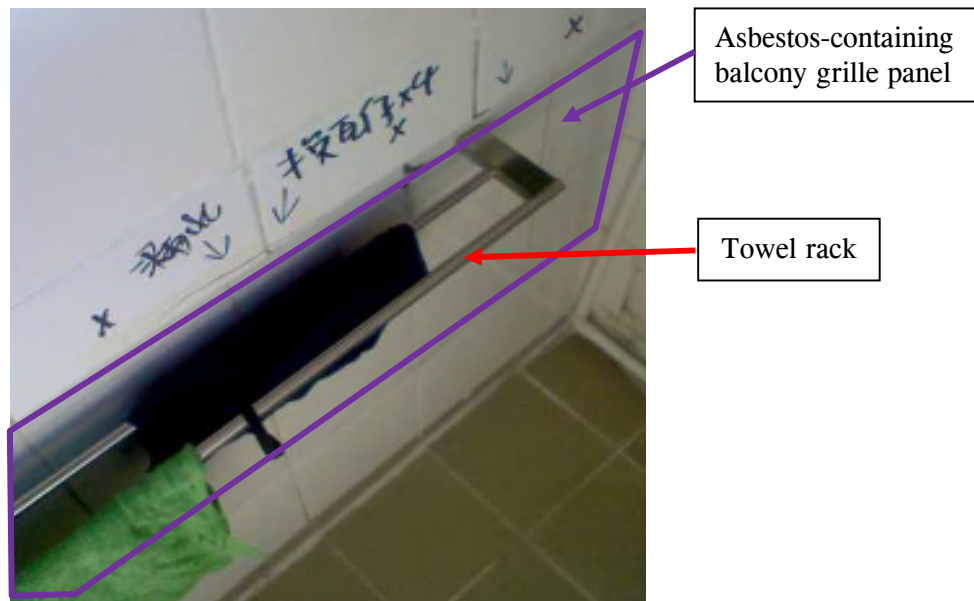
*Source: Photograph taken by Audit staff on  
7 July 2016*

4.29 ***Need to tighten the control over unauthorised works.*** HD staff had confirmed that all the 17 cases of air-conditioners mounted on the balcony grille panels were unauthorised as they had protrusions exceeding the HD allowed 100 mm from the external walls. There was a risk that the installation of these air-conditioners without the HD's authorisation and hence monitoring could have disturbed the ACMs and exposed the installation workers to asbestos thus released. In Audit's view, the HD needs to tighten the control over unauthorised works undertaken by tenants which could disturb ACMs and expose the tenants and workers to asbestos, and alert them to the risk of ACMs (see para. 4.32).

4.30 ***In-flat minor works.*** In the review of the balcony repair works records of Hing Wah (II) Estate (see para. 4.27), Audit found that a tenant had installed a towel rack on the asbestos-containing balcony grille panel (see Photograph 14). This case illustrates that uninformed tenants may inadvertently carry out works disturbing the ACMs.

**Photograph 14**

**Towel rack installed by a tenant on the  
encapsulated asbestos-containing balcony  
grille panel in Hing Wah (II) Estate**



*Source: HD records*

### ***Need to prevent accidental disturbance to ACMs***

4.31 ***Advising all people of the exact locations of ACMs.*** The HD had posted a notice on the HA website showing the name of the 17 PRH estates and their building elements containing asbestos (see Appendix C). However, the notice did not contain sufficient details about the exact locations of ACMs for estates such as Hing Wah (II) Estate and Shek Lei (2) Estate (Interim Housing) where not all flats have ACMs (see paras. 4.20 and 4.21). Tenants still need to approach the estate offices concerned to ascertain whether their flats have ACMs. In Audit's view, there is room for improvement in disseminating ACM information in a more user-friendly manner.

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4.32 **Labelling of ACMs.** According to the EPD's guidelines on asbestos management plan, all ACMs should be labelled (see para. 4.4(e)). Audit considers that this is an effective way of communicating the exact locations of ACMs to stakeholders and alerting them to the risk of accidental disturbance of the ACMs. However, Audit's inspections revealed that warning label was rarely used:

- (a) **Balcony grille panels.** In the joint inspections of 26 vacant flats with ACMs in Hing Wah (II) Estate and Shek Lei (2) Estate (Interim Housing) (see para. 4.13), only one flat was found to have the ACM warning label. According to the HD, the label was used to alert workers to the presence of ACMs in the balcony grille panel during the vacant flat refurbishment; and
- (b) **Lobby/staircase grille panels.** Audit's inspection of the asbestos-containing lobby/staircase grilles on three selected floors in each of three blocks of Hing Wah (II) Estate (see Note 53 to para. 4.16) revealed that no ACM warning label was displayed.

Uninformed tenants may inadvertently carry out works that would disturb the ACMs. Examples are the 17 cases of air-conditioners and one case of towel rack installed on the asbestos-containing balcony grille panels of Hing Wah (II) Estate (see paras. 4.29 and 4.30). In Audit's view, the HD needs to take measures to prevent accidental disturbance to ACMs in the PRH estates, including labelling all ACMs and posting the ACM notice on the notice boards of relevant estates at all times.

### ***Removal of a chimney with ACMs***

4.33 In 2001, the Chairman of the HD's Asbestos Working Group (see para. 4.6(a)):

- (a) drew regional staff's attention to the EPD's advice that:
  - (i) high risk asbestos such as asbestos thermal insulation lagging should be removed as soon as practicable once it was identified; and
  - (ii) chimneys with ACMs often contained the asbestos thermal insulation lagging; and

- (b) reminded them to arrange surveys of chimneys under their purview and implement asbestos abatement works where necessary.

4.34 In the review of the HD's condition survey results from 2010 to 2015 (see para. 4.10), Audit found a suspected case of removal of a chimney with ACMs in an estate without complying with the APCO requirements (see Case 3 for details).

### **Case 3**

#### **Suspected case of removal of a chimney with ACMs not in compliance with the APCO requirements**

1. According to the December 2010 condition survey report, a chimney with ACMs in an estate in Kowloon was found to be in poor condition, i.e. with 5 damaged parts scattered on the ground, second, third, sixth and seventh floors. In January 2011, the HD issued a letter to the owner of the chimney (a non-domestic unit tenant) advising him to engage a qualified contractor to rectify the problem. In another letter to the tenant in May 2011, the HD declined the tenant's request for the HD to repair the chimney on his behalf but advised him to make reference to the EPD website for selecting a registered asbestos contractor to undertake the repair works.
2. In the June 2011 condition survey report, the chimney was again reported to be in poor condition, as follows:
  - (a) in addition to those reported previously, another damaged part was also spotted on the fifth floor (see Photograph 15); and
  - (b) the damaged parts were near the common corridors of domestic units on the respective floors.
3. In December 2011, an updated list of PRH estates with ACMs was distributed to the DMOs/PSAs for conducting the half-yearly condition survey and the subject estate was not included in the list. There was no documented reason for the unlisting or follow-up report on the status of the chimney.

**Case 3 (Cont'd)**

4. On 14 August 2016, Audit inspected the subject estate and found that the chimney had been removed (see Photograph 16). According to the APCO, works involving the removal of ACMs should be undertaken by a registered asbestos contractor and an abatement plan should be submitted to the EPD at least 28 days in advance (see para. 4.2(c)). Upon enquiry on 22 August 2016, the EPD informed Audit that it had no record of any asbestos investigation report nor asbestos abatement plan submitted for the removal of the chimney in the subject estate.

5. On 1 September 2016, the HD informed Audit that:

- (a) there was no chimney in the original record plan of the subject estate. The chimney concerned might have been constructed by the non-domestic unit tenant; and
- (b) the tenant concerned informed the HD on 31 May 2011 and 16 July 2011 that he would remove the ACM chimney. The HD noticed that the said ACM chimney was removed in late July 2011 and hence deleted the item for the condition survey of December 2011.

***Audit comments***

6. Audit was concerned that the chimney could have been removed without complying with the APCO requirements. There was a risk that workers and nearby tenants had been exposed to asbestos during the removal process. While it was the primary responsibility of the chimney owner to meet the statutory requirements under the APCO in removing the chimney, the HD also had a monitoring role to ensure that works carried out by third parties in its managed estates would not compromise tenants' safety. The HD needs to strengthen the monitoring and control of works involving ACMs in PRH estates undertaken by third parties.


*Source: Audit analysis of HD records*



**Photograph 15**

**Damaged chimney with ACMs  
in an estate (2011)**

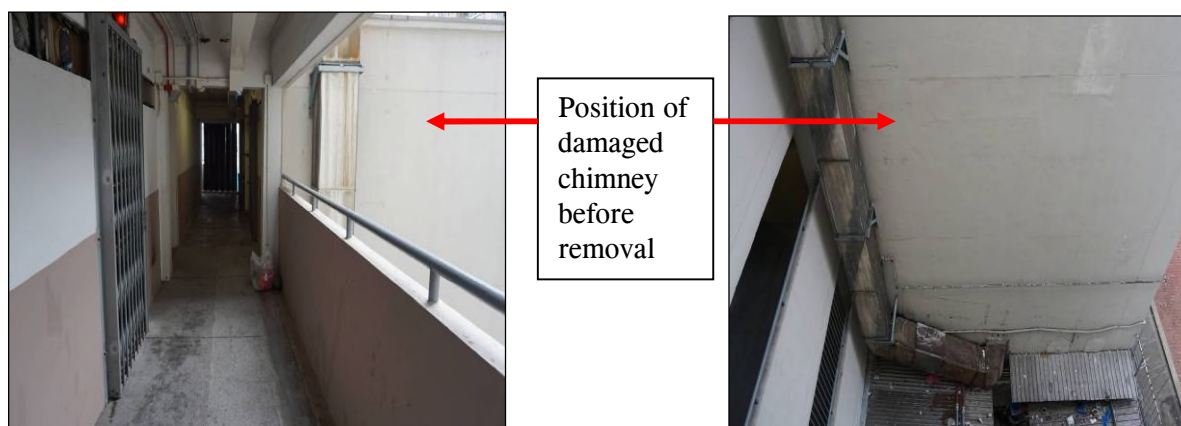


Legend:  Damage found on the chimney

Source: *HD records*

**Photograph 16**

**Damaged chimney in an estate  
near the common corridor of domestic units before removal**



Source: *Photographs taken by Audit staff on 14 August 2016*

## **Audit recommendations**

- 4.35      **Audit has *recommended* that the Director of Housing should:**
- (a)      **enhance training for both technical and management staff concerned on the statutory requirements and proper procedures in handling works involving ACMs;**
  - (b)      **strengthen the monitoring and control of the maintenance, repair and demolition works involving ACMs in PRH estates, including those undertaken by third parties;**
  - (c)      **tighten the control over unauthorised works undertaken by tenants which could impact on ACMs; and**
  - (d)      **take measures to prevent accidental disturbance to ACMs, including labelling all ACMs and posting the ACM notice on the notice boards of relevant estates at all times.**

## **Response from the Government**

4.36      The Director of Housing agrees with the audit recommendations. He has said that:

- (a)      the HD will enhance training for staff to raise their awareness in handling ACMs and alert front-line staff to report any defect/damage/poor condition of ACMs once it is noted. The HD has established a set of asbestos management policy in handling ACMs in PRH estates, which has been agreed by the EPD and the Labour Department since 1990. This includes the establishment of the Asbestos Management Manual and Asbestos Technical Guides;
- (b)      training classes and seminars will be arranged for the front-line staff to enhance their awareness of the statutory requirements and the proper handling of works involving ACMs. Besides, the contract provisions will be strengthened to require contractors to appoint a site superintendent designated for those estates having ACMs to arrange training for workers to ensure their awareness of the ACMs locations and necessary

report/procedure when ACMs are encountered. With respect to the concrete repair at the balcony reported in Case 2 (see para. 4.27), the repair works were carried out at the concrete balusters which contained no ACMs, instead of the grille panels with ACMs;

- (c) the HD will strengthen the control of works undertaken by tenants or their agents and require them to engage a registered asbestos consultant and a registered asbestos contractor to handle any works which may involve ACMs. To this end, the HD will raise tenants' awareness on asbestos and the locations of ACMs in the PRH estates through issuing pamphlets, household advices and letters to individual tenants concerned and labelling the ACMs. The HD will continue to post notices at ground floor lobbies to those buildings having ACMs and issue estate newsletters regularly and arrange briefings to the concerned Estate Management Advisory Committees, local councillors and other stakeholders;
- (d) the HD will continue to educate the tenants and take enforcement actions according to the provisions in the tenancy agreement to control against unauthorised works; and
- (e) the HD agrees that it is essential that tenants and other stakeholders are aware of the ACMs in their estates and take part in monitoring the ACMs. To this end, the HD will step up the publicity of the ACM information and take measures as mentioned in (c) above.

### **Follow-up actions on un-encapsulated asbestos-containing materials in balcony grille panels**

4.37 On 5 February 2007, in response to LegCo Panel on Housing members' enquiries about ACMs in old PRH estates, the HD assured members that the HD had kept detailed records on ACMs inside PRH flats and that these ACMs had either been removed or properly encapsulated. However, the HD's Asbestos Management Manual issued in 2003 had stated that "Most asbestos balcony grille panels of properties managed by Housing Department or HA's management agents have been encapsulated. It is intended that the remaining panels also be encapsulated if access and other constraints can be overcome". Cases 1 and 2 in paragraphs 4.19 and 4.27 illustrated that un-encapsulated ACM in balcony grille panels existed up to 2013 and 2015 respectively.

## Management of asbestos-containing materials in public rental housing estates

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4.38 Hing Wah (II) Estate and Shek Lei (2) Estate (Interim Housing) were built in 1976 and the 1960s respectively. With the lapse of time, any un-encapsulated ACMs in balcony grille panels could have been subject to deterioration (see para. 4.6(a)(i)). The cracks and spalling found in Cases 1 and 2 demonstrated the extent of deterioration of aged balcony grilles with un-encapsulated ACMs. On 8 July 2016, Audit requested the HD to provide the ACM encapsulation works records of Hing Wah (II) Estate and Shek Lei (2) Estate (Interim Housing) with a view to identifying any other cases of un-encapsulated ACMs. On 24 August 2016, the HD informed Audit that:

- (a) ***Hing Wah (II) Estate.*** According to an internal memorandum of February 1990, all balcony encapsulation works had been completed for Hing Wah (II) Estate from October 1989 to January 1990, except for 15 flats in 3 blocks where only the exterior walls of ACM balcony grille panels had been encapsulated due to problems in gaining access to these flats;
- (b) ***Shek Lei (2) Estate (Interim Housing).*** According to an internal memorandum of June 1991, all balcony encapsulation works for Shek Lei (2) Estate (Interim Housing) had been completed; and
- (c) ***In-flat inspection.*** It had engaged an asbestos consultant in late July 2016 to conduct in-flat inspections of the 15 flats in Hing Wah (II) Estate and found that their ACM balcony grille panels had been fully encapsulated.

4.39 However, the HD had no records of works in relation to the encapsulation of the 15 flats. In the circumstances, there is no assurance that the encapsulation works for the 15 flats had been carried out in compliance with the APCO requirements/HD's laid-down procedures. Audit also noted that Cases 1 and 2 were not among the 15 flats, indicating that there could be omissions in the HD's February 1990 encapsulation works records (see para. 4.38(a)). In Audit's view, the HD needs to carry out a comprehensive review of the asbestos-containing balcony grille panels of Hing Wah (II) Estate to ascertain whether there are un-encapsulated cases and take prompt remedial action accordingly. In light of the inaccurate information on encapsulation of ACMs in PRH flats provided to the LegCo Panel on Housing in 2007 (see para. 4.37), the HD also needs to take measures (such as strengthening data validation on ACMs) to prevent recurrence of similar problems.

## **Audit recommendations**

4.40      **Audit has *recommended* that the Director of Housing should:**

- (a)      **carry out a comprehensive review in Hing Wah (II) Estate to ascertain whether there are un-encapsulated cases and take prompt remedial action accordingly; and**
- (b)      **take measures to ensure that all information on ACMs provided to LegCo/Panel on Housing is accurate, such as strengthening data validation.**

4.41      **In light of the suspected cases of non-compliance with the APCO requirements highlighted in this Audit Report (such as Case 3 in para. 4.34), Audit has *recommended* that the Director of Environmental Protection should look into these cases to see if any follow-up action is required.**

4.42      **Audit has also *recommended* that the Commissioner for Labour should look into such cases to see if any follow-up action is required under the Factories and Industrial Undertakings (Asbestos) Regulation.**

## **Response from the Government**

4.43      **The Director of Housing agrees with the audit recommendations in paragraph 4.40. He has said that:**

- (a)      **the HD has arranged the asbestos consultant to conduct a comprehensive condition survey of the balcony grilles with ACMs for all of the two estates and has taken follow-up actions in liaison with the EPD and the Labour Department; and**
- (b)      **the information that the HD has been providing to LegCo/Panel on Housing and the public is accurate. The information of ACMs provided to the public has been focusing on the ACMs which are accessible to the tenants/public. The HD will take measures to ensure that all information provided to LegCo/Panel on Housing is accurate.**

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4.44 The Director of Environmental Protection agrees with the audit recommendation in paragraph 4.41.

4.45 The Commissioner for Labour accepts the audit recommendation in paragraph 4.42. He has said that:

- (a) the Factories and Industrial Undertakings (Asbestos) Regulation aims at protecting the health of workers engaged in asbestos work in industrial undertakings (see para. 4.5); and
- (b) the Labour Department has started investigation into the cases which Audit considers may have breached the APCO, and see if any follow-up action is required under the Regulation.

### *Recent developments*

4.46 On 20 October 2016, the HD provided the HA's Building Committee with an update on the asbestos management in existing old PRH estates, as summarised below:

- (a) ***Updated situation.*** A comprehensive survey on the conditions of the ACM building components conducted by a registered asbestos consultant in 2016 was substantially completed with the following findings:
  - (i) staircase/lobby grilles with ACMs in three estates were found to be in good condition except about 4 to 6% having minor defects/been disturbed. All air samples taken at these defective/disturbed grilles were in order. No repair action was required;
  - (ii) up to mid-October 2016, 99% of balcony grilles with ACMs inside domestic flats of two estates had been inspected. Seven flats were found with defects requiring follow-up action. Two flats were found with internal encapsulation missing. In about 25% of the surveyed flats, tenants had fixed racks, hangers, screws and nails on the encapsulated ACM balcony grilles. Minor cracks, holes, damage and protruding pipes were found at external side of some

## Management of asbestos-containing materials in public rental housing estates

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encapsulated grilles. Unauthorised air conditioner supporting frames were found mounted on the external walls of 17 flats in one estate. All air samples collected so far were in order. The consultant considered that with the exception of the nine flats requiring follow-up action, other issues were minor in nature and no repair action was required; and

- (iii) for external chimneys in four estates and internal chimneys in 12 estates, air samples collected so far at the chimney outlets were in order. Minor defects were found in the enclosures of some chimneys. The consultant considered that no repair action was required in most cases, except in one estate where repair of the enclosure was being arranged;

- (b) *Specific works.* Using works and methods recommended by the consultant (who had taken into account the advice from the EPD and Labour Department), the HD had taken and would continue to take immediate action to manage those ACMs requiring action:

- (i) for the 4 to 6% defective/disturbed staircase/lobby grilles in (a)(i) above, they would be prioritised for removal based on their conditions under a planned programme;
- (ii) the HD had removed, re-encapsulated or segregated the balcony grilles in the nine flats and would conduct repair works at the external walls mentioned in (a)(ii) above. Tenants would be reminded not to fix racks, hangers, nails or screws on the encapsulated balcony grilles. They would be advised to relocate the unauthorised air conditioners and the supporting frames would be removed by registered asbestos contractors. In the long term, ACM balcony grilles would be considered for removal during vacant flat refurbishment on a condition-driven basis; and
- (iii) immediate repair would be made to the enclosure of the defective chimneys. Where opportunity arose, the ACM chimneys not in use would be sealed up or removed altogether. For chimneys belonging to other owners, the HD would share with them its information on the ACMs and their maintenance obligations; and

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- (c) *Enhancing ACM management system.* The enhancement measures included the following:
- (i) an Asbestos Manager would be assigned for each of the concerned estates to handle and co-ordinate ACM matters, and to ensure the improvement measures were in place;
  - (ii) in-flat inspections would be included during the half-yearly condition survey to step up regular monitoring plan;
  - (iii) regular internal staff briefings would be held and record of ACMs would be posted at estate offices, and staff, contractors and their workers would be alerted with enhancement of contract conditions;
  - (iv) contractors would be required to appoint an estate-specific asbestos site agent/supervisor to ensure workers' awareness of the locations, risks and necessary report/procedures when ACMs were encountered; and
  - (v) it was crucial that tenants were aware of the ACMs so that they would report issues to the HD for early action and refrain from doing things that would disturb the ACMs. The HD would therefore distribute pamphlets and letters to individual tenants concerned; install labels on each location of ACMs; continue to post notices at ground floor lobby; issue estate newsletters regularly; update HA/HD website as necessary; and conduct briefings to concerned Estate Management Advisory Committees, local councillors and other stakeholders.



## **PART 5: REPLACEMENT OF LAUNDRY POLE-HOLDERS**

5.1 This PART examines the issues relating to the replacement of laundry pole-holders in PRH estates, focusing on:

- (a) implementation of the 2004-05 subsidy scheme for replacing laundry pole-holders (paras. 5.2 to 5.8); and
- (b) implementation of the 2014 programme for replacing laundry pole-holders (paras. 5.9 to 5.20).

### **Implementation of the 2004-05 subsidy scheme for replacing laundry pole-holders**

5.2 In April 2004 when seeking the endorsement of the HA's Subsidised Housing Committee for the 2004-05 subsidy scheme for replacing laundry pole-holders in PRH flats, the HD informed the Committee that:

- (a) at that time, there were about 520,000 PRH flats provided with laundry pole-holders. Among them, tenants in estates of the harmony design (about 190,000 flats) were allowed to install racks outside their living rooms as alternative laundry facilities. For the remaining 320,000 flats of older design, laundry racks were also provided inside the balcony as alternative facilities. In addition, it had been the HA's policy to provide laundry racks to households with elderly. Over the years, the HD had also approved seven standard designs and specifications for tenants to install their own laundry facilities; and
- (b) although the design of laundry pole-holders fully met the required safety standards, the HD was concerned that recent incidents involving the use of laundry poles had led to fatal injuries of tenants. A working group formed to review the laundry pole-holders issues had proposed the following:
  - (i) more publicity should be done to raise tenants' awareness on the proper use of laundry poles;

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- (ii) the replacement of laundry pole-holders by laundry racks was technically feasible and could be considered as an enhancement to the present laundry facilities; and
- (iii) assuming the installation cost of a laundry rack was about \$400, the total cost of installing laundry racks for all existing PRH flats was estimated to be \$174 million. Having regard to the significant financial implication, a subsidy scheme was proposed such that the HA could replace the laundry pole-holders by laundry racks on tenants' request. The tenants would have to pay \$200 for the replacement, about half of the cost of installation, and assume the subsequent maintenance responsibility. Based on the number of laundry racks installed by tenants in PRH estates of the harmony design, it was estimated that 30% of the tenants would express interest in the scheme. The total cost to be borne by the HA was estimated to be about \$26 million.

5.3 ***Implementation instructions.*** In 2004 and 2005, the HD issued instructions to staff concerned on implementing the subsidy scheme for replacing laundry pole-holders in two phases. Through notices posted up on the notice boards on ground floor of every PRH blocks, tenants were invited to submit applications from 1 June to 31 July 2004 for the first phase and from 1 April to 31 May 2005 for the second phase. Staff concerned were required to compile:

- (a) biweekly returns on the number of applications received to assess tenants' response; and
- (b) installation schedule and conduct random check on a minimum of 15% of the installations through in-flat inspections and telephone enquiries with tenants.

### ***Installation records not fully maintained***

5.4 In response to Audit's enquiry on the number of laundry racks installed under the subsidy scheme, the HD could only provide records of the first phase installations which totalled 16,922. The number of laundry racks installed in the second phase was not available.

5.5 Audit noted that in 2014, the HD provided the following information on the number of laundry racks installed under the subsidy scheme to the LegCo Panel on Housing and the Subsidised Housing Committee:

- (a) in January 2014, the Panel on Housing was informed that during the 2004-05 replacement exercise, about 50,000 tenants had their laundry pole-holders replaced with laundry racks; and
- (b) in February 2014, the Subsidised Housing Committee was informed that about 10% (55,000) of the flats with laundry pole-holders (then estimated to be 550,000) had been installed with laundry racks under the 2004-05 subsidy scheme, or by the tenants themselves according to the HD's specifications. The 10% was derived from a large-scale sampling survey on 30 estates.

5.6 It was unsatisfactory that complete records of the laundry rack installations under the 2004-05 subsidy scheme were not maintained despite the requirements laid down in the departmental instructions (see para. 5.3). As a result, a large-scale sampling survey had to be undertaken to provide relevant information to the Subsidised Housing Committee. The reported figure of 50,000 laundry racks installed under the two phases of the subsidy scheme to the Panel on Housing also appeared to be on the high side when compared with the records of the first phase installations which totalled 16,922 (see para. 5.4), bearing in mind that the lengths of application periods for the two phases were the same (see para. 5.3). The HD needs to draw lesson from this case and take measures to ensure that information on the implementation of the 2014 programme for replacing laundry pole-holders is properly maintained.

### ***Post-implementation review not conducted***

5.7 According to the best practice guide entitled "A User Guide to Post Implementation Reviews" issued by the Efficiency Unit in February 2009, conducting a post-implementation review is a good practice of modern day public sector management. It helps bureaux/departments evaluate whether a project has achieved its intended objectives, review its performance and capture learning points to improve the delivery and outputs of future projects.

## Replacement of laundry pole-holders

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5.8 However, the HD had not carried out a post-implementation review of the 2004-05 subsidy scheme. The Subsidised Housing Committee was not informed of the achievement of the scheme until 2014 when its endorsement was sought for the 2014 programme for replacing laundry pole-holders. The Committee was then informed that laundry racks installed only accounted for about 10% of the flats provided with laundry pole-holders which was far less than the estimated 30% stated in the 2004 Subsidised Housing Committee's paper when its endorsement of the subsidy scheme was sought (see para. 5.2(b)(iii)). To prevent recurrence of similar problems, the HD needs to carry out a post-implementation review of the 2014 programme (estimated to cost some \$520 million) in good time.

## Implementation of the 2014 programme for replacing laundry pole-holders

5.9 In 2013, the HD conducted a review of the laundry pole-holder issue with a view to enhancing building sustainability, bringing the facilities up to par and addressing the safety concern of tenants. In January 2014, the Transport and Housing Bureau consulted the LegCo Panel on Housing on the HD's proposal to launch a new subsidy scheme for replacing the laundry pole-holders in PRH flats. After considering the Panel's views on providing free replacement of pole-holders by laundry racks for tenants opting for the provision, the HD obtained the Subsidised Housing Committee's endorsement in February 2014 to launch the programme for replacing laundry pole-holders (hereinafter referred to as the 2014 programme) based on the following considerations:

- (a) with a view to enhancing building sustainability and addressing the safety concern of tenants (Note 54), the HD had reviewed the laundry pole-holder facilities. There were about 550,000 rental flats provided with laundry pole-holders. With the implementation of the Estate Improvement Programme (Note 55) in recent years, about 40,000 flats

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**Note 54:** *According to the HD, from 2004 to 2014, there were some seven accidents involving eight casualties likely due to the incautious use of laundry poles. Audit noted that in December 2015, there was another fatal incident involving the use of laundry poles in a PRH estate.*

**Note 55:** *The Estate Improvement Programme has been launched by the HA in estates to provide repairs of the building structures, upgrading of common areas and a host of new facilities to meet the needs of tenants.*

had been provided with new laundry racks. Another 10% (or 55,000 flats) had been installed with laundry racks under the 2004-05 subsidy scheme, or by the tenants themselves according to the HD's specifications. However, these racks installed some 10 years ago might require replacement. Hence the number of flats to be attended to was about 510,000;

- (b) free replacement would be provided for those opting for the installation of laundry racks. For tenants who did not opt for a new rack, the laundry pole-holders of their flats would be sealed up to avoid further use. The HD would install racks for them individually upon their requests with justification in future. One of the advantages of the arrangement was to settle prolonged criticism related to the laundry pole-holders once and for all;
- (c) there were about 220,000 harmony flats with the pole-holders installed at the re-entrant area. As some tenants considered the re-entrant location less desirable for clothes drying with less sunlight and possible presence of cooking fumes from kitchens, they were content to continue using the approved laundry rods outside their living room façade. It was estimated that only about 20% of the harmony flat tenants would opt for the proposed laundry racks. For the older type blocks, a higher participation rate was forecasted, making the total estimated households opting for replacement to be about 290,000 (Note 56). The estimated replacement cost would be \$520 million;
- (d) the two designs, parallel and perpendicular types of laundry racks (see para. 1.11) currently used by the HD in existing PRH flats, would be used for the 2014 programme as they fulfilled the requirements of the Building (Minor Works) Regulation (Cap. 123N); and
- (e) to cater for the large volume of works generated to the supervisory staff, skilled workers and fabrication factories, the target installation works would be about 100,000 annually. Hence the 2014 programme would last

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**Note 56:**  $220,000 \text{ harmony flats} \times 20\% + 290,000 \text{ other type flats} \times 85\% = 290,000 \text{ flats (after rounding).}$

## Replacement of laundry pole-holders

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for about three years. Prioritising estates for the 2014 programme would be based on the elderly population, participation rate and estate re-decoration programme.

5.10 **Implementation strategy.** The HD has issued instructions to staff concerned on the procurement methods to be adopted, as follows:

- (a) **Lump sum contract.** To ensure a competitive price for the proposed installation of laundry racks, lump sum contracts would generally be adopted. Contracts would be awarded in two batches, i.e. in early 2015 and 2016. Each batch would have a contract period of 15 to 18 months;
- (b) **District term contract.** Where there were pressing needs to commence works in 2014 or jointly with external wall repair programme, the district term contract would be used;
- (c) **Redecoration contract.** Where laundry racks installations were part of the redecoration works, the redecoration contract would be used to make avail of the economies in concurrent use of gondola facilities for carrying out works;
- (d) **Estate Improvement Programme contract.** Where laundry rack installations were endorsed as part of the Estate Improvement Programme, they should be procured under the same Estate Improvement Programme contract; and
- (e) **Vacant flat refurbishment.** Upon completion of the 2014 programme, all outstanding laundry rack works found in vacant flats could be carried out during vacant flat refurbishment under district term contract (see (b) above).

### **Implementation progress**

5.11 In July 2016, Audit requested the HD to provide information on the progress of the 2014 programme in terms of the numbers of laundry racks installed for flat tenants opting for the replacement (the opted-in cases) and sealing up of the laundry pole-holders for those not opting for the replacement (the opted-out cases).

## Replacement of laundry pole-holders

In August 2016, the HD informed Audit that as at 31 July 2016, there were 493,697 PRH flats included in the 2014 programme. Among them, 249,326 flats were covered by the first batch lump sum contracts/other types of contracts awarded in 2015 or before. The progress of installation works and sealing-up works in these flats is summarised in Tables 10 and 11 respectively. For the remaining 244,371 flats, they would be covered by the second batch lump sum contracts/other types of contracts awarded in 2016 and thereafter.

**Table 10**  
**Progress of laundry rack installation**  
**(31 July 2016)**

Works status		Number of estates	Number of flats			Number of opted-in flats	
			Total (a)	Opted-in (b)	Opted-out (c) = (a) – (b)	With installation works completed (d)	With installation works outstanding (e) = (b) – (d)
Completed (Note)		42	166,487	98,249	68,238	95,547 (97%)	2,702 (3%)
On-going with scheduled completion	Between 1 August and 30 September 2016	15	41,949	18,592	23,357	11,414 (61%)	7,178 (39%)
	Between 1 October and 31 December 2016	8	36,530	14,466	22,064	9,543 (66%)	4,923 (34%)
	After 2016	2	4,360	1,513	2,847	0 (0%)	1,513 (100%)
Overall		67	249,326	132,820	116,506	116,504 (88%)	16,316 (12%)

*Source: Audit analysis of HD records*

*Note: This refers to cases of completed works reported by the HD and cases with planned works schedules which had expired.*

## Replacement of laundry pole-holders

**Table 11**

**Progress of sealing up laundry pole-holders  
(31 July 2016)**

Works status		Number of estates	Number of flats			
			Opted-out	Opted-out due to the retention of existing laundry racks (Note 1)	Opted-out and without existing laundry racks	
					Pole-holders sealed up	Pole-holders not yet sealed up
			(a)	(b)	(c)	(d) = (a) – (b) – (c)
Completed (Note 2)		42	68,238	11,107	52,330 (92%)	4,801 (8%)
On-going with scheduled completion	Between 1 August and 30 September 2016	15	23,357	2,880	8,902 (43%)	11,575 (57%)
	Between 1 October and 31 December 2016	8	22,064	4,268	10,061 (57%)	7,735 (43%)
	After 2016	2	2,847	0	0 (0%)	2,847 (100%)
Overall		67	116,506	18,255	71,293 (73%)	26,958 (27%)

Source: Audit analysis of HD records

Note 1: According to the HD, these flats included those with laundry racks installed by tenants/HD or flats with deteriorated pole-holders not requiring sealing-up works.

Note 2: This refers to cases of completed works reported by the HD and cases with planned works schedules which had expired.



***Need to closely monitor the progress of the 2014 programme***

5.12 ***Outstanding installation works for opted-in flats.*** As at 31 July 2016, of the 42 estates reported having completed works or with planned works schedules which had expired (see Table 10), the laundry rack installation works for 2,702 opted-in flats in six estates were still outstanding (see Table 12). Of the 15 estates with works due for completion from August to September 2016 (i.e. within two months from 31 July 2016), six estates were apparently behind schedule as the installation works for 75% of their opted-in flats were outstanding, ranging from 51% to 94% (see Appendix K).

**Table 12**

**Outstanding installation works in six estates reported having completed works or with planned works schedules which had expired (31 July 2016)**

Estate	Number of flats		
	Opted-in (a)	Laundry racks installed (b)	Installation works outstanding (c) = (a) – (b)
Cheung Hong	5,185	5,025 (97%)	160 (3%)
Fung Tak (Note)	218	3 (1%)	215 (99%)
Kai Yip	2,451	2,327 (95%)	124 (5%)
Kwong Fuk	3,965	1,823 (46%)	2,142 (54%)
Shek Wai Kok	3,744	3,727 (99.5%)	17 (0.5%)
Wan Tsui	2,081	2,037 (98%)	44 (2%)
Overall	17,644	14,942 (85%)	2,702 (15%)

*Source: Audit analysis of HD records*

*Note: According to the HD, due to objections received from Fung Tak Estate, the works were unable to be commenced and the HD only managed to install three samples on site. The HD has kept liaison with the relevant stakeholders on the arrangement of works.*

## Replacement of laundry pole-holders

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5.13      *Outstanding sealing-up works for opted-out flats.* Sealing up the laundry pole-holders for opted-out flats is important to avoid further use. As shown in Table 11, of the 42 estates reported having completed works or with planned works schedules which had expired, the laundry pole-holder sealing-up works for 4,801 opted-out flats in 10 estates were still outstanding as at 31 July 2016 (see Table 13). Of the 15 estates with works due for completion from August to September 2016 (i.e. within two months from 31 July 2016), 10 estates were apparently behind schedule as the sealing-up works for 76% of their opted-out flats were outstanding, ranging from 51% to 99% (see Appendix L).

## Replacement of laundry pole-holders

**Table 13**

**Outstanding sealing-up works in 10 estates reported having  
completed works or with planned works schedules which had expired  
(31 July 2016)**

Estate	Number of flats			
	Opted-out (a)	Opted-out due to the retention of existing laundry racks (Note 1) (b)	Opted-out and without existing laundry racks	
			Pole-holders sealed up (c)	Pole-holders not yet sealed up (d) = (a) – (b) – (c)
Cheung Hong	3,061	233	2,469 (87 %)	359 (13 %)
Choi Hung	2,853	1,186	1,641 (98 %)	26 (2 %)
Chuk Yuen (North) (Note 2)	1,047	27	29 (3 %)	991 (97 %)
Fung Tak (Note 2)	457	0	3 (1 %)	454 (99 %)
Hing Wah (II)	2,403	1,033	0 (0 %)	1,370 (100 %)
Kai Yip	1,849	299	1,426 (92 %)	124 (8 %)
Kwong Fuk	2,223	21	1,241 (56 %)	961 (44 %)
Kwong Yuen (Note 2)	547	0	199 (36 %)	348 (64 %)
Shek Kip Mei (Old blocks)	1,355	194	1,000 (86 %)	161 (14 %)
Shek Yam East	1,130	618	505 (99 %)	7 (1 %)
Overall	16,925	3,611	8,513 (64 %)	4,801 (36 %)

*Source: Audit analysis of HD records*

*Note 1: According to the HD, these flats included those with laundry racks installed by tenants/HD or flats with deteriorated pole-holders not requiring sealing-up works.*

*Note 2: These estates are TPS estates. According to the HD, due to objections received from Fung Tak Estate, the works were unable to be commenced and the HD only managed to install three samples on site. The HD has kept liaison with the relevant stakeholders on the arrangement of works.*

## **Replacement of laundry pole-holders**

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5.14 In September 2016, the HD informed Audit that:

- (a) replacement works in some estates were beyond the original completion dates due to unforeseeable site problems, such as tenant's request or complaint, inclement weather and accessibility of flat;
- (b) in some TPS estates, OCs refused the HD to install gondola in the façade and the works had to be carried out from inside the tenants' flats, which seriously affected the works progress; and
- (c) the HD had monitored the situation, and would assess the delay and extension of time application in straight compliance with the contract provisions. The HD anticipated that all replacement works would be completed at the end of 2017 as scheduled.

5.15 As addressing the safety concerns of tenants is one of the main objectives of the 2014 programme, the HD needs to continue monitoring the works progress to ensure that the target completion date would be met.

### ***Partially sealing up of laundry pole-holders***

5.16 In a review of the HD's records of the implementation of the 2014 programme in two districts (Chai Wan and Kwai Chung), Audit noted that:

- (a) some tenant representatives had raised at Hing Wah (II) Estate Management Advisory Committee meeting held in January 2015 about the retention of some laundry pole-holders. The HD's representative at the meeting had responded that if tenants did not opt for the installation of laundry racks and insisted on using some of the pole-holders, only the unused pole-holders would be sealed up; and
- (b) at a meeting between the HD and the contractor for the installation of laundry racks in Kwai Chung Region held in January 2016, it was reported that some tenants had requested the sealing up of only the middle of the three pole-holders in their flats while retaining the two side pole-holders. At another meeting held in March 2016, the contractor was

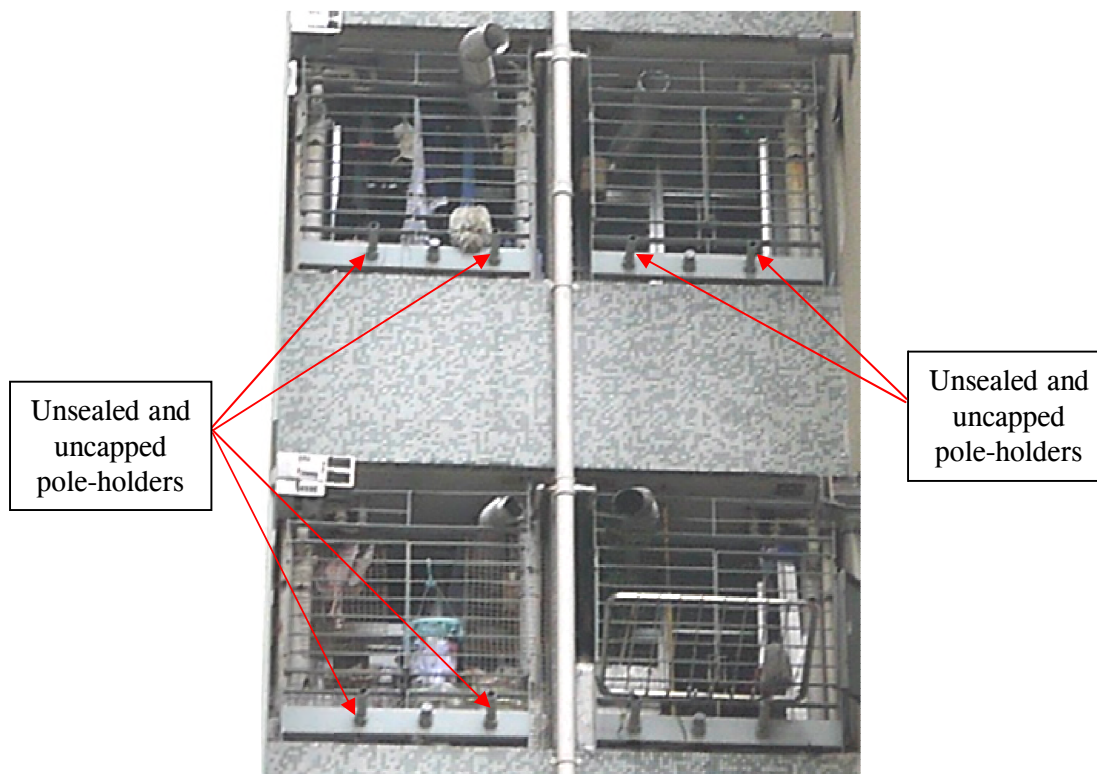
instructed not to seal up those pole-holders that could be used for installing laundry racks even when the tenants chose not to do so for the time being.

5.17 Partially sealing-up of laundry pole-holders was at variance with the stated objective of the 2014 programme to settle the pole-holder issue once and for all (see para. 5.9(b)). According to the instructions issued by the Estate Management Division in February 2015, regarding the installation of laundry racks, existing pole-holders not used for fixing laundry racks should be trimmed down and sealed up. In Audit's view, given the safety concerns, all unused pole-holders should be promptly sealed up and not be retained for future use by tenants. Audit conducted a sample check of some flats on two estates reported by the HD to have completed or almost completed the sealing-up works for their opted-out flats as at 31 July 2016. Audit found that there were 167 cases of partially sealing up of/unsealed laundry pole-holders as follows:

- (a) ***Shek Yam East Estate.*** As shown in Table 13 in paragraph 5.13, the HD reported that of the 1,130 opted-out flats in the estate, 618 flats had existing laundry racks. Of the remaining 512 flats without existing racks, sealing-up works for seven flats were outstanding. However, in a joint inspection with the HD on 23 August 2016 of 78 flats on the first to fifth floors in all three blocks reported to have laundry racks retained by tenants, Audit found that 36 flats did not have laundry racks. Among them, 33 flats each had only one of the three pole-holders sealed up probably due to the instruction mentioned in paragraph 5.16(b) (see examples in Photograph 17) and three had all three pole-holders not sealed up. The observed position was the same as that indicated by the site photographs taken by contractor after completing the works. Audit also noted that, on 18 August 2016, the HD instructed the contractor to carry out sealing-up works for 38 flats (including the three flats found in the joint inspection). In other words, there were at least 71 (36 plus 38 minus 3) flats with outstanding sealing-up works instead of the seven reported by the HD; and
- (b) ***Shek Wai Kok Estate.*** According to the HD, as at 31 July 2016, sealing-up works for all 2,712 opted-out flats had been completed while installation works for only 17 out of 3,744 opted-in flats were outstanding. However, Audit's inspection on 24 August 2016 found that the pole-holders of 96 flats on six floors of two blocks had not been sealed up (see Photograph 18 for an example).

**Photograph 17**

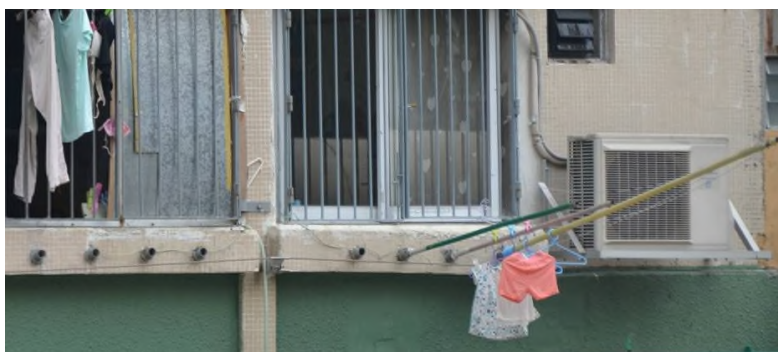
**Flats with pole-holders partially sealed up  
in Shek Yam East Estate**



*Source: Photograph taken by Audit staff on 23 August 2016*

**Photograph 18**

**Flats with pole-holders not sealed up  
in Shek Wai Kok Estate**



*Source: Photograph taken by Audit staff on 24 August 2016*

5.18 In September 2016, the HD informed Audit that:

- (a) its contract manager of the lump sum contract of Shek Yam East Estate (in Kwai Chung Region) had instructed his staff to seal up the middle pole-holder and to cap the remaining pole-holders only (without filling with cement/sand) to allow for the laundry rack installation by tenants in future (see para. 5.16(b)). All pole-holders should either be capped or sealed up. The outstanding sealing-up works would be completed before contract expiry; and
- (b) for Shek Wai Kok Estate (see para. 5.17(b)), since gondola could not be installed at some parts of external walls due to obstruction by the water tank on roof, the related sealing-up works would have to be carried out inside the flats pending appointment with tenants for access.

5.19 In light of the unreported outstanding sealing-up works highlighted in paragraph 5.17 (a) and (b) above which were at variance with the HD's instructions, the HD needs to carry out a comprehensive review of the reported cases of completed sealing-up works to see if there are similar cases of non-compliance and take necessary follow-up action accordingly. The HD also needs to take measures to ensure that the front-line staff properly administer the installation/sealing-up works in accordance with the stated objectives of the 2014 programme.

### ***Recent developments***

5.20 On 12 September 2016, the HD obtained the endorsement of the Subsidised Housing Committee to provide laundry rods in specified block types of the PRH estates at a total estimated expenditure of \$386 million. The Subsidised Housing Committee was informed of the justifications and arrangements for the addition of laundry rods as follows:

- (a) under the HA's current policy, tenants of specified blocks i.e. Harmony Blocks, New Harmony 1 Blocks, New Harmony 1 Annex 5 Blocks, New Cruciform Blocks, Single Aspect Blocks, Small Household Blocks and Non-standard Blocks (hereinafter referred to as the specified blocks) were allowed to install, at their own costs, laundry rods at the living room facade subject to their applications to the HD and compliance with the HD's guidelines. According to a sample survey conducted by the HD in

## **Replacement of laundry pole-holders**

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April 2016 for blocks with laundry facilities installed at building re-entrants, more than half of the tenants had installed laundry rods outside living rooms, either at high (i.e. near the ceiling) or low (i.e. under the window) level, with or without the HD's prior approval;

- (b) some tenants of the specified blocks considered the location of the laundry facilities installed at the re-entrants undesirable as they did not receive adequate sunlight and natural ventilation, and cooking fumes emitted from kitchens might soil their laundry. Some also considered that the existing laundry provision inadequate as projection from external wall was limited after implementation of the Minor Works Control System under the Building (Minor Works) Regulation effective from 31 December 2010, and the available space at building re-entrants was also limited;
- (c) to cater for tenants' genuine needs for laundry facilities and to reduce the potential risk of incautious use of laundry rods at high level, laundry rods would be provided as landlord's fixtures at low level at the living room façade and the associated fixed window grilles would also be replaced by openable type in the specified blocks. Laundry rods previously installed by tenants with the HD's approval and in compliance with the HD's guidelines would be retained, and the HD would take over the maintenance responsibility of these laundry rods. At the same time, the HD would remove those installations not complying with its guidelines. The existing fixed window grilles would be replaced by openable type, subject to individual tenants' agreement; and
- (d) the installation of laundry rods in the specified blocks would tie in with the current laundry rack replacement programme as far as practicable, and would be implemented in two phases starting from April 2017 and completed by September 2019. Tenants concerned would be allowed to opt for the installation of laundry racks or replacement of window grilles at any time irrespective of whether they had participated in the 2014 programme or not.

Audit considers that in implementing the new initiative of providing laundry rods in the specified blocks, the HD needs to take on board Audit's observations and recommendations mentioned in this Audit Report.



## **Audit recommendations**

**5.21      Audit has *recommended* that the Director of Housing should:**

- (a)      take measures to ensure that information on the implementation of the 2014 programme for replacing laundry pole-holders is properly maintained;**
- (b)      carry out a post-implementation review of the 2014 programme for replacing laundry pole-holders in good time;**
- (c)      closely monitor the works progress of the 2014 programme for replacing laundry pole-holders to ensure that the target completion date of 2017 would be met;**
- (d)      carry out a comprehensive review of the reported cases of completed sealing-up works with a view to identifying any irregularities similar to those found by Audit in paragraphs 5.16 and 5.17 for taking necessary follow-up actions accordingly;**
- (e)      take measures to ensure that the front-line staff properly administer the installation/sealing-up works in accordance with the stated objectives of the 2014 programme; and**
- (f)      in implementing the new initiative of providing laundry rods in the specified blocks with laundry facilities installed at building re-entrants, take on board the observations and recommendations in this Audit Report.**

### **Response from the Government**

5.22 The Director of Housing agrees with the audit recommendations. He has said that:

- (a) the HD has established a central database capturing the details of replacement work in estates;
- (b) the HD will carry out a post-implementation review of the 2014 programme upon completion;
- (c) the delay of works in individual estates is affected by various factors specific to the estates and the HD has been actively tackling them. The HD will continue to closely monitor the works progress and will complete the replacement work in 2017 as scheduled; and
- (d) the HD has briefed the front-line staff to properly administer the installation of laundry racks and sealing up of laundry pole-holders.

## **PART 6: ENHANCING FIRE SAFETY OF OLD PUBLIC RENTAL HOUSING ESTATES**

6.1 This PART examines the HD's efforts in enhancing fire safety of old PRH estates, focusing on the implementation of the FS(B)O requirements.

### **Fire Safety (Buildings) Ordinance requirements**

6.2 The FS(B)O was enacted in 2002 to provide better protection from fire for occupants of composite and domestic buildings. It requires the retrofitting of specified fire service installations/fire safety construction for all domestic and composite buildings (i) either with their plans of building works first submitted to the Building Authority for his approval on or before 1 March 1987; or (ii) constructed on or before 1 March 1987 where no plans of the building works submitted on or before that date to the Building Authority for approval. Some examples of the required fire safety measures for domestic part of composite buildings and domestic buildings are as follows:

- (a) ***Fire service installations.*** These include the provision of a fire hydrant and hose reel system, a manual fire alarm system and an emergency lighting within common areas; and
- (b) ***Fire safety construction.*** The required improvements include the protection of staircases with separating walls of adequate fire resisting construction, improvement of staircase exits at the level of discharge to street and replacement of doors nearest to the first step of the staircase on each floor with doors of the current fire safety standard.

6.3 The enforcement authorities for fire service installations and fire safety construction under the FS(B)O are the FSD and the BD respectively. The BD/FSD may serve on the owner of a composite building or domestic building a fire safety direction directing him to comply with all or any of the FS(B)O requirements or such other measures if they are of the opinion that it would not be reasonable for the owner to comply with such requirements having regard to the structural integrity of

the building and the technology available to comply with such requirements. In this connection, the BD/FSD must establish an Advisory Committee consisting of such persons with relevant expertise as they consider appropriate to give advice on such matters.

### ***Implications of the FS(B)O on PRH estates***

6.4 While PRH estates are exempt from control under the Buildings Ordinance, there is no similar exemption under the FS(B)O. According to the BD:

- (a) the fire safety improvement works required under the FS(B)O should comply with the codes specified in the Schedules. The HD could carry out the code-compliant fire safety improvement works to PRH estates under the self-compliance programme. In case any fire safety improvement works involving building works that require approval of plans under the Buildings Ordinance, the plans would be processed by the Independent Checking Unit under the authority delegated by the BD (see Note 20 to para. 2.15); and
- (b) if the proposed improvement works do not comply with the codes specified in the FS(B)O and involve alternative proposals, the HD should put forward their justifications, conduct fire engineering assessment and prepare the fire safety improvement study reports. The BD would process and table the study report to the “Advisory Committee for the FS(B)O and the Fire Safety (Commercial Premises) Ordinance” (the Advisory Committee) for comments and acceptance under the FS(B)O.

6.5 In August 2003, the HD’s senior management held a meeting to examine the implication of the FS(B)O on PRH estates and noted the following:

- (a) the date of implementation of the FS(B)O had yet to be determined as the LegCo Members had expressed concern about the ways to facilitate compliance by all owners in multi-storey buildings with the relevant statutory requirements. Meanwhile, the BD and the FSD had advised that they presumed the implementation of the FS(B)O on PRH estates would be managed by the HD. Since the Independent Checking Unit had been performing independent regulatory checking on new building projects since early 2001 based on the BD’s practice in relation to the Buildings

Ordinance, the Independent Checking Unit could, with the delegated authority of the BD, direct the works while the Estate Management Division of HD would be responsible for carrying out the improvement works;

- (b) given the significant financial implication in complying with the FS(B)O requirements, criteria had to be established to exclude housing blocks due for re-development. Where there was substantial constraint that would make compliance with the prescribed requirements impractical, fire engineering studies might be undertaken to assess the fire risks and identify alternative safety improvement measures; and
- (c) by spreading the works over 10 years, the HD would have an advanced programme in employing resources over 10 years which would be welcome by the BD and the FSD as setting a good example to the private sector.

### **Implementation of the Fire Safety (Buildings) Ordinance in public rental housing estates**

6.6 In July 2007, the FS(B)O came into effect after the Government had addressed the LegCo Members' concern about the ways to facilitate compliance by all owners in multi-storey buildings with the relevant statutory requirements. At a meeting held in March 2008, the HD's senior management noted the progress of the implementation of the FS(B)O as follows:

- (a) the enforcement authorities for PRH estates under the FS(B)O would be the BD and the FSD; and
- (b) replacement of the flat entrance doors, mainly at dead-ends, in PRH estates to meet the fire safety standards had been largely completed (see para. 6.2(b)).

After discussion, the meeting decided that the improvement works to comply with the FS(B)O requirements would be integrated with the Estate Management Division's maintenance programmes.

6.7 ***Proposed prototype approach.*** In September 2008, the HD, the BD and the FSD held an interdepartmental meeting to discuss the implementation of the FS(B)O in PRH estates. It was considered that in order to streamline the enforcement action, a generic acceptance standard for different types of PRH blocks would be formulated. The meeting agreed in principle that the mode of operation would be that the BD would work together with the HD on a few prototypes. After gaining experience on the required standards or appropriate alternatives, the HD would proceed with the implementation.

6.8 ***Pilot Scheme.*** At another interdepartmental meeting held in May 2010, the HD informed the BD and the FSD of a pilot scheme to work out the improvement items that were acceptable by the concerned departments under the FS(B)O. Fuk Loi Estate of the slab block design and Ping Shek Estate of the single tower design (see Appendix M) had been selected as the pilot projects as the two designs made up a total of 63% of the PRH blocks requiring upgrading works under the FS(B)O. At the meeting, the BD suggested that the approach for implementing the Fire Safety (Commercial Premises) Ordinance (Note 57) could be used for the FS(B)O, i.e. the HD would inspect its own properties against the code of practices to draw up proposals for improvement. The BD and the FSD would go through the improvement proposals and confirm whether they were acceptable and carry out checking after works completion. It was then agreed that more details on implementation of the FS(B)O would be worked out after more experience gained from the pilot scheme.

6.9 In August 2010, the HD awarded a consultancy contract (Consultancy Contract A) for fire safety improvement under the FS(B)O for Ping Shek Estate and another contract (Consultancy Contract B) for Fuk Loi Estate in July 2011. At a meeting held in February 2014, the HD's senior management was informed of the progress of the implementation of the FS(B)O as follows:

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**Note 57:** *In May 1997, the Fire Safety (Commercial Premises) Ordinance came into effect requiring owners/occupiers of prescribed types of commercial premises (such as banks and shopping arcade) to upgrade their fire safety measures. Furthermore, in June 1998, the Fire Safety (Commercial Premises) Ordinance on Specified Commercial Buildings came into effect requiring owners/occupiers of these buildings to upgrade their fire safety measures.*

- (a) ***Fuk Loi Estate.*** The fire engineering study report with improvement proposals prepared by the consultant for Fuk Loi Estate had been submitted (in June 2012) to the BD/FSD for comments. The Advisory Committee of the BD (see para. 6.4(b)) had provided comments on the fire engineering study report of Fuk Loi Estate in October 2013. Clarification by the HD had been submitted to the BD in November 2013 and it was expected that the scope of improvement works would be finalised at a second meeting of the Advisory Committee in March 2014;
- (b) ***Ping Shek Estate.*** The fire engineering study report for Ping Shek Estate was submitted to the BD in September 2013 and was scheduled for presentation to the BD's Advisory Committee in March 2014;
- (c) ***Unresolved issue.*** Several rounds of meetings had been held with the BD and the FSD and both departments had expressed that they would only process the HD's submission of Fuk Loi Estate and Ping Shek Estate as trial for establishment of the fire safety improvement proposals on the HA's typical PRH blocks. The HD had disagreed with the self-compliance approach proposed by the BD/FSD (self-compliance refers to the HD carrying out fire safety improvement works without formal vetting and acceptance by the BD and the FSD). The BD/FSD had declined to handle any further submissions on a project basis or commit a time frame to review the HD's submission for the two pilot estates (Note 58 and see also paras. 6.11 and 6.13(a)); and
- (d) ***Consultancy studies and submission framework.*** The HD considered that it was not acceptable to adopt the self-compliance approach proposed by the BD/FSD. However the studies for Fuk Loi Estate and Ping Shek Estate could serve as prototypes to simplify the scope of studies for estates of similar design. To mitigate the delay in implementing the FS(B)O, the following submission framework was suggested:

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**Note 58:** *In October 2016, the FSD informed Audit that as the priority of implementing the FS(B)O would be accorded to composite buildings, the FSD was unable to commit a time frame to review the HD's submissions covering territory-wide PRH blocks.*

- (i) consultants would be engaged in three batches to study five selected blocks covering all the typical types of design for the remaining PRH estates. These studies with recommendations would be submitted to the Advisory Committee for comments. The consultants would adopt the principles and comments made by the Advisory Committee for formulating the scope of improvement for estates of similar design; and
- (ii) the study reports would be submitted to the BD/FSD since they were the enforcement authorities under the FS(B)O. While they might decline to vet the HD's submission on an estate basis, consultants concerned should still proceed to produce detailed drawings and submissions for each estate to the Independent Checking Unit for approval according to the normal procedures for alteration works (see Note 20 to para. 2.15). Improvement works would commence once the Independent Checking Unit's approval was obtained.

The Permanent Secretary for Transport and Housing (Housing) expressed concern at the meeting that it had taken so long to sort out the submission framework although the FS(B)O had already come into effect since 2007 and directed that the HD should write to the BD/FSD to express disagreement with the self-compliance approach and make submissions to the BD/FSD for their vetting as usual.

### ***Budget and programme for implementing the FS(B)O***

6.10 In March 2014, the HD obtained the HA's Building Committee's approval of budget and programme for implementing the FS(B)O in PRH estates. In the funding paper, the Building Committee was informed that:



- (a) **Current progress.** In general, FS(B)O improvement works should not be implemented for estates unless they were expected to be occupied by tenants for at least six years after completion of works on site. On this basis, an estimated 62 PRH estates comprising 238,034 flats (Note 59) would require fire safety improvement works under the FS(B)O. The implementation of the relatively straightforward improvement items under the FS(B)O had been carried out through the Estate Management Division's maintenance programmes. For example, the improvement works to domestic entrance doors and protection to PVC-type of plastic pipes with fire collars in common area which fell within the fire safety construction improvement items had been completed for all estates. Some of the required fire service installation works such as hose reel, fire hydrant and manual fire alarm system were mostly in place while installation of battery-type emergency lighting was in progress. More complicated items identified would be tackled separately;
- (b) **Proposed improvement works.** The scope of fire service installations and construction was subject to interpretation and would greatly affect the overall budget and programme. There were specific provisions in the FS(B)O empowering the BD/FSD to accept alternative improvement measures in lieu of those prescribed by law but which would meet equivalent fire safety standards. Such alternative proposals required expert investigation by fire safety engineers. Two estates (Fuk Loi and Ping Shek) had been selected for pilot studies by specialist consultants to facilitate a pragmatic and cost-effective solution to meet the requirements of the FS(B)O. The BD Advisory Committee had been consulted on the fire engineering study report of Fuk Loi Estate. Having considered the Committee's comments, the HD submitted clarification and study results to the BD in November 2013 and it was expected that the scope of works would be finalised at the Advisory Committee meeting in April 2014.

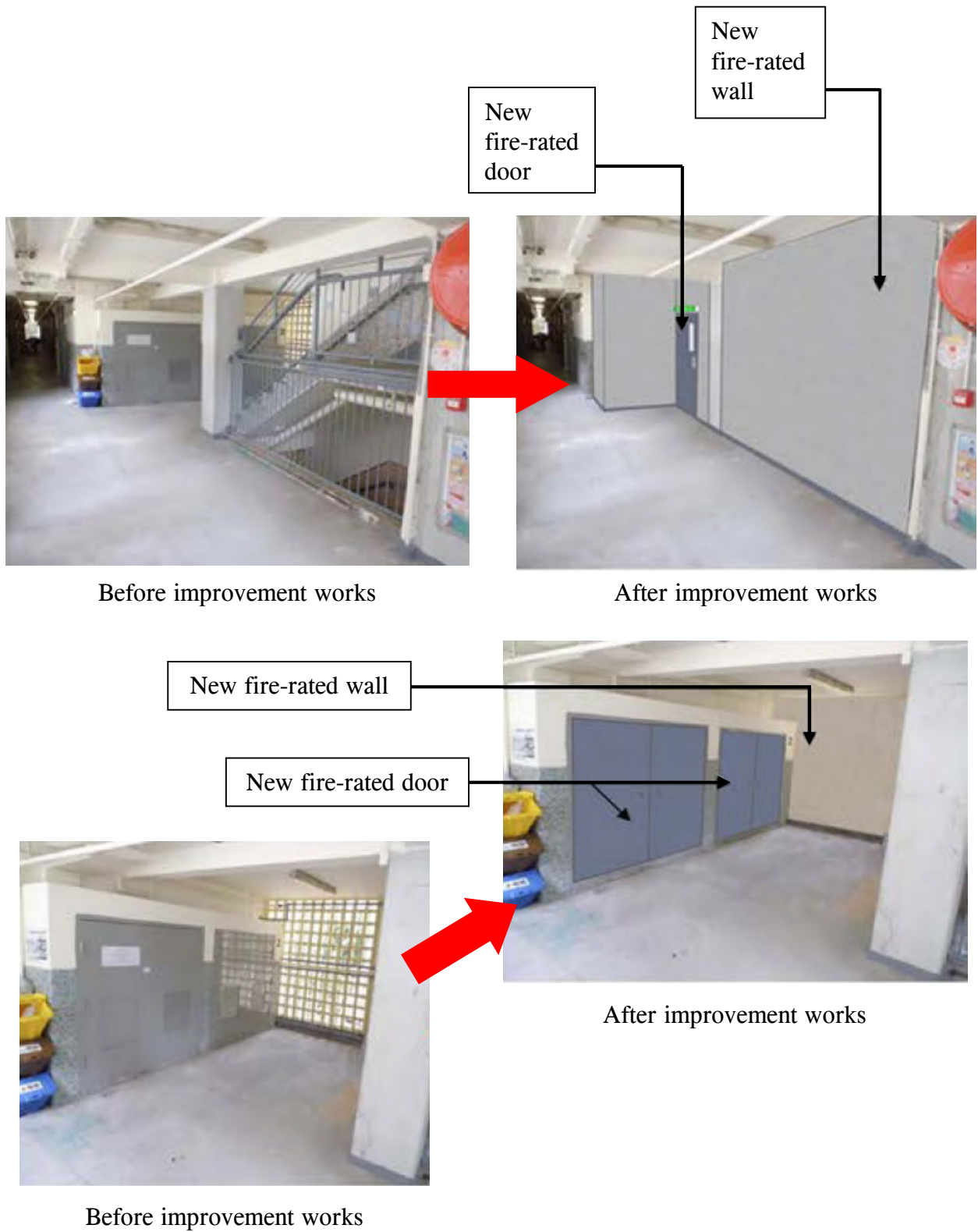
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**Note 59:** *According to the HD, as at July 2016, there were 64 estates requiring fire safety improvement under the FS(B)O. The estimated 62 estates in March 2014 had excluded the two estates (Wah Fu (I) and (II)) for which redevelopment had been announced in the Chief Executive's policy address of 2014. Wah Fu (I) and (II) Estates had subsequently been reinstated in the fire improvement works programme and the costs of improvement works for these two estates were to be absorbed within the original budget of \$851.7 million (see para. 6.10(d) below).*

The anticipated fire safety construction works included construction of fire walls and doors to protect exit staircase (see illustration in Figure 2), separating exit routes at ground floor opening for domestic and non-domestic premises, sealing up domestic flat louver openings at corridors with fire resisting boards, provision of protected lobbies for refuse rooms and installation of fire door of service ducts inside staircase enclosures. For fire service installations, the scope included the improvised sprinkler systems and other minor improvement works. Improvement proposals for Ping Shek Estate had been submitted to the BD in September 2013 and were scheduled for presentation to the Advisory Committee in April 2014. The improvement works for the two pilot estates could be executed once the comments of the Advisory Committee were addressed;

Figure 2

Illustration of fire-rated walls and fire-rated doors for staircase



Source: HD records

- (c) ***Consultancy studies and submission framework.*** The scope of studies (i.e. Consultancy Contracts A and B — see paras. 6.8 and 6.9) on Fuk Loi Estate and Ping Shek Estate could serve as prototypes to simplify the scope of studies for estates of similar designs, i.e. covering 63% of all the PRH blocks requiring improvement works under the FS(B)O. As a caring and responsible owner and for public interest, the HD was obliged to meet the enforcement authorities' target of completing inspection of all concerned building blocks by mid-2016 (Note 60) and draw up fire safety improvement proposal for implementation of the FS(B)O. It was unacceptable to adopt a self-compliance approach as proposed by the BD/FSD. Consultants would be engaged in three batches to work out the detailed fire safety improvement for the remaining estates and act as authorised persons in preparing detailed drawings of the recommended alteration works for submission on estate basis in accordance with the submission framework as mentioned in paragraph 6.9(d); and
- (d) ***Budget and tentative programme.*** It was targeted to complete all consultancy studies on the remaining estates and submission procedures by mid-2016. Improvement works for fire safety construction would be carried out in two phases. Phase I works covering fire safety construction for 214 blocks in the 51 estates (of the slab block design similar to Fuk Loi Estate) and all fire service installation works were targeted for completion by 2020-21 at an estimated cost of \$851.7 million (Note 61).

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**Note 60:** *According to the implementation plan of the BD/FSD, inspection for target composite buildings was scheduled to be completed by June 2016 and inspection for target domestic buildings would commence after that for composite buildings. After the joint review by the BD/FSD of the annual inspection target of private target composite buildings under the FS(B)O to commensurate with the two departments' capacities in issuing directions within four months after inspection as recommended in the Director of Audit's Report of October 2013 (see Note 12 to para. 1.13), the inspection programme for private target composite buildings has been extended beyond 2016.*

**Note 61:** *The costs included the consultancy fees and costs of improvement works for 60 PRH estates (i.e. excluding Fuk Loi, Ping Shek, Wah Fu (I) and (II)) and the non-domestic premises owned by the HA in 42 composite blocks of TPS estates/Home Ownership Scheme courts that would also require improvement works under the FS(B)O. According to the HD, the improvement works in common areas are the shared responsibility with the private owners while improvement works in non-domestic portions owned by the HA are the responsibility of the HA. According to the HD, the cost of improvement works for Fuk Loi and Ping Shek Estates was \$27.2 million.*

Review on budget and programme for Phase II fire safety construction works covering the remaining 214 blocks would be conducted upon confirmation of the scope by 2016.

### ***Agreement to process five additional typical blocks of PRH***

6.11 On 31 March 2014, pursuant to the Permanent Secretary for Transport and Housing (Housing)'s direction (see para. 6.9), an Assistant Director of the HD wrote to the Deputy Director of Buildings seeking the BD's agreement to process the fire safety improvement proposals for five additional block types to cover the remaining PRH estates. In April 2014, the BD replied that to facilitate the HD's self-compliance programme of the FS(B)O in PRH estates, the BD agreed in principle to offer comments on the HD's fire safety improvement proposals for five additional buildings (one building for each of the five typical blocks — Note 62). The BD also reminded the HD to provide justifications demonstrating impracticableness of code compliance and sound fire engineering assessment for seeking advice from the Advisory Committee. In May 2014, the FSD similarly informed the HD of its agreement to offer comments on the fire service installations for the five additional typical blocks.

6.12 Subsequently, the HD awarded three consultancy contracts (Consultancy Contracts C to E) in October 2014, February and September 2015 for the preparation of fire safety improvement proposals, and alteration and addition works plan for the 62 estates (see Table 14). Consultancy Contract C also covered the fire safety improvement proposals for the five additional block types (see Note 62 to para. 6.11), i.e. serving as prototypes for specific PRH block designs similar to Consultancy Contracts A and B (see para. 6.10(c)).

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**Note 62:** *These included Ziggural/Trident type, Cruciform-1 type, Cruciform-2 type, Linear type and H type (see Appendix M).*

**Table 14****Consultancy contract for  
Fire Safety Improvement Study under FS(B)O for PRH estates**

<b>Consultancy contract</b>	<b>Number of estates covered</b>	<b>Contract sum (\$ million)</b>	<b>Contract period</b>
C	19	15	October 2014 to September 2017
D	18	8.8	February 2015 to January 2018
E	25	8.5	September 2015 to August 2018

*Source: HD records*

***Latest development***

6.13 In response to Audit's enquiries on the latest development on implementation of the FS(B)O in PRH estates, in August and September 2016, the HD and the BD provided the following information:

- (a) ***Fuk Loi Estate and Ping Shek Estate.*** In May 2014, the Advisory Committee accepted in principle the fire engineering study reports for Fuk Loi Estate and Ping Shek Estate (under Consultancy Contracts A and B) subject to satisfactory clarification of certain issues. In October 2015, after clarification on the Advisory Committee's comments, the BD advised the HD that there were no further comments. In February and May 2016, the FSD's general support for the two batches of 102 slab block projects for water connection of improvised sprinkler systems (Note 63) were obtained. In April 2016, the HD submitted the fire service installation drawings for Ping Shek Estate to the FSD. Fire safety

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**Note 63:** *According to FSD Circular Letter No. 3/2007, if there are structural or space constraints for retrofitting a standard sprinkler system, an improvised sprinkler system connecting to direct water main or existing fire hydrant/hose reel system or a sprinkler water tank of reduced capacity may be considered acceptable.*

construction and fire service installations for the two estates (Ping Shek and Fuk Loi) were scheduled for completion in 2018-19 and 2019-20 respectively at a total estimated cost of \$27.2 million;

- (b) **Consultancy Contract C.** The HD submitted the fire engineering study reports under Consultancy Contract C for Wo Che Estate and Butterfly Estate in September 2015, and Tai Hing Estate in June 2016. The progress was as follows:
  - (i) **Wo Che Estate.** The proposal of Wo Che Estate case was accepted by the BD in August 2016;
  - (ii) **Butterfly Estate.** The Butterfly Estate case was pending resubmission from the HD after the BD had issued comments in May 2016; and
  - (iii) **Tai Hing Estate.** The Tai Hing Estate case was pending resubmission from the HD after the BD had issued comments in September 2016; and
- (c) **Emergency lighting installation.** In May 2016, the programme of emergency lighting installation was completed.

### *Areas for improvement*

6.14 Up to August 2016 (nine years after the FS(B)O came into effect), fire safety improvement works for the 64 PRH estates had not been fully completed for compliance with the relevant requirements of the FS(B)O. In particular, the progress in respect of fire safety construction was slow (see para. 6.10(a) and (b)). According to the HD's 2014 tentative programme, Phase I fire safety construction works were only targeted for completion by 2020-21 (see para. 6.10(d)). For Phase II works, budget and programme would be reviewed upon confirmation of the scope. As for the three consultancy studies (see para. 6.12) for formulating fire safety improvement proposals for specific PRH block designs which were targeted for completion in mid-2016 (see para. 6.10(d)), as at August 2016, only two studies (Consultancy Contracts A and B) had been completed (see para. 6.13).

6.15 *Need to closely monitor the implementation progress.* Fire is a risk for the densely populated PRH estates. Audit considers that the HD needs to closely monitor the progress of implementing the FS(B)O to avoid further slippage. In this connection, there is a need for the HD's senior management to provide timely direction and input to implementation problems, as evidenced by the following:

- (a) since the implementation of the FS(B)O in 2007, the progress was reported to the senior management meeting only on two occasions, i.e. in 2008 and 2014 notwithstanding that:
  - (i) the inter-departmental meetings with the BD and the FSD had failed to reach agreement on the vetting/formal acceptance of the HD's fire safety improvement proposals after rounds of discussion (see para. 6.9(c)); and
  - (ii) implementation of the two pilot scheme projects had taken a long time. While Consultancy Contract A for Ping Shek Estate was awarded in August 2010, submission of the fire engineering study report to the BD was made in September 2013 (three years later) and final comments from the BD were received in October 2015 (see paras. 6.9(b) and 6.13(a)). For Fuk Loi Estate, Consultancy Contract B was awarded in July 2011. While the final engineering study report had been submitted to the BD in June 2012, final comments from the BD were received in October 2015 (almost three years later — see paras. 6.9(a) and 6.13(a)); and
- (b) the inter-departmental meetings on implementation of the FS(B)O in PRH estates held before 2014 were led by senior professional staff. It was only after the Permanent Secretary for Transport and Housing (Housing) had expressed concern on the slow progress in February 2014 that the subsequent meetings were led by directorate staff.

6.16 *Need for greater inter-departmental collaboration to implement the FS(B)O in PRH estates.* While the BD/FSD agreed in 2014 to offer comments on the HD's fire safety improvement proposals for five additional buildings (one building for each of the five typical blocks), they also remarked that the comments were to facilitate the HD's self-compliance programme of the FS(B)O in PRH estates (see para. 6.11). In other words, there was still no agreement on the formal acceptance of the fire safety improvement works for the PRH estates. This



was unsatisfactory in view of the substantial financial implication of the proposed works (i.e. \$851.7 million for Phase I works — see para. 6.10(d)). Moreover, the vetting of the HD's fire engineering study reports for the two pilot scheme projects had taken a long time (see para. 6.15(a)(ii)). As the HD's fire safety improvement proposals are intended to provide cost-effective solution to meeting the requirements of the FS(B)O in PRH estates (see para. 6.10(b)), there is a need for greater collaboration among the HD, the BD and the FSD to ensure that the proposed works are efficiently vetted and formally accepted.

### Audit recommendations

**6.17**      **Audit has *recommended* that the Director of Housing should closely monitor the progress of implementation of the FS(B)O in the 64 PRH estates and provide timely direction and input to address implementation problems.**

**6.18**      **Audit has also *recommended* that the Director of Buildings and the Director of Fire Services as the enforcing authorities of the FS(B)O should work in collaboration with the Director of Housing to ensure that the fire safety improvement works for meeting the FS(B)O requirements in PRH estates are efficiently vetted and formally accepted.**

### Response from the Government

**6.19**      **The Director of Housing agrees with the audit recommendation in paragraph 6.17. He has said that:**

- (a)      the HD will continue to closely liaise with the two enforcement authorities for full implementation of the FS(B)O as soon as possible; and
- (b)      throughout the years, the HD has carried out various kinds of fire safety improvement works. Examples include the replacement of flat entrance doors (see para. 6.6(b)), protection to PVC-type of plastic pipes with fire collars in common areas (see para. 6.10(a)), provision of fire rated doors for service rooms and installation of emergency lighting (see para. 6.13(c)), and the installation of improvised sprinkler system which is in progress.

## **Enhancing fire safety of old public rental housing estates**

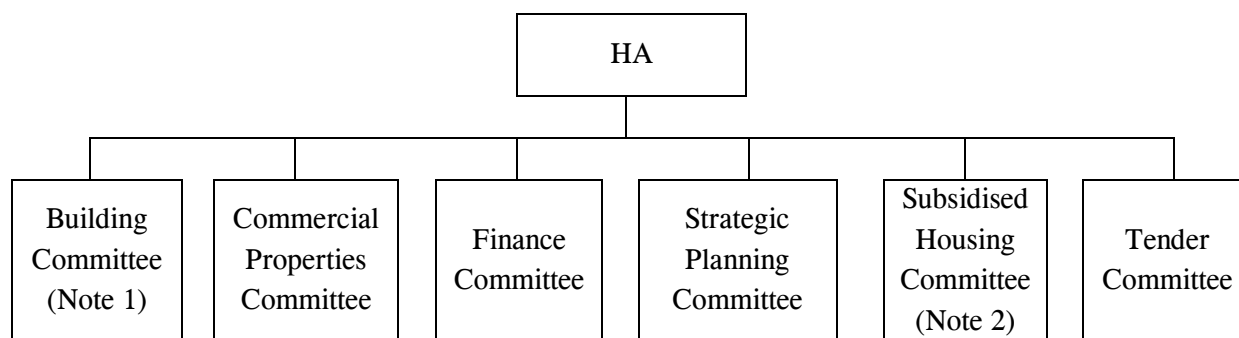
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6.20 The Director of Buildings agrees with the audit recommendation in paragraph 6.18.

6.21 The Director of Fire Services agrees with the audit recommendation in paragraph 6.18. He has said that:

- (a) the FSD has all along been providing assistance and advice to the HD in the improvement projects of several selected typical PRH blocks; and
- (b) the FSD will continue to closely liaise and enhance the coordination with the HD to ensure that the fire safety improvement works for meeting the FS(B)O requirements in PRH estates are efficiently carried out.

## **Committees of the Hong Kong Housing Authority**



*Source: HD records*

*Note 1: The terms of reference of the Building Committee are:*

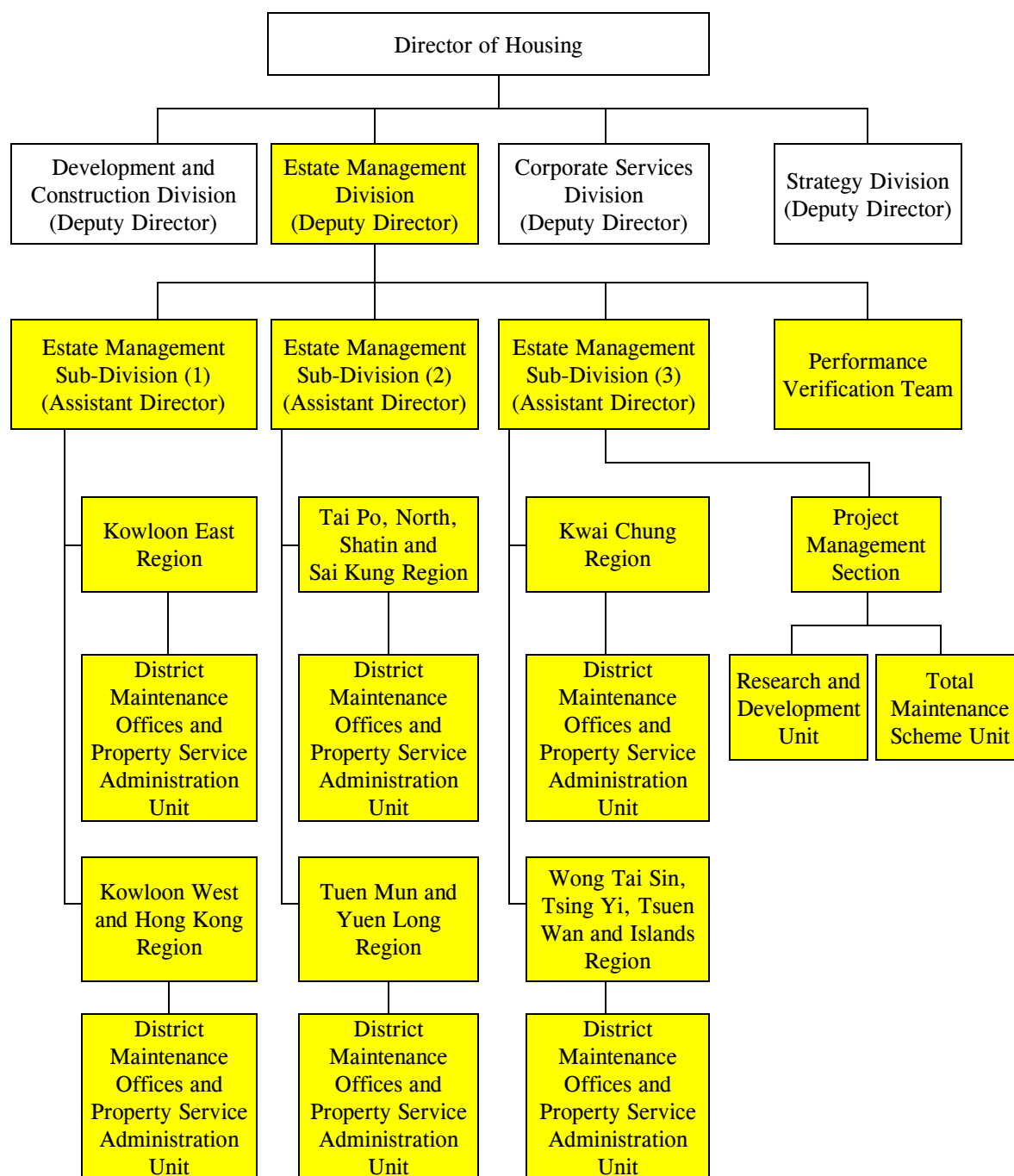
- (1) to advise the HA on policies related to the implementation of the construction and major improvement, renovation and rehabilitation programmes, and to monitor progress on these programmes; and*
- (2) to exercise the powers and functions of the HA in accordance with the relevant prevailing policies:*
  - (a) to endorse programmes of activities and monitor their performance, and to approve the financial targets, service standards and performance measures within the policies and objectives set by the HA for submission to the HA for approval; and*
  - (b) to approve project budget, master layout plans and scheme designs for public housing projects and projects under subsidised home ownership schemes.*

*Note 2: The Subsidised Housing Committee, amongst others, advises the HA on policies concerning the management and maintenance of the HA's housing estates and ancillary facilities, exercises the powers and functions of the HA in accordance with the relevant prevailing policies to manage, maintain and improve the HA's housing estates and ancillary facilities.*

## Appendix B

(paras. 1.3, 2.8 & 2.29,  
Note 13 to para. 2.2,  
Note 16 to para. 2.3  
and Note 21 to  
para. 2.18 refer)

### Housing Department Organisation chart (extract) (1 June 2016)



Legend:  Divisions/offices covered in this Audit Report

Source: HD records

**Records of asbestos-containing materials in  
public rental housing estates  
(October 2013 to 17 October 2016)**

<b>Item</b>	<b>PRH estate</b>	<b>Block</b>	<b>ACMs</b>
1	Cheung Hong	Hong Kwai	ic
		Hong Tai	ic
2	Choi Wan (I)	Cheung Bor	ic
		Fei Fung	ic
3	Chuk Yuen (South)	Sau Yuen	ic
4	Fu Shan	Fu Yan	ec
5	Hing Wah (II)	Chin Hing	bg, sg
		Lok Hing	bg, sg
		On Hing	bg, sg
		Wo Hing	bg, sg
		Fung Hing	sg
		Ning Hing	sg
		Yu Hing	sg
6	Kai Yip	Kai Yin	ic
7	Kwai Shing (West)	Block 6	sg
		Block 8	sg
		Block 9	sg
		Block 10	sg
8	Lai Kok	Lai Mei	ic

**Appendix C**  
 (Cont'd)  
 (paras. 1.10, 4.10,  
 4.25(d) and 4.31 refer)

<b>Item</b>	<b>PRH estate</b>	<b>Block</b>	<b>ACMs</b>
9	Oi Man	Chiu Man	ic
		Chung Man	ic
		Kin Man	ec
		Lai Man	ec
10	On Ting	Ting Cheung	ic
11	Sha Kok	Sand Martin	ic
12	Shek Lei (2) (Interim Housing)	Block 10	bg
		Block 11	bg
13	Shun Lee	Lee Foo	ic
		Lee Yat	ic
14	Wah Fu (I)	Wah Kwong	ec
15	Wan Tsui	Chak Tsui	ic
16	Yau Oi	Oi Yung	ic
17	Yue Wan	Yue Fung	sg
		Yue On	sg, ec
		Yue Shun	sg
		Yue Tai	sg

Legend: bg — balcony grille (encapsulated)  
 ec — external chimney  
 ic — internal chimney  
 sg — staircase and lobby grille

*Source: HA website*

**Appendix D**  
(paras. 2.3 and  
2.34 refer)

### **Major stages of the Total Maintenance Scheme's work**

<b>Major stage</b>	<b>Workflow</b>
<b>Pre-entry arrangements</b>	The estate office/PSA concerned announces the TMS programme in the estate and the TMS Unit sends notification letters to tenants. A service counter manned by a contractor's staff as the Public Relations Officer is set up in the estate to provide enquiry and appointment services.
<b>In-flat inspections</b>	The TMS teams pay visits to each PRH flat in the estate, conduct in-flat inspection, record defects using an electronic Personal Digital Assistant which is linked to the HD's computer system, and carry out minor repair works on the spot. For more complicated repair works, the TMS teams issue works orders to the maintenance contractor. For repair works relating to building services, the TMS teams refer the cases to the Building Services Team (Note). The TMS teams also educate tenants on in-flat maintenance.
<b>Monitoring and certification of repair works under works orders</b>	After receiving the works orders, the contractor arranges with the tenants for carrying out repair works. The TMS teams check the process of all spalling repair works, water seepage repair works and tiling works. The TMS teams also select at least 10% of completed works for final inspection before certification of the relevant works orders. For other completed works not inspected by the TMS teams, HD staff certify the completion of the works orders based on the contractor's submitted works records, which may include tenants' acknowledgement on completion of works at their flats.

*Source: HD records*

*Note: The building services include electrical installation, communal aerial broadcast distribution, security system and gas installation. After receiving the referrals from the TMS teams, the Building Services Team (also formed under the TMS Unit) conducts in-flat inspection of PRH flats concerned, and refers the cases to the contractors or advises the tenants to contact the relevant parties (such as the gas company or the television broadcasting company) for repair works. From 2011-12 to 2015-16, the Building Services Team had an average strength of 14 Building Services Ambassadors. All of them were employees of consultancy firms and supervised by HD staff.*

**A comparison of operational data for  
the first Total Maintenance Scheme cycle  
and the first five years of the second cycle**

<b>Item</b>	<b>First TMS cycle (2006 to 2011)</b>	<b>First five years of the second TMS cycle (2011 to 2016) (Note 1)</b>
(a) Number of estates completed	177	120
(b) Number of flats involved	603,792	375,703
(c) Number of flats inspected	468,622	294,738
(d) Access rate ((c)/(b) × 100%)	77.6%	78.4%
(e) Number of estate works orders issued	306,582	170,228
(f) Total cost of estate works orders issued (\$ million)	450	367
(g) Average number of estate works orders issued per inspected flat ((e)/(c))	0.65	0.58
(h) Average cost per estate works order issued ((f)/(e))(\$)	1,468	2,156
(i) Other-related cost (\$ million)	462 (Note 2)	365 (Note 3)
(j) Total maintenance cost ((f) + (i)) (\$ million)	912	732
(k) Average maintenance cost per inspected flat ((j)/(c))(\$)	1,946	2,484

*Source: Audit analysis of HD records*

*Note 1: As at 31 March 2016, the first five years of the second TMS cycle had been rolled out to 134 estates with inspections and repair works completed in 120 estates. For the remaining 14 estates with TMS in progress, about 22,000 estate works orders were issued and the total maintenance cost incurred was \$96 million.*

*Note 2: The cost included \$452 million for the engagement of the TMS teams and \$10 million for the repair of building services under about 34,000 works orders.*

*Note 3: The cost included \$360 million for the engagement of the TMS teams and \$5 million for the repair of building services under about 18,000 works orders.*



### **Major stages of the Responsive In-flat Maintenance Services' work**

<b>Major stage</b>	<b>Workflow</b>
<b>Receipt of works requests</b>	In each estate, a contractor's staff is assigned as the Public Relations Officer to liaise with tenants and the ITT. After receiving the works requests from tenants, the estate office identifies the nature of works requests and refers them to the Public Relations Officer and ITT as appropriate (Note).
<b>In-flat inspections</b>	The ITT contacts the tenants to conduct in-flat inspections. During inspections, the ITT arranges appointments with the tenants on the spot for the repair works by issuing minor works orders or estate works orders.
<b>Monitoring and certification of repair works under works orders</b>	The ITT checks the process of all concrete spalling repair works and water seepage repair works. The ITT also selects at least 5% of completed minor works orders and 10% of completed estate works orders for final inspection before certification of works completion.

*Source: HD records*

*Note: Repair works relating to building services for which the HD is responsible are referred to the building services staff of the DMOs/PSAs for taking follow-up actions. For other building services cases, the tenants will be advised to contact the relevant parties (such as the gas company or the television broadcasting company) for repair works.*

**Appendix G**  
(paras. 2.9 and  
2.28 refer)

**An analysis of works orders issued and costs involved  
in the Responsive In-flat Maintenance Services  
(2011-12 to 2015-16)**

Item	2011-12	2012-13	2013-14	2014-15	2015-16
(a) Average number of PRH flats	719,737	729,770	740,618	749,140	752,973
(b) Number of minor works orders issued	176,741	214,131	237,258	258,526	276,266
(c) Number of estate works orders issued	94,074	107,553	136,057	135,080	143,889
(d) Total number of works orders issued ((b)+(c))	270,815	321,684	373,315	393,606	420,155
(e) Cost of minor works orders issued (\$ million)	55.6	69.7	80.6	82.7	85.8
(f) Cost of estate works orders issued (\$ million)	131.4	204.4	277.1	320.1	373.2
(g) Other-related cost (Note) (\$ million)	26.7	30.4	32.8	36.6	41.1
(h) Total maintenance cost ((e)+(f)+(g)) (\$ million)	213.7	304.5	390.5	439.4	500.1
(i) Average number of works orders issued per PRH flat ((d)/(a))	0.38	0.44	0.50	0.53	0.56
(j) Average cost per works order ([(e)+(f)]/(d)) (\$)	691	852	958	1,023	1,092
(k) Average maintenance cost per PRH flat ((h)/(a)) (\$)	297	417	527	587	664

*Source: Audit analysis of HD records*

*Note: The cost included costs for the engagement of Public Relations Officers, provision of computer equipment and call centre support services.*

**Total Maintenance Scheme teams' inspections  
of public rental housing flats not meeting prescribed standards  
(2012-13 to 2015-16)**

Age of estates	Inspection standard (Flats/day)	Number of inspected estates checked by HD's Service Audit Team	Inspections not meeting prescribed standard	
			Number of estates involved	Average number of flats inspected (Flats/day)
11 to 20 years	10	0	N/A	N/A
21 to 40 years	6	22	15 (68%)	3.2 to 5.7
Over 40 years	4	8	5 (63%)	2.0 to 3.8
Total		30	20 (67%)	

*Source: Audit analysis of HD records*

**Appendix I**  
(paras. 2.29 and  
2.30 refer)

**Actual performance of selected estates against service  
standards for the Responsive In-flat Maintenance Services  
(2011 to 2015)**

Service standard		2011	2012	2013	2014	2015	Overall
Number of selected estates		54	86	56	57	51	304
<b><i>Number of estates not meeting service standards</i></b>							
1	Inspection should be conducted within the day when the works request is made by the tenant, targeting 80% of the inspections achievable in each month	13	20	8	5	3	49 (16%)
2	Minor repair works should be completed within 2 days from the works request made by the tenant, targeting 80% of the flats with such repair achievable in each month	17	18	6	3	0	44 (14%)
3	Estate works orders issued should be completed by the contractor within 14 days from the works request made by the tenant, targeting 70% of the flats with such repair achievable in each month	40	50	27	21	13	151 (50%)
4	The tenant should be contacted for appointment for inspection within 2 hours from the receipt of tenant's works request	12	22	11	16	30	91 (30%)
5	Prior to inspection, an advance telephone call should be given to the tenant within 15 to 30 minutes before arrival	3	11	19	19	11	63 (21%)
6	Prior to repair, an advance telephone call should be given to the tenant within 15 to 30 minutes before arrival	5	11	28	21	13	78 (26%)
7	Tenant's feedback should be collected within 14 days after completion of repair works	20	49	36	31	36	172 (57%)
8	Appointment for minor repair works should be arranged with the tenant on spot after inspection	2	9	12	12	8	43 (14%)
9	Monthly notice on the progress of works should be served to the tenant when tanking works are required at that tenant's immediate upper flat until completion of works	8	29	27	24	4	92 (30%)
<b><i>Number of estates meeting all service standards</i></b>		5 (9%)	9 (10%)	2 (4%)	5 (9%)	4 (8%)	25 (8%)

Source: Audit analysis of HD records

**Appendix J**  
(para. 2.40(a) and  
(b) refers)

**Results of the Housing Department's performance verifications of  
repair works orders under the Responsive In-flat Maintenance Services  
(2011 to 2015)**

Repair works	2011	2012	2013	2014	2015	Overall
<i>Minor works orders</i>						
(a) Material						
Grade A	5	15	11	11	6	48
Grade B	11	4	0	0	0	15
Grade C	1 } 1 (6%)	1	0	0	0 } 3 (33%)	2 } 7 (10%)
Grade D	0 }	0	1	1	3 }	5 }
Total	17	20	12	12	9	70
(b) Workmanship						
Grade A	21	95	5	0	0	121
Grade B	18	41	88	99	80	326
Grade C	7 } 8 (17%)	21	18	11	21 } 22 (22%)	78 } 84 (16%)
Grade D	1 }	0	0	4	1 }	6 }
Total	47	157	111	114	102	531
<i>Estate works orders</i>						
(a) Material						
Grade A	20	73	72	71	79	315
Grade B	16	14	0	2	0	32
Grade C	3 } 6 (14%)	10	1	0	0 } 5 (6%)	14 } 33 (9%)
Grade D	3 }	2	4	5	5 }	19 }
Total	42	99	77	78	84	380

**Appendix J**  
(Cont'd)  
(para. 2.40(a) and  
(b) refers)

Repair works	2011	2012	2013	2014	2015	Overall
(b) Workmanship						
Grade A	6	29	0	0	0	35
Grade B	18	49	41	31	12	151
Grade C	18 } 24 (50%)	77	70	75	73 } 90 (88%)	313 } 349 (65%)
Grade D	6 }	4	1	8	17 }	36 }
Total	48	159	112	114	102	535

Source: Audit analysis of HD records

- Remarks 1: Grade A denotes full compliance with the approved standard. Grade B means minor non-conformity/defect is found and replacement/rectification works may not be necessary. Grade C means non-conformity is found and partial replacement/rectification works are required. Grade D means substantial rectification/complete re-execution works are required.
- 2: The number of works orders involved might not be equal to the total number of works orders selected for review as the repair works of each works order might not involve both material and workmanship.

**Six estates with works scheduled for completion in August and September 2016 but more than 50% installation works still outstanding (31 July 2016)**

Estate	Works period	Number of flats		
		Opted-in (a)	Laundry racks installed (b)	Installation works outstanding (c) = (a) – (b)
Choi Ha (Note)	15 June 2015 to 14 September 2016	103	51 (49%)	52 (51%)
Kwai Chung (Phase 1)	28 October 2015 to 18 August 2016	980	59 (6%)	921 (94%)
Kwong Tin	15 June 2015 to 14 September 2016	464	81 (17%)	383 (83%)
Sau Mau Ping	15 June 2015 to 14 September 2016	1,955	869 (44%)	1,086 (56%)
Shun On (Phases 1 and 2)	15 June 2015 to 14 September 2016	1,758	190 (11%)	1,568 (89%)
Tak Tin (Note)	15 June 2015 to 14 September 2016	312	154 (49%)	158 (51%)
Overall		5,572	1,404 (25%)	4,168 (75%)

*Source: Audit analysis of HD records*

*Note: These estates are TPS estates.*

**Ten estates with works scheduled for completion in August and September 2016 but more than 50% sealing-up works still outstanding (31 July 2016)**

Estate	Works period	Number of flats			
		Opted-out  (a)	Opted-out due to the retention of existing laundry racks (Note 1)  (b)	Opted-out and without existing laundry racks	
				Pole-holders sealed up  (c)	Pole-holders not yet sealed up  (d) = (a) – (b) – (c)
Choi Ha (Note 2)	15 June 2015 to 14 September 2016	231	88	13 (9%)	130 (91%)
Hing Tin (Note 2)	15 June 2015 to 14 September 2016	311	1	6 (2%)	304 (98%)
Ko Yee	15 June 2015 to 14 September 2016	802	120	188 (28%)	494 (72%)
Kwai Chung (Phase 1)	28 October 2015 to 18 August 2016	1,480	222	105 (8%)	1,153 (92%)
Kwong Tin	15 June 2015 to 14 September 2016	1,989	47	391 (20%)	1,551 (80%)
Oi Man	15 June 2015 to 14 September 2016	2,107	186	933 (49%)	988 (51%)
Sau Mau Ping	15 June 2015 to 14 September 2016	4,507	1,424	1,193 (39%)	1,890 (61%)
Shun On (Phases 1 & 2)	15 June 2015 to 14 September 2016	1,244	46	167 (14%)	1,031 (86%)
Tsui Ping North (Note 2)	15 June 2015 to 14 September 2016	1,178	98	15 (1%)	1,065 (99%)
Tak Tin (Note 2)	15 June 2015 to 14 September 2016	1,170	29	9 (1%)	1,132 (99%)
Overall		15,019	2,261	3,020 (24% of 12,758)	9,738 (76% of 12,758)

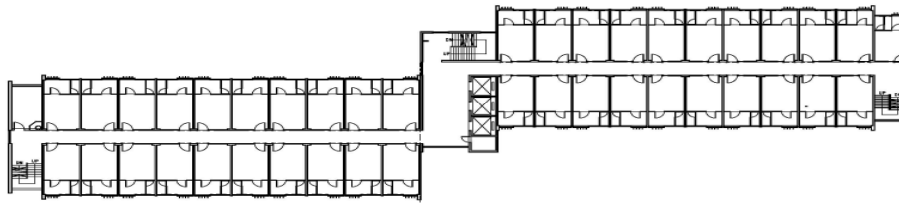
Source: Audit analysis of HD records

Note 1: According to the HD, these flats included those with laundry racks installed by tenants/HD.

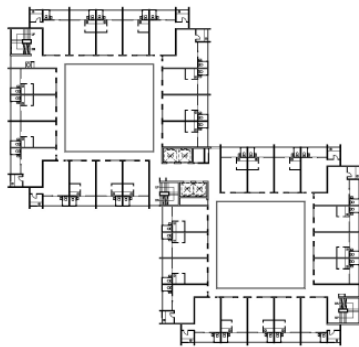
Note 2: These estates are TPS estates.



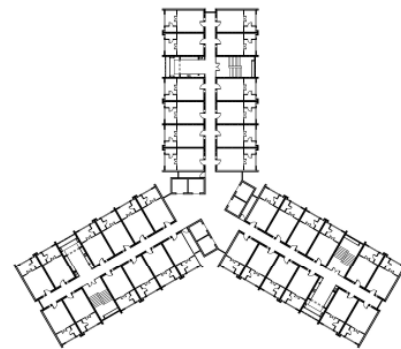
**Seven block designs of PRH estates**



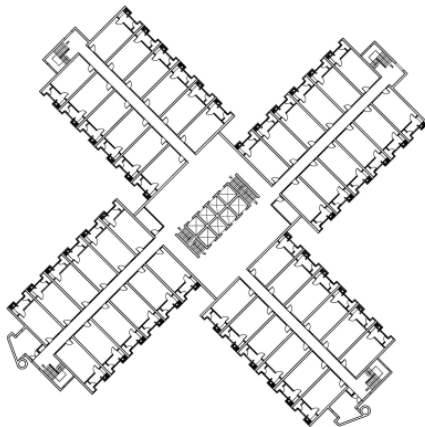
Slab block



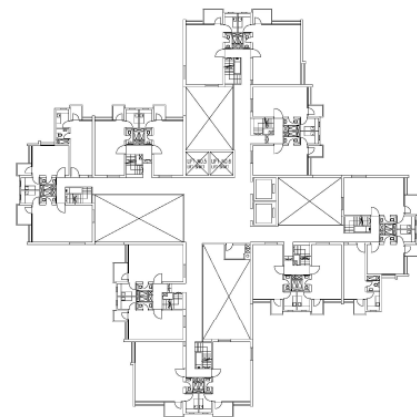
Tower



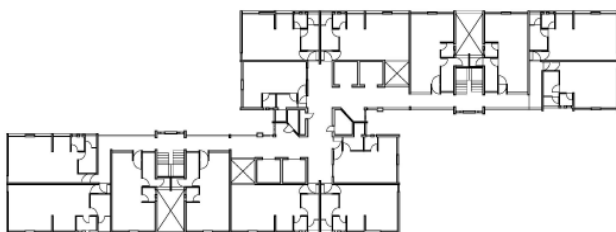
Ziggural/Trident



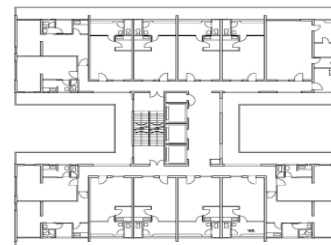
Cruciform-1



Cruciform-2



Linear



H type

*Source: HD records*

## Acronyms and abbreviations

ACM	Asbestos-containing material
APCO	Air Pollution Control Ordinance
Audit	Audit Commission
BD	Buildings Department
DMO	District Maintenance Office
EPD	Environmental Protection Department
FS(B)O	Fire Safety (Buildings) Ordinance
FSD	Fire Services Department
HA	Hong Kong Housing Authority
HD	Housing Department
IIA	In-flat Inspection Ambassador
ITT	In-flat Technical Team
LegCo	Legislative Council
MWIS	Mandatory Window Inspection Scheme
µg/L	Micrograms per litre
OC	Owners' Corporation
PGV	Provisional guideline value
PRH	Public rental housing
PSA	Property Services Agent
RDU	Research and Development Unit
RIMS	Responsive In-flat Maintenance Services
TMS	Total Maintenance Scheme
TPS	Tenants Purchase Scheme
WHO	World Health Organization
WSD	Water Supplies Department

## **CHAPTER 2**

### **University Grants Committee Secretariat**

<p><b>Funding of universities by University Grants Committee</b></p>
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**Audit Commission  
Hong Kong  
28 October 2016**

*This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.*

Report No. 67 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

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# **FUNDING OF UNIVERSITIES BY UNIVERSITY GRANTS COMMITTEE**

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# **FUNDING OF UNIVERSITIES BY UNIVERSITY GRANTS COMMITTEE**

## **Executive Summary**

1. In Hong Kong, there are eight universities funded by the University Grants Committee (UGC) (all universities mentioned hereinafter refer to UGC-funded universities). The UGC was established as a non-statutory advisory body in 1965. It advises the Government on the development and funding of higher education in Hong Kong, advances the quality of teaching and learning, research and knowledge transfer at the universities, and monitors the efficiency and cost-effectiveness of the universities' UGC-funded activities. The UGC mediates interests between the universities and the Government. On one hand, the UGC safeguards the academic freedom and institutional autonomy of the universities, while on the other it ensures value for money for the taxpayers. As at 30 June 2016, the UGC had 20 members comprising a Chairman and 19 other members.

2. The UGC is supported by seven Sub-Committees and Groups. The UGC has under its aegis two non-statutory advisory bodies, namely the Research Grants Council (RGC) and the Quality Assurance Council (QAC). The UGC (as well as its Sub-Committees, Groups and Councils) is supported by the UGC Secretariat (a government department), which is headed by the Secretary-General, UGC. The Secretariat assists the UGC in carrying out its functions and administers the grants provided to the universities. As at 30 June 2016, the Secretariat had a staff establishment of 84. For the financial year 2016-17, the estimated expenditure of the UGC amounted to \$17,966 million (\$144 million for the Secretariat's expenses and \$17,822 million for grants/reimbursements provided to the universities). The Education Bureau (EDB) is the policy bureau of the UGC Secretariat. Recommendations on recurrent grants to the universities are submitted by the UGC, through the Secretary for Education, to the Chief Executive in Council for endorsement. The annual recurrent grants are examined by the Finance Committee of the Legislative Council and approved by the Legislative Council in the context of the Appropriation Bill.

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3. In the academic year 2015/16 (all years mentioned hereinafter refer to academic years), the total number of students (full-time equivalent) enrolled in the UGC-funded programmes was 95,520 and the total number of staff (full-time equivalent) in academic departments of the universities was 13,074. The actual recurrent grants to the universities amounted to \$16,072 million in 2014/15 (figures for 2015/16 were not yet available as at 31 August 2016), while the actual capital grants amounted to \$845 million in 2015/16. The Audit Commission (Audit) has recently conducted a review on the funding of universities by the UGC.

### Administration of recurrent grants

4. *Provision of recurrent grants.* Recurrent grants are provided to the universities to support their academic work and related administrative activities. The recurrent grants comprise block grants and earmarked grants. Block grants comprise “two pots of money”, namely the “existing pot of money” and the “new pot of money”. The “existing pot of money” is the funding for the three years of undergraduate study and other levels of study. This pot of money comprises the teaching element (about 75%), the research element (about 23%) and the professional activity element (about 2%). The “new pot of money” is the recurrent funding for an additional year of undergraduate study under the “3+3+4” new academic structure introduced since 2012/13 and is allocated wholly as “teaching funding”. Earmarked grants are for specific purposes (e.g. grants for knowledge transfer activities). Audit noted that: (a) for the part of funding for the research element that was based on the universities’ performance in the Research Assessment Exercise, the UGC did not include the universities’ research impact as one of the elements of assessment in the Exercise; and (b) in allocating the earmarked grants for knowledge transfer activities (\$62.5 million per annum in the 2016-19 triennium) to the universities, the UGC did not take into consideration the achievements of knowledge transfer activities of the universities (paras. 2.2 to 2.4, 2.11, 2.12 and 2.14).

5. *Review of tuition fees.* In January 1991, the then Governor in Council decided that the target cost recovery rate for tuition fee for degree courses should be set at 18%. This target was achieved in 1997/98 when the indicative tuition fee for UGC-funded programmes at undergraduate degree level or above was raised to \$42,100 per student per year. In October 2011, the Chief Executive in Council decided that the target rate should be revisited in the context of a review. Audit noted that: (a) the tuition fee had remained unchanged and had not been reviewed

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since 1997; (b) the cost recovery rates dropped to 17.6%, 16.9% and 15.8% in 2013/14, 2014/15 and 2015/16 respectively; (c) the EDB envisaged that with the indicative tuition fee maintained at its current level, the cost recovery rate was expected to continue to fall in the 2016-19 triennium; and (d) it was only in June 2015 that the EDB invited the UGC to launch a review of tuition fee policies in other jurisdictions and propose options to the EDB for consideration with due regard to the situation in Hong Kong (paras. 2.18 to 2.22).

6. ***Compliance with enrolment rules.*** The universities should adhere to the approved student number targets set by the UGC as far as possible in each triennial funding cycle. Nevertheless, the UGC has laid down a number of enrolment rules in the Notes on Procedures (NoP) that allow the universities to have some flexibility in enrolling students. Audit noted that: (a) there were cases of non-compliance with the enrolment rules in the 2009-12 and 2012-15 triennia. For instance, three universities exceeded the 4% limit of over-enrolment of local students in three manpower-planned programmes by 1.2% to 15.1% in the 2012-15 triennium. However, there was no documentary evidence showing that the UGC had taken follow-up action; (b) in December 2014, the EDB expressed to the UGC its concern that actual enrolment by the universities in certain streams subject to specific manpower requirements had deviated significantly from the approved student numbers (e.g. the enrolments of a stream of teacher education programme had been lower than 50% of the approved student numbers since 2010/11). The EDB commented that serious under-enrolment of this scale defeated the purpose of setting such requirements and represented a misuse of UGC funds. Accordingly, the EDB suggested that the various streams of teacher education programme should be treated as distinct manpower-planned programmes for the purpose of applying the limits on enrolment. As at 31 July 2016, the UGC was still deliberating on the appropriate limits on under-enrolment on individual streams of teacher education programmes; and (c) in December 2014, to effect the policy change for admission of non-local students (i.e. students should only be admitted through over-enrolment capped at 20% of the approved UGC-funded student numbers) in 2016/17, the EDB requested the UGC to make corresponding changes to the NoP and, where necessary, to the enrolment rules. As at 31 July 2016, the NoP had still not yet been updated and the changes to the enrolment rules had not yet been finalised (paras. 2.25 to 2.27 and 2.30 to 2.33).

### Administration of capital grants

7. *Shortfall in student hostel places and academic space.* In 2015/16, there was a total shortfall of 8,660 student hostel places and 133,292 square metres (m<sup>2</sup>) of academic space for the universities. The UGC had 16 capital works projects (exceeding \$30 million per project — hereinafter referred to as major CWPs) under planning, which would provide a total of 9,380 student hostel places and 76,712 m<sup>2</sup> academic space. Audit noted that the slow progress in campus and student hostel development would affect the operation and development of the universities. For example: (a) due to the shortfall in hostel places, the student hostel policy (e.g. research postgraduate students should be provided with student hostel places) could not be met; (b) the shortfall in hostel places would impede the strategic goal of the universities in pursuing internationalisation; and (c) the shortfall in academic space would adversely affect the research development of the universities (paras. 3.3, 3.6 to 3.8, 3.10 and 3.11).

8. *Assessment of academic space and student hostel needs.* In 2015/16, the eight universities were provided with some 1 million m<sup>2</sup> of publicly-funded academic space and 29,000 publicly-funded student hostel places. Audit examined the UGC's assessment of academic space and student hostel needs of the universities and found that: (a) the last review of the space requirement formulae for assessing the universities' academic space needs was conducted ten years ago in 2006; (b) in the latest space inventory updating exercise conducted in November 2014, there were differences (of 6,871 m<sup>2</sup>) between the academic space inventory records maintained by the UGC and those submitted by the universities. As at 30 June 2016, the reconciliation of the records had not yet been completed by the UGC Secretariat; (c) no audit of the space inventories of the universities by an external party to verify the accuracy of the inventories has been conducted since 2006; and (d) the UGC Secretariat has not conducted any space utilisation surveys nor requested the universities to provide information on their space utilisation since 2006 (paras. 3.5, 3.15, 3.16, 3.19 and 3.21).

9. *Finalisation of project final accounts.* Audit examined the finalisation of project final accounts for major CWPs and Alterations, Additions, Repairs and Improvements (AA&I) projects. Audit found that: (a) project final accounts should be submitted by the universities to the UGC Secretariat and finalised not later than three years after “commissioning of the facilities” for major CWPs. The Secretariat included the defect rectification period in the determination of “commissioning of

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the facilities”. It was not clear whether the Secretariat’s practice was proper as there was no elaboration of the meaning of the term “commissioning of the facilities” in the Financial Circular from which the Secretariat adopted the term; (b) as at 30 June 2016, the finalisation of project final accounts for 36 completed major CWPs and 98 completed AA&I projects had been overdue; and (c) the finalisation of project final accounts for 29 (81%) of the 36 major CWPs and 43 (44%) of the 98 AA&I projects had been overdue for more than three years. The longest overdue periods were some 18 years for major CWPs and some 15 years for AA&I projects (paras. 3.24 to 3.26 and 3.28 to 3.31).

### Governance and other administrative issues

10. ***Governance of the UGC.*** Audit examined the governance of the UGC and found that: (a) 26 Register of Interests forms for the period 2011/12 to 2015/16 of three existing UGC members, two existing QAC members, seven ex-UGC members and eight ex-QAC members could not be located by the UGC Secretariat. Different from the practice for RGC members, members of the UGC, the UGC Sub-Committees/Groups and the QAC were not required to submit annually an updated Register of Interests form to the Secretariat; (b) as at 30 June 2016, one local QAC member attended 2 (29%) out of 7 QAC meetings since his appointment in April 2014. Another non-local QAC member attended 2 (50%) out of 4 meetings since his appointment in April 2015; and (c) the UGC Secretariat had not promulgated rules of procedure governing the conduct of meetings of the UGC, the UGC Sub-Committees/Groups and the QAC (paras. 4.6 to 4.9).

11. ***Meeting expenses.*** Meeting expenses mainly include expenses on hotel accommodation, air passage and per-diem allowance for non-local members of the UGC, the RGC and the QAC (as well as their Committees, Sub-Committees, Groups and Panels). Public entities need to pay due regard to controlling meeting expenses for public accountability in the use of public funds and ensuring value for money. In the period 2005-06 to 2015-16, the annual meeting expenses of the UGC, the RGC and the QAC increased from \$3.9 million to \$16.2 million. The increase in expenses over the years was mainly due to increased number of non-local RGC Council/Panel/Committee members and increased number of meetings with the introduction of new funding schemes. Audit examined 30 payments of meeting expenses incurred in the period 2014-15 and 2015-16, and found that: (a) the 30 payments covered the procurement of 2,402 hotel room-nights booked after obtaining quotations from the same five upmarket hotels. There was

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no documentary evidence showing justifications for choosing the same five upmarket hotels and that less expensive hotels were not suitable or not available to provide the room-nights; (b) it is a practice of the UGC Secretariat that all non-local members are provided with Business Class return air tickets for travelling to Hong Kong to attend meetings. Furthermore, if the spouse of a non-local member wishes to accompany the member, the member's Business Class passage entitlement will be used to cover the cost of two return air tickets provided that any excess airfare will be borne by the member; and (c) although some procurement batches could have been consolidated to achieve possible economies of scale, the UGC Secretariat conducted 12 procurement batches for a total of 110 return air tickets costing about \$7.1 million (paras. 4.14 to 4.17 and 4.21 to 4.22).

12. *Internationalisation of the universities.* The UGC sees internationalisation as the key to Hong Kong's future and a matter of priority for the universities. According to the 2010 higher education review report published by the UGC, while it is important to encourage Mainland students to enter Hong Kong universities, true internationalisation requires a much greater diversity of nationalities and cultural background. In 2015/16, there were 15,730 non-local students enrolled in UGC-funded programmes. They represented 16% of total student enrolment in 2015/16. Audit analysed the mix of non-local students at the universities enrolled in UGC-funded programmes and noted that Mainland students made up 76% of the non-local students at the universities in 2015/16. There were 3,837 non-local students other than Mainland students, accounting for 3.9% of total student enrolment. Audit also noted that greater efforts could be made in implementing the recommendations of the 2010 higher education review report. For example, the review report recommended that the universities should actively maintain an international mix of their academic staff. While the UGC Secretariat had been collecting from the universities information on their student mix, it had not collected information on their academic staff mix (e.g. qualifications, experience and countries of origin). Furthermore, a set of key performance indicators on internationalisation was yet to be agreed with the universities (paras. 4.29 to 4.32 and 4.34).

13. *QAC.* The QAC assists the UGC in providing oversight of the quality of the universities' educational provision by conducting quality audits. Audit noted that there were insufficient local academic auditors for conducting quality audits of the universities. In a case of appointment of local auditors, the QAC took seven months to form an audit panel (paras. 4.48, 4.49 and 4.55).

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### Audit recommendations

14. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Secretary-General, University Grants Committee should:**

#### *Administration of recurrent grants*

- (a) **explore whether there are merits in including the impact of research as one of the elements of assessment in the conduct of future Research Assessment Exercises (para. 2.16(a));**
- (b) **consider taking into account the universities' achievements of knowledge transfer activities in future allocation of knowledge transfer funding (para. 2.16(b));**
- (c) **set out in the NoP the action that would be taken by the UGC in cases of non-compliance with the UGC's enrolment rules and take appropriate action on cases of non-compliance accordingly (para. 2.35(a));**
- (d) **expedite the imposition of limits on under-enrolment on individual streams of teacher education programmes and keep in view the need to impose limits on under-enrolment on individual streams of other manpower-planned programmes (para. 2.35(b));**
- (e) **expedite the updating of the NoP to reflect the policy change for admission of non-local students and the changes to the enrolment rules (para. 2.35(c));**

#### *Administration of capital grants*

- (f) **continue to pursue funding for major CWPs of the universities (para. 3.13(a));**
- (g) **consider the need to conduct a review on the space requirement formulae, taking into account the changes and developments in the UGC sector (para. 3.22(a));**

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- (h) **make efforts to resolve the space inventory differences and promptly finalise the space inventory updating exercise (para. 3.22(b));**
- (i) **consider the need to conduct audit of the space inventories of the universities on a periodic basis (para. 3.22(c));**
- (j) **consider the need to conduct periodically surveys of space utilisation of the universities (para. 3.22(d));**
- (k) **seek clarification from the Secretary for Financial Services and the Treasury on the definition of “commissioning of the facilities” for the purpose of finalising final accounts for capital works projects (para. 3.33(a));**
- (l) **ascertain the reasons for the delay in finalising project final accounts for major CWPs and AA&I projects, and take measures to promptly finalise the accounts (para. 3.33(b));**

### ***Governance and other administrative issues***

- (m) **locate the missing Register of Interests forms and take remedial action for those forms that cannot be located, and take measures to ensure the safekeeping of the Register of Interests forms in future (para. 4.12(a) and (b));**
- (n) **consider requiring members of the UGC, the UGC Sub-Committees/Groups and the QAC to submit annually updated Register of Interests forms to the UGC Secretariat (para. 4.12(c));**
- (o) **take measures to improve the attendance rates of members with low attendance records (para. 4.12(d));**
- (p) **promulgate rules of procedure for meetings of the UGC, the UGC Sub-Committees/Groups and the QAC (para. 4.12(e));**



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- (q) keep under review the appropriateness of the UGC Secretariat's hotel accommodation arrangement and passage arrangement for non-local members and explore whether there are less expensive alternative options that are acceptable to the non-local members (para. 4.25(a));
  - (r) in consultation with the Director of Government Logistics and the Secretary for Financial Services and the Treasury, review whether the UGC Secretariat's current arrangement of procuring air tickets complies with the Stores and Procurement Regulations (para. 4.25(b));
  - (s) further encourage the universities to continue their efforts to attract more non-local students, in particular those other than Mainland students, and promote more diversity at the universities (para. 4.35(a));
  - (t) consider including information on the mix of academic staff (e.g. qualifications, experience and countries of origin) in the regular data collection from the universities (para. 4.35(b));
  - (u) agree with the universities on a set of key performance indicators on internationalisation and continue to monitor the universities' performance on internationalisation (para. 4.35(c)); and
  - (v) take measures to ensure that there are sufficient local academic auditors to facilitate the formation of audit panels for conducting QAC quality audits for the universities in future (para. 4.58(a)).
15. Audit has also *recommended* that the Secretary for Education should, in consultation with the Secretary-General, University Grants Committee, formulate the way forward for the tuition fee policy with a view to ensuring that an appropriate policy is in place in a timely manner (para. 2.23).

## Response from the Government

16. The Government agrees with the audit recommendations.



## PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

### Background

#### *University Grants Committee*

1.2 In Hong Kong, there are eight universities funded by the University Grants Committee (UGC). These UGC-funded universities (unless otherwise stated, all universities mentioned in this Audit Report hereinafter refer to UGC-funded universities) are, in alphabetical order:

- (a) City University of Hong Kong (CityU);
- (b) Hong Kong Baptist University (HKBU);
- (c) Lingnan University (LU);
- (d) The Chinese University of Hong Kong (CUHK);
- (e) The Education University of Hong Kong (EdUHK — Note 1);
- (f) The Hong Kong Polytechnic University (PolyU);
- (g) The Hong Kong University of Science and Technology (HKUST); and
- (h) The University of Hong Kong (HKU).

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**Note 1:** *The Hong Kong Institute of Education was officially renamed The Education University of Hong Kong on 27 May 2016.*

## Introduction

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1.3 The UGC was established as a non-statutory advisory body in 1965. The terms of reference of the UGC are:

- (a) to keep under review in the light of the community's needs:
  - (i) the facilities in Hong Kong for education in universities, and such other institutions as may from time to time be designated by the Chief Executive of the Hong Kong Special Administrative Region;
  - (ii) such plans for development of such institutions as may be required from time to time; and
  - (iii) the financial needs of education in such institutions; and
- (b) to advise the Government:
  - (i) on the application of such funds as may be approved by the Legislature for education in such institutions; and
  - (ii) on such aspects of higher education which the Chief Executive may from time to time refer to the Committee.

1.4 According to the Controlling Officer's Report of the UGC in the annual Estimates of the Government, the UGC:

- (a) advises the Government on the development and funding of higher education in Hong Kong;
- (b) advances the quality of teaching and learning, research and knowledge transfer at the universities; and
- (c) monitors the efficiency and cost-effectiveness of the universities' UGC-funded activities.

1.5 According to the UGC's Notes on Procedures (NoP — Note 2):

- (a) the UGC has neither statutory nor executive powers;
- (b) each of the universities is an autonomous body with its own ordinance and governing council. The universities have autonomy in and responsibility for the control of curricula and academic standards, the selection of staff and students, the initiation and acceptance of research, and the internal allocation of resources. Nevertheless, because the universities are largely supported by public funds, and in view of the social, cultural and economic importance of higher education, the Government and the community at large have a legitimate interest in the operation of the universities to ensure that they are providing the highest possible standards of education in the most cost-effective manner. The UGC seeks to maintain an appropriate balance in these matters; and
- (c) the UGC mediates interests between the universities and the Government. On one hand, the UGC safeguards the academic freedom and institutional autonomy of the universities, while on the other it ensures value for money for the taxpayers.

1.6 As at 30 June 2016, the UGC had 20 members comprising a Chairman and 19 other members (6 non-local academics, 6 local academics and 8 local lay persons). Members of the UGC are appointed by the Chief Executive. The UGC meets three times a year and is supported by seven Sub-Committees and Groups:

- (a) ***General Affairs and Management Sub-Committee.*** The responsibilities of this Sub-Committee include considering matters relating to the space and accommodation requirements of the universities, considering ad hoc proposals requiring funding and monitoring progress, and advising the UGC on all matters relating to public relations and publicity. As at 30 June 2016, there were 10 members in this Sub-Committee;

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**Note 2:** *The NoP explains and sets down the major operational procedures (e.g. on funding matters) of the interplay between the UGC, the universities and the Government (as represented by the Education Bureau). The NoP is for observance by responsible officers of the universities, the UGC Secretariat (see para. 1.8) and the Government.*

- (b) ***Strategy Sub-Committee.*** The responsibilities of this Sub-Committee include advising the UGC on emerging policy issues and directions pertaining to the development of the local higher education sector having cognizance of the international dimension, considering matters relating to the institutional and academic development of the universities in a holistic and comprehensive manner, and devising methodologies to assess the funding requirements of the universities. As at 30 June 2016, there were nine members in this Sub-Committee;
- (c) ***Research Group.*** This Group is mainly responsible for advising the UGC on the strategy to promote research within the UGC sector. As at 30 June 2016, there were nine members in this Group;
- (d) ***Financial Affairs Group.*** This Group is mainly responsible for advising the UGC on the implementation of the recommendations in the review report on universities' financial affairs (see paras. 4.40 and 4.41) and overseeing the implementation of the recommendations, and advising the UGC on any issues relating to the good financial governance and sound financial planning of the universities. As at 30 June 2016, there were six members in this Group;
- (e) ***Financial Affairs Expert Working Group.*** This Working Group is mainly responsible for working with the universities on the implementation of the recommendations (concerning cost allocation between the universities' UGC-funded and non-UGC-funded activities, and financial transparency of the universities) in the review report on universities' financial affairs (see paras. 4.40 and 4.41), and advising the Financial Affairs Group (see (d) above) on drawing up and updating guidelines, and on financial matters in connection with the implementation of the recommendations in the review report. As at 30 June 2016, there were four members in this Working Group;
- (f) ***Task Force on Implementation of the Governance Report Recommendations.*** This Task Force is established under the Strategy Sub-Committee (see (b) above) and is mainly responsible for providing guidance and assistance to the universities on the implementation of the recommendations of the review report on institutional governance (see paras. 4.44 and 4.45), monitoring progress on the implementation of

the recommendations, and advising the Strategy Sub-Committee on matters relating to the implementation of the recommendations of the review report. As at 30 June 2016, there were five members in this Task Force; and

- (g) ***Task Force on the Review of the Research Grants Council (Phase I).*** This Task Force is responsible for overseeing the implementation of Phase I of the Research Grants Council Review, reporting progress and findings of the study to the Research Group (see (c) above) and the UGC, and submitting comments and recommendations on findings to the Research Group and the UGC. Upon its formation in July 2016, eight members were appointed into this Task Force.

The UGC members also sit in the Sub-Committees and Groups. Non-UGC members may also be appointed to the Sub-Committees and Groups where necessary.

1.7 The UGC also has under its aegis two non-statutory advisory bodies:

- (a) ***Research Grants Council (RGC).*** The RGC was established in 1991. It is responsible for advising the needs of the institutions of higher education in Hong Kong in the field of academic research, inviting and receiving applications for research grants, studentships and post-doctoral fellowships and approving such applications, and monitoring the implementation of such grants. As at 30 June 2016, the RGC comprised a Chairman and 24 members (12 non-local academics, 10 local academics, 2 local lay persons and an ex-officio member who is the Science Advisor of the Innovation and Technology Commission); and
- (b) ***Quality Assurance Council (QAC).*** The QAC was established in 2007. It is responsible for advising on quality assurance matters in the higher education sector in Hong Kong, including the conduct of quality audits of the universities. As at 30 June 2016, the QAC comprised a Chairman and 7 members (2 non-local academics, 2 local academics, 3 local lay persons and an ex-officio member who is the Secretary-General of the UGC).

## Introduction

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### *UGC Secretariat*

1.8 The UGC (as well as its Sub-Committees, Groups and Councils) is supported by the UGC Secretariat (a government department), which is headed by the Secretary-General, UGC. The Secretariat assists the UGC in carrying out its terms of reference (see para. 1.3) and functions (see para. 1.4), and administers the grants provided to the universities. As at 30 June 2016, the Secretariat had a staff establishment of 84 (including 16 non-civil service contract staff). For 2016-17, the estimated expenditure of the UGC amounted to \$17,966 million (\$144 million for the Secretariat's expenses and \$17,822 million for grants/reimbursements provided to the universities). The organisation chart of the UGC Secretariat is shown at Appendix A.

1.9 The Education Bureau (EDB) is the policy bureau of the UGC Secretariat. Recommendations on recurrent grants (see para. 1.12(a)) to the universities are submitted by the UGC, through the Secretary for Education, to the Chief Executive in Council for endorsement. The annual recurrent grants are examined by the Finance Committee of the Legislative Council (LegCo) in the context of the annual Estimates and approved by LegCo in the context of the Appropriation Bill.

### *Student enrolment*

1.10 The Government had been striving to provide secondary school leavers with flexible and diversified articulation pathways with multiple entry and exit points through promoting the quality and sustainable development of the publicly-funded and self-financing post-secondary education sectors. Through the development of both sectors, in 2015/16 (unless otherwise specified, all years mentioned in this Audit Report refer to academic years, which start on 1 July of a year and end on 30 June of the following year), about 46% of young people in the relevant cohort had access to degree-level education. And with sub-degree education, about 70% of them had access to post-secondary education. Table 1 shows the total number of students (full-time equivalent (FTE) — Note 3) enrolled in the UGC-funded programmes in the period 2010/11 to 2015/16. Student enrolment (FTE) had increased by 35.3% from 70,611 in 2010/11 to 95,520 in

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**Note 3:** *FTE is a unit used for measuring the number of students to report the approximate size of a university. An FTE of 1.0 is equal to a full-time student while 0.5 signals half of a study load (e.g. the study load of a part-time student).*



2015/16. Appendix B shows, for the same period, the total number of students (FTE) enrolled in these programmes by level of study. From 2010/11 to 2015/16, while undergraduate students (FTE) had grown by 44.8% from 56,442 to 81,732 and research postgraduate students (FTE) had grown by 15.8% from 6,355 to 7,360, sub-degree students (FTE) had decreased by 23.6% from 5,437 to 4,156 and taught postgraduate students (FTE) had decreased by 4.5% from 2,378 to 2,271.

Table 1

**Total number of students (FTE) enrolled in UGC-funded programmes  
(2010/11 to 2015/16)**

University	2010/11	2011/12	2012/13 (Note)	2013/14	2014/15	2015/16	Percentage increase in the period 2010/11 to 2015/16
CityU	10,126	10,328	12,698	12,922	13,725	14,198	40.2%
HKBU	5,166	5,155	6,600	6,673	6,752	7,019	35.9%
LU	2,290	2,213	2,687	2,644	2,613	2,608	13.9%
CUHK	13,453	13,801	17,723	18,228	18,801	19,084	41.9%
EdUHK	5,090	5,382	6,222	6,141	6,063	6,221	22.2%
PolyU	13,987	13,977	16,955	17,074	17,204	17,345	24.0%
HKUST	7,197	7,526	9,829	10,128	10,220	10,391	44.4%
HKU	13,302	13,413	17,210	17,613	18,241	18,655	40.2%
Overall	70,611	71,793	89,923	91,424	93,619	95,520	35.3%

*Source: Audit analysis of UGC records*

*Note: To tie in with the implementation of the new academic structure, the universities had admitted two cohorts of students under the old and new academic structures in 2012/13.*

*Remarks: Figures may not add up to total due to rounding.*

### *Staff in academic departments of the universities*

1.11 Table 2 shows the total number of staff (FTE) in academic departments of the universities in the period 2010/11 to 2015/16. Staff (FTE) in academic departments of the universities had increased by 9.5% from 11,935 in 2010/11 to 13,074 in 2015/16. Appendix C shows, for the same period, the total number of staff (FTE) by staff grade. From 2010/11 to 2015/16, while technical research staff (FTE) for the universities had remained unchanged at about 1,590, academic staff (FTE) had increased by 11.7% from 6,258 to 6,992, and administrative, technical and other staff (FTE) had increased by 9.9% from 4,087 to 4,492.

Table 2

**Total number of staff (FTE) in academic departments of the universities  
(2010/11 to 2015/16)**

University	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	Percentage increase/ (decrease) in the period 2010/11 to 2015/16
CityU	1,814	1,783	1,914	1,940	1,866	1,748	(3.6%)
HKBU	745	767	802	834	852	887	19.1%
LU	220	219	260	253	254	248	12.7%
CUHK	2,596	2,555	2,653	2,722	2,712	2,857	10.1%
EdUHK	549	534	590	616	659	696	26.8%
PolyU	2,161	2,018	2,082	2,114	2,148	2,191	1.4%
HKUST	1,233	1,243	1,399	1,461	1,485	1,552	25.9%
HKU	2,616	2,556	2,740	2,848	2,862	2,894	10.6%
Overall	11,935	11,674	12,440	12,788	12,838	13,074	9.5%

*Source: Audit analysis of UGC records*

*Remarks 1: Staff in this table refer to those with salaries wholly funded by General Funds, which include, for example, block grants (see para. 2.3), supplementary grants/adjustments (see para. 2.5) and tuition fees.*

*2: To tie in with the implementation of the new academic structure, the universities had admitted two cohorts of students under the old and new academic structures in 2012/13.*

*3: Figures may not add up to total due to rounding.*

### *UGC grants to the universities*

1.12 Grants provided to the universities comprise:

- (a) ***Recurrent grants.*** Assessment of recurrent funding and allocation of recurrent grants to the universities are largely based on approved student number targets and are usually allocated to the universities on a triennial basis to tie in with the academic planning cycle to support the universities' academic work and related administrative activities. For example, the 2012-15 triennium comprised the three years from 2012/13 to 2014/15. Table 3 shows the actual amounts of recurrent grants provided to the universities in the period 2010/11 to 2014/15. The grants to the universities had increased by 52.4% from \$10,543 million in 2010/11 to \$16,072 million in 2014/15 (actual recurrent grants information for 2015/16 was not available as at 31 August 2016); and

**Table 3**  
**Actual recurrent grants to the universities**  
**(2010/11 to 2014/15)**

University	2010/11 (\$ million)	2011/12 (\$ million)	2012/13 (Note) (\$ million)	2013/14 (\$ million)	2014/15 (\$ million)	Percentage increase in the period 2010/11 to 2014/15
CityU	1,255	1,337	1,600	1,709	1,950	55.4 %
HKBU	612	658	826	878	984	60.8 %
LU	261	280	347	358	401	53.6 %
CUHK	2,406	2,613	3,295	3,490	3,764	56.4 %
EdUHK	510	526	619	643	700	37.3 %
PolyU	1,736	1,875	2,269	2,338	2,529	45.7 %
HKUST	1,332	1,432	1,746	1,831	2,000	50.2 %
HKU	2,431	2,647	3,239	3,451	3,744	54.0 %
Overall	10,543	11,368	13,942	14,698	16,072	52.4 %

*Source: Audit analysis of UGC records*

*Note: To tie in with the implementation of the new academic structure, the universities had admitted two cohorts of students under the old and new academic structures in 2012/13.*

*Remarks 1: The above figures do not include the RGC's Earmarked Research Grants (see para. 2.3(a)(ii)) and grants on Theme-based Research Scheme.*

*2: Figures for 2015/16 were not yet available as at 31 August 2016.*

*3: Figures may not add up to total due to rounding.*

## Introduction

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- (b) **Capital grants.** The UGC supports capital works projects of the universities by seeking annually funds from the Government. For projects costing more than \$30 million each, funding is provided from the Capital Works Reserve Fund (CWRF) (Head 708 — Capital Subventions and Major Systems and Equipment). For projects costing not more than \$30 million each, funding is provided through the block allocation vote of Alterations, Additions, Repairs and Improvements (AA&I) of the CWRF Head 708. Table 4 shows the amounts of capital grants provided to the universities in the period 2010/11 to 2015/16.

**Table 4**  
**Capital grants to the universities**  
**(2010/11 to 2015/16)**

University	2010/11 (\$ million)	2011/12 (\$ million)	2012/13 (\$ million)	2013/14 (\$ million)	2014/15 (\$ million)	2015/16 (\$ million)
CityU	303	486	308	136	46	60
HKBU	176	407	219	127	120	127
LU	19	196	27	36	31	42
CUHK	367	978	670	197	160	103
EdUHK	34	96	12	24	41	59
PolyU	282	802	902	368	154	129
HKUST	181	369	255	337	254	217
HKU	704	1,244	637	193	202	108
Total	2,066	4,578	3,030	1,418	1,008	845

Source: UGC records

### **Audit review**

1.13 In late April 2016, the Audit Commission (Audit) commenced a review on the funding of universities by the UGC. The review has focused on the following areas:

- (a) administration of recurrent grants (PART 2);
- (b) administration of capital grants (PART 3); and
- (c) governance and other administrative issues (PART 4).

Audit has found room for improvement in the above areas and has made a number of recommendations to address the issues.

1.14 This audit review does not cover the work of the RGC (see para. 1.7(a)). A separate review concerning the RGC is covered in Chapter 6 of the Director of Audit's Report No. 67.

### **General response from the Government**

1.15 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has also thanked Audit for providing constructive recommendations to the UGC's work.

### **Acknowledgement**

1.16 Audit would like to acknowledge with gratitude the assistance and full cooperation of the staff of the UGC Secretariat and the EDB during the course of the audit review.

## **PART 2: ADMINISTRATION OF RECURRENT GRANTS**

2.1 This PART examines the administration of recurrent grants provided to the universities, focusing on the following issues:

- (a) provision of recurrent grants (paras. 2.2 to 2.17);
- (b) review of tuition fees (paras. 2.18 to 2.24); and
- (c) compliance with enrolment rules (paras. 2.25 to 2.36).

### **Provision of recurrent grants**

2.2 Assessment of recurrent funding and allocation of recurrent grants to the universities are largely based on approved student number targets and are usually allocated to the universities on a triennial basis to tie in with the academic planning cycle to support their academic work and related administrative activities. Recurrent grants are provided as net government subventions, i.e. after deducting the assumed income (Note 4) from the universities' assessed gross recurrent funding requirements. The recurrent grants comprise block grants and earmarked grants.

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**Note 4:** *According to the NoP (see Note 2 to para. 1.5), in determining the net recurrent funding requirements of the universities, the UGC takes into account:*

- (a) *assumed tuition fee income based on actual and/or indicative tuition fees as notified by the Government; and*
- (b) *other assumed income of the universities such as rents, interest and other income, as estimated by the universities and agreed with the UGC.*



2.3 **Block grants.** The block grant is the major component of the recurrent grant. With the introduction of the “3+3+4” new academic structure (Note 5) in 2012/13, the block grant comprises “two pots of money”:

- (a) **“Existing pot of money”.** “Existing pot of money” is the funding for the three years of undergraduate study and other levels of study. The block grant under the “existing pot of money” comprises three elements:
  - (i) **Teaching element (about 75%).** Funding for the teaching element is based on student numbers, students’ study levels (i.e. sub-degree, undergraduate, taught postgraduate and research postgraduate), modes of study (i.e. part-time and full-time) and disciplines of study (e.g. medicine and business). Some subjects are more expensive than the others because they require, for example, special equipment and laboratories. The UGC broadly classifies the academic programmes into 17 categories in three price groups, namely medicine and dentistry, engineering and laboratory based studies, and others. Relative cost weightings are assigned to each price group as shown in Table 5;

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**Note 5:** *The “3+3+4” academic structure refers to three years of junior secondary education, three years of senior secondary education and four years of undergraduate study. Prior to 2012/13, it was “3+4+3”.*

**Table 5**  
**Relative cost weightings**

<b>Academic programme category</b>		<b>Price group</b>	<b>Teaching programme (Note 1)</b>	<b>Research programme (Note 2)</b>
1. Medicine	Dentistry	Medicine and dentistry	3.6	1.8
2. Dentistry				
3. Studies allied to medicine and health	Engineering and laboratory based studies		1.4	1.4
4. Biological sciences				
5. Physical sciences				
6. Engineering and technology				
7. Arts, design and performing arts				
8. Mathematical sciences	Others		1.0	1.0
9. Computer science and information technology				
10. Architecture and town planning				
11. Business and management studies				
12. Social sciences				
13. Law				
14. Mass communication and documentation				
15. Languages and related studies				
16. Humanities				
17. Education				

*Source: UGC records*

*Note 1: Teaching programmes comprise sub-degree, undergraduate and taught postgraduate programmes.*

*Note 2: Research programmes comprise only research postgraduate programmes.*

- (ii) ***Research element (about 23%).*** Funding for the research element is disbursed to the universities notionally as infrastructure funding to enable the universities to provide staffing and facilities (e.g. accommodation and equipment) necessary to carry out research, and to fund a certain level of research. Funding for the research element comprises two parts. One part is based on the universities' performance in the Research Assessment Exercise (RAE — see para. 2.10). Another part is based on the universities' success in obtaining peer reviewed the RGC's Earmarked Research Grants; and
- (iii) ***Professional activity element (about 2%).*** Funding for the element of professional activity is based on the number of academic staff undertaking professional activities; and
- (b) ***“New pot of money”.*** “New pot of money” is the recurrent funding for an additional year of undergraduate study under the new academic structure and is allocated wholly as “teaching funding” among faculties of the universities. The funding for this additional year has been calculated at 62.5% of the funding for a year of undergraduate study.

The block grant system provides the universities with maximum flexibility in internal deployment. Once allocations are approved, the universities have the autonomy in and responsibility for deciding how the resources available are put to use.

2.4 ***Earmarked grants.*** Earmarked grants are for specific purposes, such as grants for knowledge transfer activities (see para. 2.12) and funding for the Areas of Excellence Scheme (Note 6). Allocation of each earmarked grant to the universities depends on the specific circumstances of the case. For example, the grants for knowledge transfer activities are allocated based on the amount of block grant and research funding received by a university vis-à-vis the total amount of block grants and research funding provided to all universities.

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**Note 6:** *The Areas of Excellence Scheme is a research funding scheme administered by the RGC. The scheme seeks to build upon Hong Kong's existing research strengths and develop them into areas of excellence.*

## **Administration of recurrent grants**

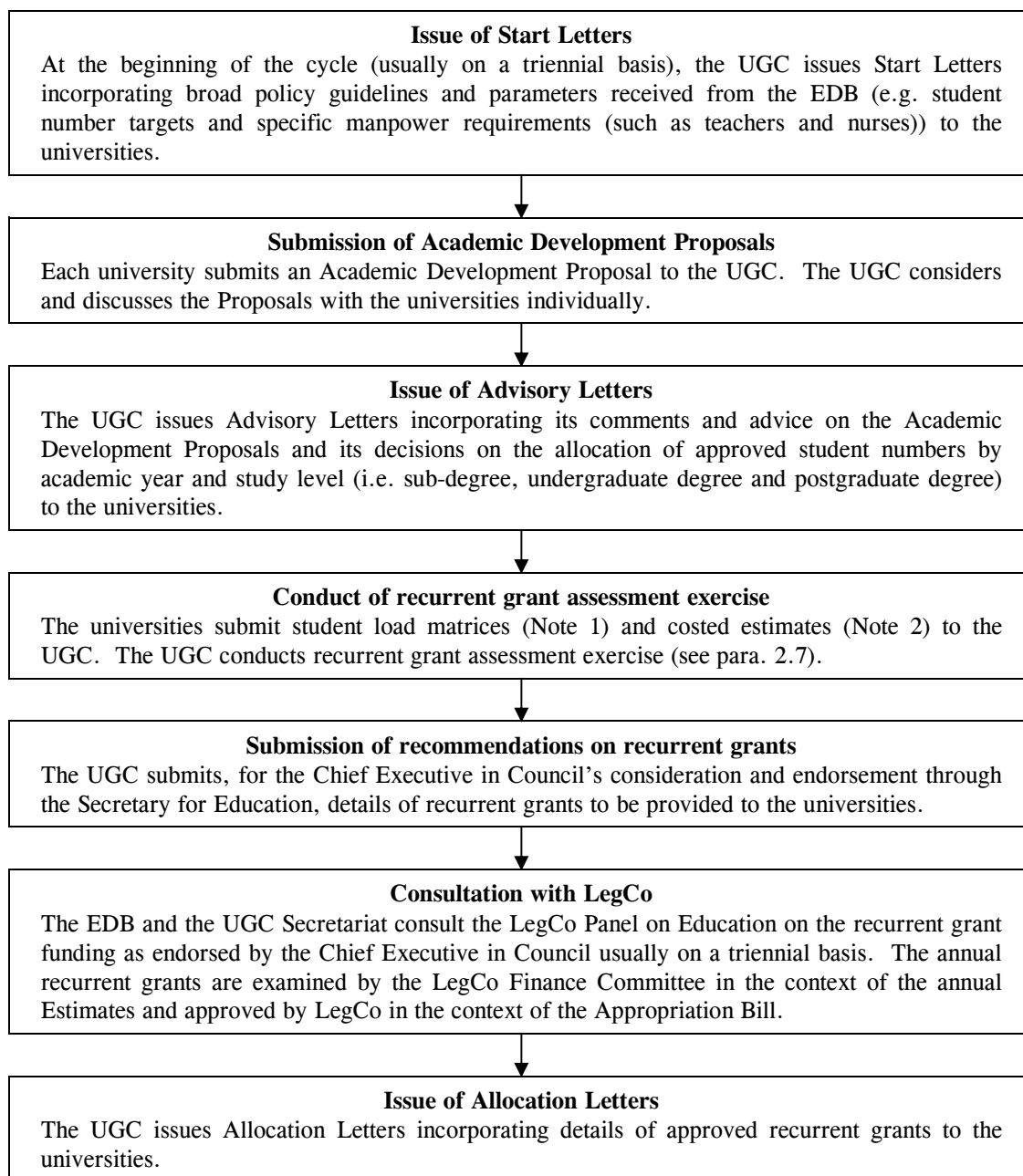
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2.5        The amount of recurrent grants for a university is usually determined on a triennial basis (while the actual payment of grants to the university is made on a monthly basis). Once determined, the amount of recurrent grants will not be revised during the triennium except for adjustments to take into account, for example, new initiatives from the Government and annual pay adjustments.

2.6        A recurrent grant cycle involves a number of stages, which are illustrated in Figure 1.

Figure 1

**Recurrent grant cycle**



Source: UGC records

Note 1: Student load matrices show the allocation of approved student numbers by academic year and study level to individual programmes with reference to the UGC's advice contained in the Advisory Letters. They are used by the UGC as a basis for the determination of the teaching element of block grant to the universities.

Note 2: Costed estimates include, for example, information on the estimates of assumed income for the funding period and any special factors that the universities would like to draw the UGC's attention in conducting the recurrent grant assessment exercise.

## **Administration of recurrent grants**

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2.7 The UGC's existing funding methodology used in the recurrent grant assessment exercise for assessing the provision of recurrent grants to the universities together with the factors considered is shown at Appendix D. Generally speaking, the UGC calculates the cash limit (i.e. net recurrent funding requirements) for the UGC sector based on the student number targets (see Figure 1 in para. 2.6) and the student unit funding rates as weighted by the relative cost of different levels of study, with necessary adjustment to price and salary levels, if any. The UGC then allocates the resources among the eight universities in accordance with the funding methodology, which assesses the resources required to meet the teaching and research requirements of each university. Determination of the recurrent grants to the universities is largely based on established formula. Nevertheless, in finalising its funding recommendations, the UGC also takes into account the special needs of individual universities and other factors not captured by the formula and introduces adjustments where required.

2.8 Table 6 shows, in the period 2014/15 to 2018/19, the approved recurrent grants for the eight universities.

Table 6

Approved recurrent grants for the universities  
(2014/15 to 2018/19)

University	2014/15 (\$ million)	2015/16 (\$ million)	2016/17 (\$ million)	2017/18 (\$ million)	2018/19 (\$ million)
<b><i>Block grants</i></b>					
CityU	1,736	2,207	2,285	2,283	2,288
HKBU	831	1,060	1,085	1,090	1,102
LU	335	411	408	399	393
CUHK	3,289	3,843	3,894	3,876	3,877
EdUHK	600	708	809	805	802
PolyU	2,221	2,679	2,838	2,861	2,880
HKUST	1,720	2,023	2,119	2,140	2,157
HKU	3,215	3,916	3,982	4,012	4,039
Sub-total	13,947	16,847	17,420	17,466	17,538
<b><i>Earmarked grants</i></b>	374	259	431	341	361
Total	14,321 (Note)	17,106	17,851	17,807	17,899

Source: UGC records

Note: The 2014/15 recurrent grants for the universities were approved by the LegCo Finance Committee in January 2012. The approved amounts were at 2011 price level and therefore, different from the amounts shown at Table 3 in paragraph 1.12(a), which were actual amounts after salary adjustments for the period 2012 to 2015.

2.9 Table 7 shows the average student unit cost of UGC-funded programmes by level of study as reported by the universities in the period 2005/06 to 2014/15.

Table 7

**Average student unit cost of UGC-funded programmes by level of study  
(2005/06 to 2014/15)**

Academic year	Sub-degree (\$'000)	Undergraduate (\$'000)	Taught postgraduate (\$'000)	Research postgraduate (\$'000)	All levels (\$'000)
2005/06	124	204	203	429	208
2006/07	149	209	198	470	220
2007/08	166	227	195	512	240
2008/09	178	240	208	532	253
2009/10	155	225	203	521	239
2010/11	147	222	195	511	235
2011/12	147	233	204	516	247
2012/13	137	203	193	469	215
2013/14	139	209	202	475	222
2014/15	156	222	215	511	237

Source: UGC records

Remarks: According to the UGC Secretariat, student unit costs are affected by a variety of factors such as different costs for different programmes, different modes and levels of study, different stages of development of individual universities, etc.

***Research impact not accounted for in RAE***

2.10 Before 1999, the UGC conducted two RAEs (see para. 2.3(a)(ii)) in 1993 and 1996. Subsequent to the completion of the RAE in 1999, the UGC decided that future RAEs should be undertaken at an interval of about six years. Since 2000, RAEs were conducted in 2006 and 2014. The Exercise assessed the research quality of the universities in order to encourage world-class research and drive for excellence. In conducting the RAE in 2014, the basis of assessment, which was determined after extensive consultation with the sector, comprises:



- (a) **Research outputs.** Research outputs account for 80% of the weighting. They include, for example, publications, patents awarded, published patent applications, artefacts, performance recordings, architectural drawings and any creative work that can be evaluated for merit and an assessment obtained; and
- (b) **Research inputs and esteem measures.** Research inputs and esteem measures account for 20% of the weighting (the split for this 20% weighting varied across panels). Research inputs include, for example, the amount of competitive peer reviewed research grants received from the RGC. Esteem measures include, for example, research-based awards and editorship of academic journals.

2.11 Audit found that while it took into consideration the universities' research outputs in conducting the RAE, the UGC did not consider their research impact in the Exercise. Audit noted that, in the United Kingdom, the higher education funding bodies adopted the Research Excellence Framework in 2014 (Note 7) for assessing the quality of research in the higher education institutions of the United Kingdom. In the Framework, the impact of research, which is "*any effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia*", accounts for 20% of the overall assessment results. To recognise the universities' efforts in generating research impact and to encourage them to make such impact, Audit considers that the UGC needs to explore whether there are merits in including the impact of research as one of the elements of assessment in the conduct of future RAEs.

### ***Knowledge transfer achievements not taken into account in funding allocation***

2.12 According to the UGC, knowledge transfer is "*the systems and processes by which knowledge, including technology, know-how, expertise and skills are transferred between higher education institutions and society, leading to innovative, profitable or economic or social improvements*". In 2009/10, the UGC introduced a new recurrent earmarked funding for the universities to strengthen and broaden their

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**Note 7:** *The Research Excellence Framework 2014 replaced the previous Research Assessment Exercise (last conducted in 2008) of the higher education funding bodies in the United Kingdom.*

## Administration of recurrent grants

endeavours in knowledge transfer. In the 2016-19 triennium, this funding for knowledge transfer amounts to \$62.5 million per annum. Table 8 shows the allocation of knowledge transfer funding to the eight universities in the period 2009/10 to 2015/16.

**Table 8**  
**Allocation of knowledge transfer funding**  
**(2009/10 to 2015/16 — Note)**

University	2009/10 (\$ million)	2010/11 (\$ million)	2011/12 (\$ million)	2012/13 (\$ million)	2013/14 (\$ million)	2014/15 (\$ million)	2015/16 (\$ million)
CityU	7	7	7	6	6	6	8
HKBU	3	3	3	3	3	3	4
LU	1	1	1	1	1	1	1
CUHK	12	12	12	13	13	14	14
EdUHK	1	2	1	2	2	2	2
PolyU	8	8	8	7	7	7	8
HKUST	7	7	7	7	7	8	8
HKU	12	12	12	14	13	12	16
Total	51	52	51	53	52	53	61

*Source: UGC records*

*Note: The period 2009/10 to 2015/16 covered the 2009-12 triennium, the 2012-15 triennium, and 2015/16 which was a roll-over year. The roll-over arrangement was implemented for 2015/16 to allow more time for the universities to study the impact of the new academic structure in the higher education sector and to take into account the results of the RAE 2014 in funding allocation in the next full triennium.*

2.13 The UGC recognises the importance of knowledge transfer in bringing about socio-economic impacts to the community and businesses. With the introduction of the knowledge transfer funding, the universities are required to submit annual reports on their knowledge transfer activities to the UGC. Audit noted from these reports that the universities had made efforts in developing such activities. Examples of achievements of knowledge transfer activities are shown in Tables 9 to 11.

**Table 9**

**Number of patents granted  
(2010/11 to 2014/15)**

<b>University</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>	<b>2013/14</b>	<b>2014/15</b>
CityU	17	41	19	22	25
HKBU	1	2	4	6	6
LU	0	0	0	0	0
CUHK	68	41	65	136	58
EdUHK	0	0	0	0	0
PolyU	43	52	57	46	73
HKUST	50	52	80	80	93
HKU	31	24	33	24	50
Total	210	212	258	314	305

*Source: Annual reports on knowledge transfer activities submitted by the universities to the UGC*

**Table 10**

**Number of licences granted  
(2010/11 to 2014/15)**

<b>University</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>	<b>2013/14</b>	<b>2014/15</b>
CityU	10	15	39	44	47
HKBU	1	1	1	1	14
LU	0	0	0	0	0
CUHK	26	24	48	61	57
EdUHK	0	0	0	0	0
PolyU	18	55	54	76	89
HKUST	34	28	33	41	54
HKU	45	68	63	66	75
Total	134	191	238	289	336

*Source: Annual reports on knowledge transfer activities submitted by the universities to the UGC*

**Table 11****Income generated from intellectual property rights  
(2010/11 to 2014/15)**

<b>University</b>	<b>2010/11 (\$ million)</b>	<b>2011/12 (\$ million)</b>	<b>2012/13 (\$ million)</b>	<b>2013/14 (\$ million)</b>	<b>2014/15 (\$ million)</b>
CityU	5	19	6	1	2
HKBU	3	3	4	7	7
LU	0	0	0	0	0
CUHK	19	19	19	43	85
EdUHK	0	0	0	0	0
PolyU	7	5	2	3	7
HKUST	2	4	3	4	5
HKU	3	9	7	3	21
Total	39	59	41	61	127

*Source: Annual reports on knowledge transfer activities submitted by the universities to the UGC*

2.14 Audit noted that the UGC recognises the importance of the universities' knowledge transfer activities. However, the existing method of allocating knowledge transfer funding to a university is based on the amount of block grant and research funding it received vis-à-vis the total amount of block grants and research funding provided to all universities. The existing method does not take into consideration the achievements of knowledge transfer activities of the universities. Given that the knowledge transfer funding has already been introduced for a number of years, to give recognition to the universities' efforts on knowledge transfer activities and to encourage them to make further efforts, the UGC needs to consider taking into account the universities' achievements of knowledge transfer activities in future allocation of knowledge transfer funding.

2.15 In response to Audit's enquiry, the UGC Secretariat informed Audit in September 2016 that:

- (a) regarding the knowledge transfer funding of \$62.5 million per year in 2016-19 triennium, the Research Group under the UGC decided in April 2016 to retain the funding mechanism in use in the 2012-15 triennium for the 2016-19 triennium;
- (b) noting that the knowledge transfer culture had already been fully embedded in the universities' strategies and operations, the Research Group agreed in September 2016 to consider changing the way knowledge transfer funding was to be provided to the universities for the next triennium;
- (c) the Secretariat would review the earmarked knowledge transfer funding allocation and Audit's views would be taken into account in the review; and
- (d) "societal needs", which included knowledge transfer, was one of the four criteria for assessment of the 2016-19 Academic Development Proposals which determined a much more significant block of funding (i.e. the block grant).

### Audit recommendations

2.16 **Audit has *recommended* that the Secretary-General, University Grants Committee should:**

- (a) **explore whether there are merits in including the impact of research as one of the elements of assessment in the conduct of future RAEs; and**
- (b) **consider taking into account the universities' achievements of knowledge transfer activities in future allocation of knowledge transfer funding.**

### Response from the Government

2.17 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a) the UGC Secretariat will continue to provide full support to the UGC in considering conducting another RAE with the inclusion of research impact as one of the elements of assessment taking into consideration that the assessment of impact in Hong Kong should be distinct from that in the United Kingdom. It would be inappropriate to replicate fully the Research Excellence Framework 2014 model in the United Kingdom in developing the parameters for the next RAE in Hong Kong; and
- (b) the UGC Secretariat will invite the UGC to review the earmarked knowledge transfer funding allocation in due course, and Audit's views and recommendation will be taken into account in the review.

### Review of tuition fees

2.18 For funding purposes, the Government sets indicative tuition fee for UGC-funded programmes (see Note 4 to para. 2.2). In January 1991, the then Governor in Council decided that the target cost recovery rate for tuition fee for degree courses should be set at 18%. This target was achieved in 1997/98 when the indicative tuition fee for UGC-funded programmes at undergraduate degree level or above was raised to \$42,100 per student per year. While the cost recovery rates have fluctuated around 18% over the years, the indicative tuition fee has remained unchanged since then.

#### *Tuition fee not reviewed since 1997*

2.19 In 2005, the then Education and Manpower Bureau informed the LegCo Panel on Education that it would conduct a public consultation on the proposed tuition fee for the "3+3+4" new academic structure and arrive at a decision in the last quarter of 2011 at the latest for implementation in 2012/13.

2.20 In November 2011, in dealing with the recurrent funding for the universities in the 2012-15 triennium, the EDB informed the LegCo Panel on Education that the cost recovery target should be revisited and it would embark on a tuition fee review, taking into account the latest development in the higher education sector, locally and overseas. In January 2012, in view of the concerns about possible increase in tuition fees raised by members of the LegCo Panel on Education and the LegCo Finance Committee, the EDB undertook that it would take into account the experience in the early years of implementing the new academic structure before embarking on any review of the tuition fee. It also indicated that the tuition fee would be maintained at the current level pending the outcome of the future review, if any, which would likely be available not earlier than the end of the 2012-15 triennium or the beginning of the triennium that followed.

2.21 In June 2015, the EDB invited the UGC to launch a review of tuition fee policies in other jurisdictions and propose options to the EDB for consideration with due regard to the situation in Hong Kong. The EDB suggested that the review be completed in around 12 to 18 months (i.e. by December 2016). Meanwhile, the EDB also informed LegCo that it would maintain the indicative tuition fee at the existing level during the 2016-19 triennium. As at 31 July 2016, the review was underway and a firm completion date had not been set.

2.22 According to the UGC Secretariat, the cost recovery rate (see para. 2.18) was 18% in 2012/13. The cost recovery rates then dropped to 17.6%, 16.9% and 15.8% in 2013/14, 2014/15 and 2015/16 respectively. The EDB envisaged that with the indicative tuition fee maintained at its current level, the cost recovery rate was expected to continue to fall in the 2016-19 triennium. The EDB therefore considered that there was a need to conduct a comprehensive review of the current tuition fee policy after almost two decades of status quo so that more updated information and parameters would be used for assessing the appropriateness of the current tuition fee policy. In response to Audit's enquiry, the UGC Secretariat informed Audit that a consultancy study report as endorsed by the UGC had been submitted to the EDB in late September 2016. The EDB informed Audit in October 2016 that the Chief Executive in Council decided in October 2011 that the target cost recovery rate should be revisited in the context of a review. Thus, there was no longer any prevailing "target rate" as at this moment. Audit considers that the EDB needs to, in consultation with the UGC, formulate the way forward for the tuition fee policy with a view to ensuring that an appropriate policy is in place in a timely manner.

### Audit recommendation

2.23      Audit has *recommended* that the Secretary for Education should, in consultation with the Secretary-General, University Grants Committee, formulate the way forward for the tuition fee policy with a view to ensuring that an appropriate policy is in place in a timely manner.

### Response from the Government

2.24      The Secretary for Education agrees with the audit recommendation.

### Compliance with enrolment rules

2.25      According to the NoP, the approved student number targets by level of study (i.e. sub-degree, undergraduate, taught postgraduate and research postgraduate) is a primary factor in the allocation of the block grant. There are two types of approved student number targets, one for manpower-planned programmes and the other for non-manpower-planned programmes:

- (a)      manpower-planned programmes are those programmes that are required to meet specific manpower requirements as determined by the relevant government bureaux/departments (e.g. medicine, nursing, occupational therapy, radiography and teacher education); and
- (b)      non-manpower-planned programmes are programmes such as business, engineering, humanities, and social sciences.

The universities should adhere to the approved student number targets as far as possible in each triennial funding cycle. Nevertheless, the UGC has laid down a number of enrolment rules in the NoP that allow the universities to have some flexibility in enrolling students.

### *Non-compliance with enrolment rules*

2.26      Audit examined the universities' actual student enrolment in the 2009-12 and 2012-15 triennia and found that there were cases of non-compliance with the enrolment rules (see Table 12).



**Table 12**

**Non-compliance with enrolment rules  
(2009-12 and 2012-15 triennia)**

Enrolment rule		2009-12 triennium	2012-15 triennium
<i>Non-manpower-planned sub-degree, undergraduate and taught postgraduate programmes</i>			
1.	Over-enrolment of local students should not exceed 4% across the whole university	Two universities exceeded the 4% limit by 0.4% (39.7 students) and 26% (24.3 students) respectively	Two universities exceeded the 4% limit by 0.8% (96.4 students) and 8.9% (47.6 students) respectively
2.	Enrolment of non-local students should not exceed 20% by study level	Nil	One university exceeded the 20% limit by 2.4% (238.1 students) at undergraduate level
<i>Manpower-planned sub-degree, undergraduate and taught postgraduate programmes</i>			
3.	Over-enrolment of local students should not exceed 4% by programme	Three universities exceeded the 4% limit in three programmes by 2.5% (3.6 students), 6.0% (27 students) and 6.7% (18.2 students) respectively	Three universities exceeded the 4% limit in three programmes by 1.2% (2.9 students), 2.6% (5 students) and 15.1% (37.9 students) respectively
4.	Enrolment of non-local students should not exceed 4% in Chinese medicine programmes	One university exceeded the 4% limit by 9.6% (14.3 students)	One university exceeded the 4% limit by 20.1% (36.1 students)
5.	No over-enrolment in Chinese medicine programmes	One university had over-enrolment of 1.9% (2.3 students)	Two universities had over-enrolment of 5.7% (10.3 students) and 10.2% (15.3 students) respectively
6.	Over-enrolment of local students should not exceed 4% in western medicine programmes	One university exceeded the 4% limit by 1.6% (11.2 students)	Nil
7.	A general reference of 4% under-enrolment is tolerated	Four universities exceeded the 4% tolerance level in five programmes by 1.4% (3.5 students), 3.3% (26.7 students), 6.0% (1.4 students), 14.6% (17.5 students) and 32.3% (25.5 students) respectively	Two universities exceeded the 4% tolerance level in two programmes by 0.5% (2.6 students) and 5.5% (7.9 students) respectively

*Source: Audit analysis of UGC records*

*Remarks: The number of students (FTE) in brackets is the average number per year by which the over-enrolment/under-enrolment exceeded the limit/tolerance level and is equal to one-third of that in the triennium.*

2.27 Audit also noted that:

- (a) according to the NoP, for all programmes (i.e. non-manpower-planned and manpower-planned programmes), under-enrolment across the whole university exceeding 4% of approved student numbers may lead to a claw back of recurrent funding, as considered appropriate by the UGC. For manpower-planned programmes, 4% of under-enrolment will be tolerated and the UGC may decide on appropriate action on warranted under-enrolment cases having regard to the merits of individual cases;
- (b) except for mentioning that no extra resources will be provided by the UGC for over-enrolment of students, the NoP is silent on the consequences of non-compliance with over-enrolment rules. The cases of non-compliance with over-enrolment rules (see items 1 to 6 in Table 12) were therefore not followed up; and
- (c) in the 2009-12 and 2012-15 triennia, for manpower-planned programmes, there were cases of under-enrolment exceeding the tolerance level of 4% by 0.5% to 32.3% (see item 7 in Table 12). There was, however, no documentary evidence showing that the UGC had given consideration to taking appropriate action on these cases.

2.28 Audit considers that the UGC needs to set out in the NoP the action the UGC would take on cases of non-compliance with the enrolment rules, and take action according to the laid-down procedures.

### ***Need to revise the application of under-enrolment rule for manpower-planned programmes***

2.29 As mentioned in paragraph 2.27(a), according to the NoP, for manpower-planned programmes, 4% of under-enrolment will be tolerated. There is, however, no mention in the NoP of whether this enrolment rule applies to a manpower-planned programme as a whole (e.g. teacher education) or whether it applies to individual streams of a manpower-planned programme (e.g. Early Childhood Education Programme and Primary Education Programme of teacher education). In practice, the UGC Secretariat applies the enrolment rule to a manpower-planned programme as a whole.

2.30 In December 2014, the EDB expressed to the UGC its concern on the fact that actual enrolment by the universities in certain streams subject to specific manpower requirements had deviated significantly from the approved student numbers by the UGC, notwithstanding the NoP's explicit requirement that the universities are expected to meet the requested local manpower requirements as closely as possible. The EDB quoted an example that the enrolments of a stream of teacher education programme had been consistently lower than 50% of the approved student numbers since 2010/11, and commented that serious under-enrolment of this scale had not only defeated the purpose of setting manpower requirements, but also represented a misuse of UGC funds. Accordingly, the EDB suggested that the various streams of teacher education programme should be treated as distinct manpower-planned programmes for the purpose of applying the limits on enrolment.

2.31 As at 31 July 2016, the UGC was still deliberating on the appropriate limits on under-enrolment on individual streams of teacher education programmes. Audit considers that the UGC needs to expedite the setting of the limits and the timing for applying the limits. The UGC also needs to keep in view the need to set limits on under-enrolment on individual streams of other manpower-planned programmes.

### ***Need to update NoP and enrolment rules upon policy change for admission of non-local students***

2.32 Prior to 2016/17, the universities may enroll non-local students to their UGC-funded sub-degree, undergraduate and taught postgraduate programmes up to 4% within and 16% outside the approved UGC-funded student numbers by study level (i.e. the 4%-in-16%-out policy — Note 8). To address the community's concerns that non-local students were taking up precious public resources at the expense of local students, the Chief Executive in Council approved in December 2014 that starting from 2016/17, all new non-local students should only be admitted through over-enrolment capped at 20% of the approved UGC-funded student numbers (i.e. the 20%-out policy).

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**Note 8:** *4%-in policy means that the approved UGC-funded student numbers by study level might include up to 4% of non-local students while 16%-out policy means that non-local students might be admitted through over-enrolment up to 16% of UGC-funded student numbers by study level.*

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2.33 In December 2014, to effect the policy change for admission of non-local students, the EDB requested the UGC to make corresponding changes to the NoP and, where necessary, to the enrolment rules. As at 31 July 2016, the NoP had still not yet been updated. Furthermore, the UGC Secretariat had considered that changes to the enrolment rules were required but the proposed changes had not yet been finalised.

2.34 In response to Audit's enquiry, the UGC Secretariat informed Audit in September 2016 that:

- (a) to effect the policy change for admission of non-local students to the UGC-funded sub-degree, undergraduate and taught postgraduate programmes to only through over-enrolment capped at 20% of the approved UGC-funded student numbers (i.e. the 20%-out policy), all the changes to the over-enrolment rules were finalised (except for the part concerning the Chinese and western medicine programmes as the advice from the Food and Health Bureau was pending then) and promulgated to the universities by email in February 2016. The universities were required to adhere to the new arrangements for their 2016/17 admission. No operational difficulties were raised by the universities; and
- (b) following the receipt of advice from the Food and Health Bureau, the adjusted over-enrolment arrangements for Chinese and western medicine programmes to effect the 20%-out policy were promulgated to the universities by email in August 2016.

## **Audit recommendations**

2.35 **Audit has *recommended* that the Secretary-General, University Grants Committee should:**

- (a) **set out in the NoP the action that would be taken by the UGC in cases of non-compliance with the UGC's enrolment rules and take appropriate action on cases of non-compliance accordingly;**

- (b) **expedite the imposition of limits on under-enrolment on individual streams of teacher education programmes and keep in view the need to impose limits on under-enrolment on individual streams of other manpower-planned programmes; and**
- (c) **expedite the updating of the NoP to reflect the policy change for admission of non-local students and the changes to the enrolment rules.**

## **Response from the Government**

2.36 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a) for cases of non-compliance with the UGC's rules on over-enrolment of students, the UGC Secretariat has been monitoring the situation and will consult the UGC to consider setting out in the NoP the action that would be taken in cases of non-compliance with the UGC's rules on over-enrolment of students in consultation with the universities. For non-compliance with the UGC's under-enrolment rules, action has already been set out in section 3.12 of the NoP; and
- (b) the UGC Secretariat will expedite the updating of the NoP to reflect the policy change for admission of non-local students and the finalisation of the changes to be made to the enrolment rules.

## PART 3: ADMINISTRATION OF CAPITAL GRANTS

3.1 This PART examines the administration of capital grants provided to the universities, focusing on the following issues:

- (a) shortfall in student hostel places and academic space (paras. 3.6 to 3.14);
- (b) assessment of academic space and student hostel needs (paras. 3.15 to 3.23); and
- (c) finalisation of project final accounts (paras. 3.24 to 3.34).

### Capital grants

3.2 The UGC provides capital grants to the universities for carrying out capital works projects. The sources of capital grants are as follows:

- (a) **CWRF.** The CWRF (Head 708 — Capital Subventions and Major Systems and Equipment) provides funding for UGC projects. For projects costing more than \$30 million each (e.g. construction of an academic building or a student hostel), the universities submit works proposals in September each year for consideration by the UGC. Projects supported by the UGC will be submitted to the EDB which will in turn determine their priorities in relation to projects proposed by the Bureau. For those projects which have eventually received earmarked funding within the Government, they will be submitted to the LegCo Finance Committee for approval (after obtaining support from the LegCo Panel on Education and the LegCo Public Works Subcommittee); and

- (b) ***CWRF AA&I block allocation.*** For projects costing not more than \$30 million each, the universities submit AA&I (see para. 1.12(b)) proposals in May each year for consideration by the UGC. Projects supported by the UGC will be funded through the AA&I block allocation vote of the CWRF Head 708 (Note 9). The Secretary-General, UGC may approve AA&I projects up to a budget ceiling of \$30 million per project.

3.3 In the period 2011-12 to 2015-16, three capital works projects (exceeding \$30 million per project — hereinafter referred to as major CWPs) had been approved by the LegCo Finance Committee:

- (a) academic building project of the HKUST approved in 2011-12 (project estimate: \$360 million);
- (b) student hostel project of the HKUST approved in 2012-13 (project estimate: \$198 million); and
- (c) student hostel project of the CUHK approved in 2015-16 (project estimate: \$466 million).

3.4 For AA&I projects, in the period 2011-12 to 2015-16, 160 projects (total project estimate: \$3,128 million) had been approved by the Secretary-General, UGC (see Table 13).

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**Note 9:** *The ambit of the AA&I block allocation vote is as follows:*

- (a) *alterations, additions, repairs and improvements (including slope inspections and minor slope improvement works) to the campuses of the universities requiring a subsidy of not more than \$30 million each; and*
- (b) *for studies for proposed UGC-funded building projects, including consultants' design fees and charges, preparation of tender documents and site investigation costs and major in-house investigations costing up to \$30 million for each project.*

**Table 13****Approved AA&I projects  
(2011-12 to 2015-16)**

<b>Financial year</b>	<b>No. of projects</b>	<b>Total approved project estimate (\$ million)</b>	<b>Average approved project estimate (\$ million)</b>
2011-12	28	427	15.3
2012-13	33	536	16.2
2013-14	38	780	20.5
2014-15	35	757	21.6
2015-16	26	628	24.2
Overall	160	3,128	19.6

*Source: Audit analysis of UGC records*

*Remarks: Withdrawn AA&I projects are excluded.*

3.5 According to the UGC's records, in 2015/16, the eight universities were provided with 1,060,552 square metres (m<sup>2</sup>) of publicly-funded academic space and 29,204 publicly-funded student hostel places. Table 14 shows the provision of academic space while Table 15 shows that of student hostel places for the universities in the period 2011/12 to 2015/16.



Table 14

**Provision of academic space  
(2011/12 to 2015/16)**

University	2011/12 (m <sup>2</sup> )	2012/13 (m <sup>2</sup> )	2013/14 (m <sup>2</sup> )	2014/15 (m <sup>2</sup> )	2015/16 (m <sup>2</sup> )
CityU	114,293	132,703	132,703	132,703	132,703
HKBU	63,486	78,384	78,384	80,684	80,684
LU	24,096	27,664	27,664	27,664	27,664
CUHK	171,052	224,173	224,173	224,173	224,173
EdUHK	53,061	55,073	55,073	55,073	55,073
PolyU	158,156	195,176	195,176	195,176	195,176
HKUST	105,514	137,170	137,170	137,170	137,170
HKU	164,159	207,909	207,909	207,909	207,909
Total	853,817	1,058,252	1,058,252	1,060,552	1,060,552

Source: UGC records

Table 15

**Provision of student hostel places  
(2011/12 to 2015/16)**

University	2011/12 (No.)	2012/13 (No.)	2013/14 (No.)	2014/15 (No.)	2015/16 (No.)
CityU	3,485	3,485	3,485	3,485	3,485
HKBU	1,710	1,860	1,860	1,860	1,711
LU	1,300	1,300	1,300	1,300	1,300
CUHK	6,182	6,182	6,182	6,182	6,182
EdUHK	2,003	2,003	2,003	2,003	2,003
PolyU	4,654	4,654	4,654	4,654	4,654
HKUST	3,581	3,951	3,951	3,951	4,141
HKU	5,725	5,725	5,725	5,725	5,728
Total	28,640	29,160	29,160	29,160	29,204

Source: UGC records

### Shortfall in student hostel places and academic space

3.6 Under the student hostel policy promulgated in 1996, the provision of publicly-funded student hostels in the universities is subject to availability of land and resources and is calculated in accordance with the following criteria (Note 10):

- (a) all undergraduate students who have enrolled in UGC-funded programmes should be given the opportunity to stay in student hostels for at least one year of their courses; and
- (b) the following students who have enrolled in UGC-funded programmes should be provided with student hostel places:
  - (i) non-local students;
  - (ii) research postgraduate students; and
  - (iii) undergraduate students whose daily travelling time exceeds four hours.

3.7 According to the UGC's records, in 2015/16, there was a total shortfall (i.e. the difference between the student hostel place requirement of the universities and the UGC's existing provision) of 8,660 student hostel places for the universities. Table 16 shows the shortfall/surplus of student hostel places in the period 2011/12 to 2015/16.

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**Note 10:** *The criteria are applicable to all the universities, except the LU and the EdUHK. The LU has been provided with publicly-funded hostel places for 50% of its full-time degree student population having regard to its remote location in Tuen Mun and its aspiration to develop itself into a fully residential liberal arts university. The EdUHK has been provided with publicly-funded hostel places for 50% of its full-time degree student population projected at the time of its establishment having regard to the potential benefits that hostel life would bring to the quality of pre-service teacher education.*

**Table 16**  
**(Shortfall)/surplus of student hostel places**  
**(2011/12 to 2015/16)**

University	2011/12		2012/13		2013/14		2014/15		2015/16	
	(No.)	(Note) (%)	(No.)	(Note) (%)	(No.)	(Note) (%)	(No.)	(Note) (%)	(No.)	(Note) (%)
CityU	(797)	(18.61 %)	(1,164)	(25.04 %)	(1,426)	(29.04 %)	(1,898)	(35.26 %)	(2,011)	(36.59 %)
HKBU	(544)	(24.13 %)	(633)	(25.39 %)	(723)	(27.99 %)	(881)	(32.14 %)	(1,128)	(39.73 %)
LU	230	21.50 %	0	N/A	0	N/A	0	N/A	0	N/A
CUHK	(107)	(1.70 %)	(957)	(13.41 %)	(1,111)	(15.23 %)	(1,271)	(17.05 %)	(1,304)	(17.42 %)
EdUHK	3	0.15 %	3	0.15 %	3	0.15 %	3	0.15 %	3	0.15 %
PolyU	(100)	(2.10 %)	(533)	(10.28 %)	(774)	(14.26 %)	(1,250)	(21.17 %)	(1,406)	(23.20 %)
HKUST	(669)	(15.74 %)	(938)	(19.19 %)	(1,054)	(21.06 %)	(1,159)	(22.68 %)	(953)	(18.71 %)
HKU	(666)	(10.42 %)	(1,769)	(23.61 %)	(1,848)	(24.40 %)	(1,891)	(24.83 %)	(1,858)	(24.49 %)
Overall:										
(Shortfall)	(2,883)	(9.21 %)	(5,994)	(17.05 %)	(6,936)	(19.22 %)	(8,350)	(22.26 %)	(8,660)	(22.87 %)
Surplus	233	0.74 %	3	0.01 %	3	0.01 %	3	0.01 %	3	0.01 %

*Source: Audit analysis of UGC records*

*Note: The figures denote percentages of shortfall/surplus to student hostel place requirement.*

*Remarks: The above shortfall excluded student hostel places of projects that were under construction.*

3.8 Both the UGC and the universities consider that the provision of student hostel places for both local and non-local students is a key factor in promoting internationalisation. However, Audit noted that in 2015/16, contrary to the student hostel policy:

- (a) not all non-local students (see para. 3.6(b)(i)) who had applied for hostel places were provided with the places (3,611 (20%) of 17,915 applications were unsuccessful);
- (b) for applications made by local research postgraduate students (see para. 3.6(b)(ii)) for hostel places, 42 % (122 out of 289 applications) of the applications were unsuccessful; and

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- (c) for applications made by undergraduate students:
  - (i) for hostel places for one year of stay during their courses (see para. 3.6(a)), 45% (8,275 out of 18,199 applications) of the applications were unsuccessful; and
  - (ii) whose daily travelling time exceeded four hours (see para. 3.6(b)(iii)), 45% (2,115 out of 4,747 applications) of the applications were unsuccessful.

3.9 In response to Audit's enquiry, the UGC Secretariat informed Audit in September 2016 that:

- (a) allocation of student hostel places to individual students was a matter for the universities as autonomous bodies. The universities allocated their hostel places (including the publicly-funded, privately-funded and temporary hostel places) to their students (local and non-local students enrolled in the UGC-funded or non-UGC-funded programmes, as well as exchange students) in accordance with their own sets of criteria and procedures; and
- (b) shortage of hostel places might be one of the reasons that not all non-local students and research postgraduate students were provided with hostel places.

3.10 As regards the academic space, according to the UGC's records, the total shortfall for the universities was 133,292 m<sup>2</sup> in 2015/16. Table 17 shows the shortfall/surplus of academic space in the period 2011/12 to 2015/16.

**Table 17**  
**(Shortfall)/surplus of academic space**  
**(2011/12 to 2015/16)**

University	2011/12		2012/13		2013/14		2014/15		2015/16	
	(m <sup>2</sup> )	(Note) (%)	(m <sup>2</sup> )	(Note) (%)	(m <sup>2</sup> )	(Note) (%)	(m <sup>2</sup> )	(Note) (%)	(m <sup>2</sup> )	(Note) (%)
CityU	(13,079)	(10.268%)	(15,454)	(10.431%)	(18,215)	(12.069%)	(21,714)	(14.062%)	(29,445)	(18.159%)
HKBU	(7,352)	(10.379%)	(6,368)	(7.514%)	(7,497)	(8.730%)	(4,461)	(5.239%)	(9,042)	(10.077%)
LU	350	1.474%	464	1.706%	704	2.611%	1,322	5.019%	15	0.054%
CUHK	(42,011)	(19.718%)	(19,354)	(7.947%)	(26,430)	(10.547%)	(22,114)	(8.979%)	(25,754)	(10.305%)
EdUHK	(1,391)	(2.555%)	(6,189)	(10.103%)	(7,469)	(11.942%)	(5,757)	(9.464%)	(6,203)	(10.123%)
PolyU	(38,280)	(19.487%)	(17,427)	(8.197%)	(16,779)	(7.916%)	(10,919)	(5.298%)	(18,555)	(8.681%)
HKUST	(8,143)	(7.165%)	5,860	4.463%	5,347	4.056%	6,072	4.632%	(271)	(0.197%)
HKU	(44,108)	(21.179%)	(33,375)	(13.832%)	(40,562)	(16.325%)	(39,268)	(15.887%)	(44,022)	(17.474%)
Overall: (Shortfall) Surplus	(154,364) 350	(15.316%) 0.035%	(98,167) 6,324	(8.536%) 0.550%	(116,952) 6,051	(10.003%) 0.518%	(104,233) 7,394	(9.006%) 0.639%	(133,292) 15	(11.165%) 0.001%

*Source: Audit analysis of UGC records*

*Note: The figures denote percentages of shortfall/surplus to academic space requirement.*

*Remarks: The above shortfall excluded academic space of projects that were under construction.*

3.11 The UGC now has 16 major CWPs under planning. These 16 projects will provide a total of 9,380 student hostel places and 76,712 m<sup>2</sup> academic space. The slow progress in undertaking major CWPs would affect the operation and development of the universities. For example:

- (a) due to the shortfall in publicly-funded hostel places, the student hostel policy could not be met (see para. 3.8);
- (b) the shortfall in hostel places would adversely affect the competitiveness of the universities in attracting non-local students to study at the universities and to attend exchange programmes, and therefore would impede the strategic goal of the universities in pursuing internationalisation; and

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- (c) the shortfall in academic space would adversely affect the recruitment of overseas scholars, the enrolment of high calibre research students, and the research development of the universities.

3.12 Given the limited resources and the many other government funding priorities, the competition for CWRF funding for major CWPs is naturally very keen. Nevertheless, the slow progress in campus and student hostel development would affect the development (e.g. research development and internationalisation) of the universities and the overall competitiveness of the higher education sector.

## **Audit recommendations**

3.13 **Audit has *recommended* that the Secretary-General, University Grants Committee should:**

- (a) **continue to pursue CWRF funding for major CWPs of the universities; and**
- (b) **consider the need to conduct space utilisation surveys of the universities to ensure that the space of the universities are optimally used (see also audit recommendation in para. 3.22(d)).**

## **Response from the Government**

3.14 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a) both the UGC and the universities consider that the provision of hostel places for both local and non-local students according to the established policy is a key factor in promoting internationalisation. He also agrees with the views of Audit that the slow progress in undertaking major CWPs for hostels and academic facilities would affect the operation and development of the universities. Despite the keen competition for CWRF funding, the UGC Secretariat has been working very hard to pursue funding under CWRF from the Government for major CWPs for hostels and academic facilities, and will continue the endeavour; and

- (b) under the existing NoP, the universities are required to update space inventories on a regular basis and provide such inventories to the UGC Secretariat every three years, i.e. once during each triennium. Regarding the space utilisation survey as mentioned in the UGC's Space Inventory Manual, the UGC Secretariat will consider requesting the universities to provide information under a space utilisation survey in addition to updating of the space inventories, and report to the UGC Secretariat every three years upon consulting the universities.

## **Assessment of academic space and student hostel needs**

### ***Need to review space requirement formulae***

3.15 The UGC uses space requirement formulae (Note 11) to assess the universities' academic space needs (e.g. classroom facilities, study space, research laboratories, office facilities and library facilities). The formulae were developed by a consultant in 2000. In view of the rapid changes in the UGC sector, the formulae were reviewed and updated in 2006. In the process of the 2006 review, the consultant met with representatives of the universities, considered the universities' written submissions, performed a study on the space utilisation situation at the universities, studied experience in other overseas jurisdictions, and considered issues such as the "3+3+4" new academic structure, whole person development and internationalisation.

3.16 It has been ten years since the space requirement formulae were reviewed in 2006. In the past decade, the UGC sector had gone through changes and developments, which might have impacts on the academic space needs of the universities. Examples of the changes and developments are as follows:

- (a) in the 2006 review, the academic space requirements for the "3+3+4" new academic structure was estimated. Since its inception in September 2012, the new academic structure has been implemented in the UGC sector for four years with the first batch of students studying under the

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**Note 11:** *There are ten formulae for assessing the universities' academic space needs for ten space categories respectively. The ten space categories are classrooms, study space, teaching laboratories, open laboratories, research laboratories, offices, libraries, indoor sports facilities, student and staff amenities, and support space.*

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new academic structure graduated in 2016. It might be an opportune time to review the appropriateness of the existing formulae based on the actual experience of the implementation of the new academic structure; and

- (b) the 2010 higher education review report of the UGC entitled “Aspirations for the Higher Education System in Hong Kong” (hereinafter referred to as the 2010 Report) recommended further and deeper internationalisation in the UGC sector. As a result, internationalisation has become a matter of priority of the UGC and a strategic goal of the universities (see also para. 4.29). It would be desirable to revisit the appropriateness of the existing formulae upon the development of internationalisation in recent years.

In view of these changes and developments, the UGC should consider the need to undertake a review on the space requirement formulae to facilitate more effective provision of academic space to the universities.

3.17 In response to Audit’s enquiry, the UGC Secretariat informed Audit in September 2016 that:

- (a) internationalisation might come in many forms including international strategies, curriculum development, international networks, non-local student recruitment and integration, international staff, etc. Therefore, development of internationalisation might not necessarily rely on the academic space provided;
- (b) for provision or improvement of teaching facilities to meet the demands arising from internationalisation, the universities might apply for capital works funding under AA&I block allocation; and
- (c) concerning the capital works matters, the critical factor which had an impact on the universities’ efforts in internationalisation currently seemed to be the limited number of student hostel places to meet the demands from the increasing number of non-local students. This shortage had a knock-on effect on the campus life of local students.



*Need to improve the updating of space inventories*

3.18 According to the NoP, space inventories provide useful information for assessing the provision of space to the universities. The UGC requires the universities to update their space inventories on a regular basis and provide updated space inventory lists to the UGC Secretariat every three years.

3.19 In the latest space inventory updating exercise conducted in November 2014, the UGC Secretariat asked the universities to submit their updated student hostel and academic space inventories by the end of January and mid-March 2015 respectively. Audit examination of this exercise revealed that:

- (a) there were differences between the academic space inventory records maintained by the UGC and those submitted by the universities (see Table 18);

**Table 18**

**Differences between academic space inventory records of  
the UGC and the universities  
(June 2016)**

University	UGC records (a) (m <sup>2</sup> )	University submission (b) (m <sup>2</sup> )	Difference (c) = (a) – (b) (m <sup>2</sup> )
CityU	132,703	132,685	18
HKBU	80,684	81,187	(503)
LU	27,664	26,073	1,591
CUHK	224,173	215,773	8,400
EdUHK	55,073	53,890	1,183
PolyU	195,176	193,531	1,645
HKUST	137,170	137,241	(71)
HKU	207,909	213,301	(5,392)
Total	1,060,552	1,053,681	6,871

Source: Audit analysis of UGC records

## **Administration of capital grants**

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- (b) as at 30 June 2016, the reconciliation of the space inventory records maintained by the UGC and the universities was not yet completed by the UGC Secretariat. In response to Audit's enquiry, the Secretariat informed Audit in July 2016 that it had completed the comparison and would discuss with the universities to confirm the records; and
- (c) according to the NoP, the UGC may appoint an external party to audit the space inventories of the universities so as to verify the accuracy of the inventories. Audit, however, noted that no such audit has been conducted since 2006.

3.20 Maintaining an accurate and up-to-date database of the inventories would facilitate the assessment of provision of space to the universities. The UGC Secretariat needs to make efforts to resolve the differences and finalise the space inventory updating exercise. The Secretariat also needs to conduct space inventory audit on a periodic basis.

### ***Need to obtain information on space utilisation***

3.21 According to the Space Inventory Manual, space utilisation surveys are a useful tool to measure whether the universities' facilities are used at an optimal level and an additional source of information for evaluation of the universities' capital works project proposals. However, since 2006, the UGC Secretariat has not conducted any such surveys. The Secretariat also has not requested the universities to provide information on their space utilisation.

## **Audit recommendations**

3.22 **Audit has *recommended* that the Secretary-General, University Grants Committee should:**

- (a) **consider the need to conduct a review on the space requirement formulae, taking into account the changes and developments in the UGC sector;**

- (b) **make efforts to resolve the space inventory differences and promptly finalise the space inventory updating exercise;**
- (c) **consider the need to conduct audit of the space inventories of the universities on a periodic basis; and**
- (d) **consider the need to conduct periodically surveys of space utilisation of the universities.**

## **Response from the Government**

3.23 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a) the UGC Secretariat will consider when and how to conduct another review on the space requirement formulae;
- (b) the UGC Secretariat has already started the discussions with the universities in confirming the records and aims to finalise the space inventory updating exercise by the end of 2016; and
- (c) the UGC Secretariat will consult the universities and consider the need to conduct space utilisation surveys, and consider requesting the universities to provide information under a space utilisation survey in addition to updating of the space inventories and report to the UGC Secretariat every three years.

### Finalisation of project final accounts

#### *Need to clarify the deadline for finalisation of project final accounts*

3.24 According to the NoP, upon completion of major CWPs, the project final accounts should be submitted to the UGC Secretariat and finalised as soon as possible and in any event not later than three years after “commissioning of the facilities”. For AA&I projects, the project final accounts should be submitted and finalised not later than three months after the “physical completion” of the AA&I projects. Upon finalising the project final accounts, the universities are required to return to the Government any unspent project balances and unsupported expenses. In the period 2010/11 to 2015/16, the total of unspent project balances and unsupported expenses of 37 major CWPs refunded to the Government amounted to \$183 million (ranged from \$23,000 to \$59 million, averaging \$4.9 million per project) while those of 134 AA&I projects refunded to the Government amounted to \$70 million (ranged from \$1 to \$5 million, averaging \$0.5 million per project).

3.25 In June 2016, Audit enquired with the UGC Secretariat about the definitions of “commissioning of the facilities” and “physical completion”. The Secretariat replied that the definitions were the same, i.e. the “practical completion” of all facilities under the project with all defects rectified upon the issue of defect rectification certification by the project architect (according to the UGC Secretariat, the defect rectification period was usually one year). This definition has been used for the purpose of finalisation of project final accounts since the revision of the NoP in February 2007, and that the Secretariat was considering changing the term “physical completion” used for AA&I projects to “commissioning of the facilities” in future to avoid possible confusion between the two terms.

3.26 Audit noted that the UGC Secretariat adopted the term “commissioning of the facilities” from a Financial Circular relating to capital works issued by the Financial Services and the Treasury Bureau (FSTB) whereby Directors of Bureaux and their works directors should finalise project final accounts as soon as possible and in any event no later than three years after “commissioning of the facilities”. Nevertheless, in the Financial Circular, there is no elaboration of the meaning of “commissioning of the facilities”, for example, whether it takes into account the defect rectification period. It is therefore not clear whether the Secretariat’s practice of including the defect rectification period in the determination of “commissioning of the facilities” is proper.

3.27 The definition of “commissioning of the facilities” would affect the deadline for finalising project final accounts, which in turn would affect the timing of refund of unspent project balances and unsupported expenses by the universities to the Government. Audit considers that the UGC Secretariat needs to seek clarification from the FSTB on the definition of “commissioning of the facilities”.

### *Delay in finalisation of project final accounts*

3.28 As at 30 June 2016, the final accounts of 36 completed major CWPs could not be finalised within three years after “commissioning of the facilities”. Audit analysed the progress of finalisation of final accounts of these 36 projects. Audit found that, up to 30 June 2016, of the 36 completed major CWPs:

- (a) for 1 (3%) project, final account had not been submitted;
- (b) for 21 (58%) projects, final accounts had been submitted but were awaiting submission of additional information requested by the UGC Secretariat or the Architectural Services Department (ArchSD — Note 12); and
- (c) for 14 (39%) projects, final accounts were being checked by the UGC Secretariat or the ArchSD. Some of the checking had been in progress for over one year (ranged from 1.4 to 5.6 years, averaging 2.7 years).

3.29 Audit’s ageing analysis further shows that as at 30 June 2016, the finalisation of final accounts for 29 (81%) of the 36 major CWPs had been overdue for more than three years (the longest overdue period was some 18 years) (see Table 19).

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**Note 12:** *The ArchSD is the technical advisor of the UGC for capital works projects and other related matters.*

**Table 19**

**Completed major CWPs with finalisation of final accounts overdue  
(30 June 2016)**

No. of years overdue	No. of projects
> 0 to 3	7 (19%)
> 3 to 5	2 (6%)
> 5 to 7	5 (14%)
> 7 to 10	5 (14%)
> 10 to 15	9 (25%)
> 15 to 18	8 (22%)
Total	36 (100%)

*Source: Audit analysis of UGC records*

3.30 For completed AA&I projects, as at 30 June 2016, the final accounts of 98 completed projects could not be finalised within three months after the “physical completion” of the projects. Audit analysed the progress of finalisation of final accounts of these 98 projects. Audit found that, up to 30 June 2016, of the 98 completed AA&I projects:

- (a) for 80 (82%) projects, final accounts had not been submitted;
- (b) for 3 (3%) projects, final accounts had been submitted but were awaiting submission of additional information requested by the UGC Secretariat or the ArchSD; and
- (c) for 15 (15%) projects, final accounts were being checked by the UGC Secretariat or the ArchSD. Some of the checking had been in progress for over one year (ranged from 1.4 to 5.1 years, averaging 1.9 years).

3.31 Audit's ageing analysis further shows that as at 30 June 2016, the finalisation of final accounts for 43 (44%) of the 98 AA&I projects had been overdue for more than three years (the longest overdue period was some 15 years) (see Table 20).

**Table 20**

**Completed AA&I projects with finalisation of final accounts overdue  
(30 June 2016)**

No. of years overdue	No. of projects	
> 0 to 1	14 (14%)	
> 1 to 2	27 (28%)	
> 2 to 3	14 (14%)	
> 3 to 5	21 (22%)	} 43 (44%)
> 5 to 7	12 (12%)	
> 7 to 10	8 (8%)	
> 10 to 15	2 (2%)	
Total	98 (100%)	

*Source: Audit analysis of UGC records*

3.32 The UGC Secretariat needs to ascertain the reasons for the delay in finalisation of project final accounts for major CWPs and AA&I projects and to take measures to promptly finalise the final accounts in order to ensure that unspent project balances and unsupported expenses are returned to the Government in a timely manner.

### Audit recommendations

3.33      Audit has *recommended* that the Secretary-General, University Grants Committee should:

- (a)      seek clarification from the Secretary for Financial Services and the Treasury on the definition of “commissioning of the facilities” for the purpose of finalising final accounts for capital works projects; and
- (b)      ascertain the reasons for the delay in finalising project final accounts for major CWPs and AA&I projects, and take measures to promptly finalise the accounts.

### Response from the Government

3.34      The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a)      the UGC Secretariat is seeking clarification from the FSTB on the definition of “commissioning of the facilities”;
- (b)      the UGC Secretariat is working hard to ascertain the reasons for the delay in finalising the project final accounts for major CWPs and AA&I projects. The UGC Secretariat agrees that the finalisation of project accounts should be expedited, and will take appropriate measures in consultation with the ArchSD and the universities with a view to finalising the project final accounts as soon as practicable. In order to expedite the finalisation of project final accounts, the UGC Secretariat has taken the following measures since 2010:
  - (i)      devising new procedural work flow and time frame in consultation with the ArchSD to streamline the processing of final account submissions;



- (ii) conducting meetings/briefings with the universities concerned and the ArchSD with a view to resolving the outstanding final accounts and expediting the vetting process; and
  - (iii) urging the universities concerned to take prompt actions to expedite the submission of final accounts and supporting documents for processing by the ArchSD and the UGC Secretariat. Letters have been issued to the Director of Estates or higher level officers of the universities in 2010, 2012, 2013, 2014 and 2016 respectively; and
- (c) with the concerted efforts of the universities, the ArchSD and the UGC Secretariat, the latest progress of finalisation of final accounts is shown at the Table below.

	<b>Major CWPs</b>	<b>AA&amp;I projects</b>
Total number of projects with finalisation of final accounts overdue as at 30 June 2016	36	98
Total number of projects with final accounts finalised since 1 July 2016	5	25
Total number of projects pending finalisation of final accounts as at 11 October 2016	31	73

## **PART 4: GOVERNANCE AND OTHER ADMINISTRATIVE ISSUES**

4.1 This PART examines the UGC's governance and other administrative issues, focusing on the following issues:

- (a) governance of the UGC (paras. 4.2 to 4.13);
- (b) meeting expenses (paras. 4.14 to 4.28);
- (c) internationalisation of the universities (paras. 4.29 to 4.38);
- (d) governance of the universities (paras. 4.39 to 4.47); and
- (e) the QAC (paras. 4.48 to 4.59).

### **Governance of the UGC**

4.2 As at 30 June 2016, the UGC had 20 members comprising a Chairman and 19 other members (6 non-local academics, 6 local academics and 8 local lay persons). Members of the UGC are appointed by the Chief Executive. The UGC meets three times a year and is supported by seven Sub-Committees and Groups (see para. 1.6). The UGC members also sit in the Sub-Committees and Groups. Non-UGC members may also be appointed to the Sub-Committees and Groups where necessary.

4.3 The RGC and the QAC are non-statutory advisory bodies established under the aegis of the UGC (see para. 1.7). As at 30 June 2016, the RGC comprised a Chairman and 24 members (12 non-local academics, 10 local academics, 2 local lay persons and an ex-officio member who is the Science Advisor of the Innovation and Technology Commission), while the QAC comprised a Chairman and 7 members (2 non-local academics, 2 local academics, 3 local lay persons and an ex-officio member who is the Secretary-General of the UGC). The audit review on the RGC is covered in Chapter 6 of the Director of Audit's Report No. 67.

4.4 Local members of the UGC and all its Councils and Sub-Committees/Groups/Panels receive no remuneration for their extensive voluntary service, save for a \$215 travel allowance per meeting day. Non-local members receive annual honoraria. The rates of honoraria effective from 1 January 2016 are:

- (a) \$147,750 per annum for UGC non-local members;
- (b) \$93,100 per annum for RGC/QAC non-local members;
- (c) \$71,900 per annum for UGC Sub-Committees/Groups and RGC Panels non-local members (who are co-opted and do not serve on UGC/RGC proper); and
- (d) \$51,450 per quality audit for QAC audit panel non-local auditors (see para. 4.53).

### *Need to improve management of conflicts of interest*

4.5 The UGC adopts the following practice for managing conflicts of interest. The reporting of conflicts of interest is two-tiered. Full declaration in a Register of Interests form should be made upon first appointment, reappointment or significant change of circumstances. At the second tier, it is incumbent upon the member to declare interest whenever he/she sees a reason to do so. This practice is applicable to members of the UGC, the UGC Sub-Committees/Groups, the RGC and the QAC.

4.6 Audit examined the UGC's management of conflicts of interest in the period 2011/12 to 2015/16. Audit found that:

- (a) 26 Register of Interests forms of three existing UGC members, two existing QAC members, seven ex-UGC members and eight ex-QAC members upon their appointments/reappointments could not be located by the UGC Secretariat; and

- (b) members of the RGC are required to submit annually an updated Register of Interests form to the UGC Secretariat. There is, however, no such requirement for members of the UGC, the UGC Sub-Committees/Groups and the QAC.

### ***Attendance rates of members***

4.7 Attendance at meetings is a key indicator to reflect members' commitment to serving an organisation. Table 21 shows, in the period 2013/14 to 2015/16, the overall attendance rates of members at meetings of the UGC, the UGC Sub-Committees/Groups and the QAC.

**Table 21**

**Overall attendance rates of members at meetings of  
the UGC, the UGC Sub-Committees/Groups and the QAC  
(2013/14 to 2015/16)**

	No. of members as at 30 June 2016	2013/14		2014/15		2015/16	
		No. of meetings held	Attendance rate	No. of meetings held	Attendance rate	No. of meetings held	Attendance rate
UGC	20	3	91 %	3	94 %	3	93 %
General Affairs and Management Sub-Committee	10	2	75 %	2	80 %	1	90 %
Strategy Sub-Committee	9	3	96 %	3	89 %	3	89 %
Research Group	9	3	96 %	3	96 %	3	89 %
Financial Affairs Group	6	1	100 %	2	100 %	1	83 %
Financial Affairs Expert Working Group	4	1	100 %	4	100 %	1	100 %
Task Force on Implementation of the Governance Report Recommendations	(Note 1)						
Task Force on the Review of the Research Grants Council (Phase I)	(Note 2)						
QAC	8	3	81 %	3	81 %	3	77 %

*Source: Audit analysis of UGC records*

*Note 1: The first meeting of the Task Force was conducted in July 2016.*

*Note 2: The first meeting of the Task Force was conducted in September 2016.*

4.8 As shown in Table 21, the overall attendance rates of members were in general satisfactory. Audit, however, noted that the attendance rates of two QAC members were on the low side. As at 30 June 2016, one local QAC member attended 2 (29%) out of 7 QAC meetings since his appointment in April 2014. The member last attended the QAC meeting in early January 2015. Another non-local QAC member attended 2 (50%) out of 4 meetings since his appointment in April 2015.

### *Need to promulgate rules of procedure for meetings*

4.9 The UGC Secretariat has not promulgated rules of procedure governing the conduct of meetings of the UGC, the UGC Sub-Committees/Groups and the QAC. The UGC Secretariat needs to promulgate such rules of procedure (e.g. quorum of meetings and voting requirements).

### *Need to produce a strategic plan*

4.10 Effective strategic planning is vital to an organisation in meeting new demands and the challenges of a changing environment. An organisation needs to review its objectives, examine its strengths, weaknesses and strategic direction regularly, and develop a strategic plan for establishing what it intends to achieve over a period of time. Without an established strategic plan to guide the actions, valuable resources may not be used in an optimal manner in meeting the objectives of the organisation. The strategic plan would also serve to provide new members an overview of the UGC's strategic direction. Overseas university funding bodies (e.g. funding bodies in the United Kingdom and New Zealand) have produced and revised their strategic plans periodically and published their plans on their websites.

4.11 The UGC, however, has not produced a document in the form of a strategic plan. In response to Audit's enquiry, the UGC Secretariat informed Audit in September 2016 that:

- (a) the UGC had strategies as a result of planning, although it did not have a single document entitled the strategic plan;

- (b) the terms of reference and mission statement published by the UGC stated clearly the principles and strategic priorities that guided the work of the UGC;
- (c) the UGC's principles and strategies were also further elaborated in the NoP, which was updated as necessary and appropriate;
- (d) issues in specific strategic areas were discussed in detail, in the context of the latest development of the higher education sector, in the major reports published by the UGC over the years; and
- (e) all these publications and documents were published on the UGC's website.

Audit considers that the UGC needs to consider preparing a document in the form of a strategic plan setting out the principles, priorities and practices of the UGC. The strategic plan needs to be updated periodically and made available on its website. The strategic plan will facilitate the public's understanding of the direction, work and performance of the UGC.

### **Audit recommendations**

**4.12      Audit has *recommended* that the Secretary-General, University Grants Committee should:**

- (a)      locate the missing Register of Interests forms and take remedial action for those forms that cannot be located;**
- (b)      take measures to ensure the safekeeping of the Register of Interests forms in future;**
- (c)      consider requiring members of the UGC, the UGC Sub-Committees/Groups and the QAC to submit annually updated Register of Interests forms to the UGC Secretariat;**

- (d) **take measures to improve the attendance rates of members with low attendance records (e.g. urging them to make efforts to attend meetings as far as possible);**
- (e) **promulgate rules of procedure for meetings of the UGC, the UGC Sub-Committees/Groups and the QAC (e.g. quorum of meetings and voting requirements); and**
- (f) **consider preparing a document in the form of a strategic plan, update it periodically and make it available on the UGC's website.**

## **Response from the Government**

4.13 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a) the UGC Secretariat has been following up with the Register of Interests forms found to be pending/missing and will continue to locate the forms; and although the UGC Secretariat has stopped chasing the members for the forms when their UGC/QAC appointment ended, the UGC Secretariat will continue to take remedial action regarding the existing members;
- (b) the UGC Secretariat will consider ways to enhance the safekeeping of the Register of Interests forms;
- (c) the UGC Secretariat will consider stepping up measures to invite members of the UGC, the UGC Sub-Committees/Groups as well as the QAC to submit annually updated Register of Interests forms to the Secretariat;
- (d) action will be taken to remind the members concerned to attend meetings as far as possible; and when considering reappointment to the QAC, the UGC and the UGC Sub-Committees/Groups, contribution and commitment of the member, including his/her attendance rates, will be taken into consideration;



- (e) the UGC Secretariat will consider promulgating rules of procedure for the meetings; and
- (f) the UGC Secretariat will invite the UGC to consider the need for preparing a document in the form of a strategic plan which will set out, amongst other things, the principles, strategies, strategic priorities of the UGC; and in the case that the UGC considers that there is such a need, the Secretariat will prepare the document, update it periodically and make it available on the UGC's website.

### Meeting expenses

4.14 Meeting expenses mainly include expenses on hotel accommodation, air passage and per-diem allowance for non-local members of the UGC, the RGC and the QAC (as well as their Committees, Sub-Committees, Groups and Panels). Public entities need to pay due regard to controlling meeting expenses for public accountability in the use of public funds and ensuring value for money. In the period 2005-06 to 2015-16, the annual meeting expenses of the UGC, the RGC and the QAC increased from \$3.9 million to \$16.2 million (see Table 22). The increase in expenses over the years was mainly due to increased number of non-local RGC Council/Panel/Committee members and increased number of meetings with the introduction of new funding schemes.

**Table 22**

**Meeting expenses of the UGC, the RGC and the QAC  
(2005-06 to 2015-16)**

Financial year	Meeting expenses			
	UGC (\$ million)	RGC (\$ million)	QAC (Note 1) (\$ million)	Total (\$ million)
2005-06	2.3	1.6	0.0	3.9
2006-07	4.9 (Note 2)	1.6	0.2	6.7
2007-08	3.3	2.8	0.7	6.8
2008-09	2.9	4.4	1.0	8.3
2009-10	2.6	5.4	1.5	9.5
2010-11	2.6	8.8	1.7	13.1
2011-12	3.5	9.8	0.5	13.8
2012-13	3.8	10.7	0.5	15.0
2013-14	3.9	13.6	0.4	17.9
2014-15	18.3 (Note 2)	13.2	0.7	32.2
2015-16	2.0	12.8 (Note 3)	1.4	16.2

*Source: UGC records*

*Note 1: The QAC was established in 2007 with its first meeting in April 2007. The meeting expenses included those incurred for QAC meetings and quality audit activities. The increase in meeting expenses was mainly due to the conduct of the first and second QAC audit cycles in 2008 to 2011 and in 2015 to 2016 respectively.*

*Note 2: The increases in meeting expenses in 2006-07 and 2014-15 were mainly due to the conduct of RAEs in 2006 and 2014 respectively. In these two financial years, many non-local academics were invited to attend meetings in Hong Kong.*

*Note 3: As at 30 June 2016, the RGC had 12 non-local Council members and 367 non-local Committee/Panel members (served by 193 persons — a person may serve as a member of more than one Council/Committee/Panel).*

### *Need to improve procurement practices*

4.15 Audit examined 30 payments of meeting expenses incurred in the financial years 2014-15 and 2015-16. Audit found that there is scope for improvement in the procurement practices, as shown in paragraphs 4.16 to 4.24.

4.16 ***Hotel accommodation and passage arrangements.*** Audit examination of the 30 payments covered the procurement of 2,402 hotel room-nights at a total cost of some \$4.4 million. Audit found that for all these room-nights, the daily room rates ranged from \$1,430 to \$3,300 (on average \$1,830). Audit noted that for all the 2,402 room-nights, quotations were obtained from the same five upmarket hotels before booking. However, there was no documentary evidence showing:

- (a) justifications for choosing the same five upmarket hotels; and
- (b) that less expensive hotels were not suitable or not available to provide the room-nights.

4.17 It is a practice of the UGC Secretariat that all non-local members are provided with Business Class return air tickets for travelling to Hong Kong to attend meetings. Furthermore, if the spouse of a non-local member wishes to accompany the member, the member's Business Class passage entitlement will be used to cover the cost of two return air tickets provided that any excess airfare will be borne by the member.

## Governance and other administrative issues

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4.18 The UGC Secretariat has adopted the practices of the Government as stipulated in the Civil Service Regulations in respect of subsistence allowance to arrange per-diem allowance (Note 13) for non-local members travelling to Hong Kong to attend meetings. However, the Secretariat has not adopted the practices of the Government on passage arrangements applicable to public officers (Note 14).

4.19 In response to Audit's enquiry, the UGC Secretariat informed Audit in September 2016 that:

- (a) the terms of appointment of non-local members did not offer a fee, and an honorarium was an award unrelated to the time spent on UGC activities, services offered or expertise made available;
- (b) in recognition that overseas members' time was being given normally without payment, and that the UGC wished to continue to attract top university leaders from around the world, it was believed to be appropriate that the standard of hotel accommodation offered to them when attending meetings in Hong Kong would be commensurate with their standing and would not deter candidates from accepting an offer of appointment; and
- (c) non-local members travelled to Hong Kong to attend meetings on a voluntary basis and often had to take leave from their own full-time jobs. The UGC recognised that there were immense benefits in drawing the best academic talents from around the world to serve Hong Kong, and the difficulty involved in persuading them to do so should not be under-estimated. Therefore, the UGC facilitated non-local members to attend meetings in Hong Kong through a package of hotel accommodation and passage arrangements.

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**Note 13:** *The per-diem allowance is \$1,080 per day, which is equivalent to 40% of the applicable subsistence allowance rate of \$2,700 at present.*

**Note 14:** *When travelling on duty outside Hong Kong, only public officers on Directorate ranks of D4 or above are provided with passages of Business Class air travel. Subject to the approval by the Head of Department, the passage for an officer of D3 or below may be upgraded to Business Class under prescribed circumstances (e.g. where the flying time exceeds nine hours). If the spouse of an officer wishes to accompany the officer, the passage entitlement for the officer cannot be used to cover the passage of the spouse.*

4.20 In view of the upward trend of meeting expenses, Audit considers that the UGC Secretariat needs to keep under review the appropriateness of its hotel accommodation arrangement and passage arrangement for non-local members and explore whether there are less expensive alternative accommodation and passage options (e.g. travelling on classes other than Business Class for short flights) that are acceptable to the non-local members.

4.21 ***Procurement requirements for air tickets divided into instalments.*** Being a government department, the UGC Secretariat is required to abide by the Government's Stores and Procurement Regulations (SPRs) for procurement of stores or services. According to the SPRs, quotations are required to be sought for procurement of stores or services with a value over \$5,000 but not exceeding \$1.43 million. For procurements with a value over \$1.43 million, open tendering should be conducted. The SPRs have also stipulated the following principles and requirements:

*"The financial limits set out in these Regulations refer to the total value of stores or services of a similar nature or total value of revenue which, in normal practice, are obtained or generated in a single purchase or contract. Controlling Officers should ensure that public officers responsible for procurement matters interpret these limits strictly, and that they do not evade the limits by dividing procurement requirements into instalments ..... In making procurement, Controlling Officers should consolidate requirements of stores and services of similar nature as far as possible to achieve better economies of scale."*

4.22 In reviewing the meeting expenses, Audit found that there were cases where the UGC Secretariat might not have followed the above principles and requirements in conducting the procurements (see Case 1).

**Case 1**

**Procurement of air tickets**

1. In 2014, the UGC conducted an RAE to assess the research quality of the universities (see para. 2.10). A total of 13 assessment panels were set up by broad disciplines (e.g. Business & Economics, Engineering and Humanities). The panels comprised 307 members, of which 214 (70%) were non-local academics. The panel meetings all took place in August and September 2014. The total expenditure spent on return air tickets amounted to \$11.8 million, comprising \$7.1 million for air tickets procured by the UGC Secretariat and \$4.7 million for reimbursements to non-local academics who bought their own air tickets.

2. The UGC Secretariat conducted 12 batches of procurements for return air tickets through seeking quotations (see Table below).

<b>Procurement batch</b>	<b>Number of return air tickets procured</b>	<b>Date of procurement</b>	<b>Number of calendar days since last batch of procurement</b>	<b>Total amount (\$)</b>
1	2	2 May 2014	N/A	80,287
2	5	6 June 2014	35	395,227
3	24	13 June 2014	7	1,730,993
4	9	27 June 2014	14	619,298
5	1	7 July 2014	10	49,588
6	16	11 July 2014	4	929,298
7	9	18 July 2014	7	496,856
8	3	25 July 2014	7	132,161
9	10	7 August 2014	13	584,848
10	11	12 August 2014	5	750,043
11	10	21 August 2014	9	540,799
12	10	27 August 2014	6	742,802
Total	110			7,052,200 (say \$7.1 million)

### Case 1 (Cont'd)

#### *Audit comments*

3. As shown in the Table above, the value of Procurement batch 3 of 13 June 2014 exceeded \$1.43 million. However, open tendering had not been conducted. Furthermore, some procurement batches could have been consolidated to achieve possible economies of scale (e.g. Procurement batches 9 to 11 in August 2014 which were conducted within two weeks).

4. Moreover, Audit noted that the UGC Secretariat had issued quotation invitations to the same five travel agents for each of the 12 procurement batches. However, of these five agents, two had not responded to any of the invitations. The UGC Secretariat needs to avoid seeking quotations from agents that have shown no interest in the past procurement exercises and invite quotations from other travel agents in future procurement. In response to Audit's enquiry, the Government Logistics Department commented in October 2016 that as a rule, government bureaux/departments should invite the last successful service provider, if its performance was satisfactory, to quote and other service providers on the supplier list, by rotation, to give the remaining quotations. Those service providers who rarely responded to invitations should be removed from the supplier list.

*Source: Audit analysis of UGC records*

4.23 In response to Audit's enquiry regarding Case 1 above, the UGC Secretariat informed Audit in September 2016 that:

- (a) unlike the purchase of stores with routine/similar specifications, the procurement of air tickets for non-local members involved items with different specifications in terms of the departing countries/cities/departure period, etc., and the variations of which would determine the price of the air ticket. Therefore, each air ticket was treated as an individual item in a quotation exercise with value less than \$1.43 million, and no tendering arrangement should be required according to the SPRs;

## Governance and other administrative issues

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- (b) under the current arrangement, the travel agents were required to submit quotation for each air ticket. The Secretariat accepted the lowest quote from the travel agent concerned. The Secretariat saw the benefit of considering each air ticket as an individual item and to secure the lowest quoted price for each of them under the quotation exercise; and
- (c) the Secretariat needed to obtain confirmation of non-local members about the routing of the flights before it could invite submission of quotation from the travel agents. In order not to defer the passage arrangement of some members who had already provided the required information, it could not avoid inviting quotations by batches.

4.24 In view of the number and nature of air ticket procurements by the UGC Secretariat, Audit considers that the UGC Secretariat needs to, in consultation with the Government Logistics Department and the FSTB, review whether its current arrangement of procuring air tickets complies with the SPRs.

## Audit recommendations

4.25 **Audit has *recommended* that the Secretary-General, University Grants Committee should:**

- (a) **keep under review the appropriateness of the UGC Secretariat's hotel accommodation arrangement and passage arrangement for non-local members and explore whether there are less expensive alternative options that are acceptable to the non-local members;**
- (b) **in consultation with the Director of Government Logistics and the Secretary for Financial Services and the Treasury, review whether the UGC Secretariat's current arrangement of procuring air tickets complies with the SPRs; and**
- (c) **as far as practicable, avoid inviting quotations from travel agents that have shown no interest in the past procurement exercises.**



## **Response from the Government**

4.26 The Secretary-General, University Grants Committee generally agrees with the audit recommendations. He has said that:

- (a) it is believed to be appropriate that the standard of hotel accommodation offered to non-local members would be commensurate with their standing and would not deter candidates from accepting appointment (see para. 4.19);
- (b) the Secretariat has been following the SPRs to invite suitable hotels, i.e. hotels near the meeting venue, to submit quotations for cost comparison. In principle, the lowest quotation would be accepted as the appointed hotel for non-local members;
- (c) the procurement of air tickets for non-local members involved items with different specifications and therefore each ticket was treated as an individual item (see para. 4.23); and
- (d) the UGC Secretariat will review the arrangement of inviting travel agents for submission of quotations and make any changes as appropriate.

4.27 Regarding the audit recommendation in paragraph 4.25(b), the Secretary for Financial Services and the Treasury has said that:

- (a) under the SPRs, Controlling Officers have been delegated the authority for procurement of stores, services (excluding services for construction and engineering works) and revenue contracts up to \$5 million. It is the Controlling Officer's responsibility to ensure that procurements within this financial limit are made in accordance with the SPRs;
- (b) as provided under the SPRs, the Controlling Officer may approach the Director of Government Logistics, who is responsible for advising government bureaux/departments on implementing good practice on their management of stores and procurement activities and for conducting compliance checks on such activities according to prescribed criteria to ensure compliance with the SPRs and other relevant instructions; and

- (c) while the Secretary for Financial Services and the Treasury, as the authority of issuing and interpreting the SPRs, has no objection to the audit recommendation and can offer advice from the procurement policy perspective, it is for the Controlling Officer to justify the current air tickets procurement arrangements in the light of the operational needs of the UGC Secretariat.

4.28 The Director of Government Logistics has said that she agrees with the audit recommendation in paragraph 4.25(b).

### **Internationalisation of the universities**

4.29 In an age of rapid globalisation and intense regional and international competition, the UGC sees internationalisation (e.g. international mix of students and staff) as the key to Hong Kong's future and a matter of priority for the universities. The UGC considers that internationalisation should be actively pursued by the universities.

#### ***Imbalance in the mix of non-local students***

4.30 In 2015/16, there were 15,730 non-local students enrolled in UGC-funded programmes (sub-degree, undergraduate and postgraduate programmes), a 56% growth from 10,074 in 2010/11. The 15,730 non-local students represented 16% of total student enrolment in 2015/16 (see Table 23).

**Table 23**

**Number of non-local students (headcount)  
enrolled in UGC-funded programmes  
(2010/11 to 2015/16)**

<b>University</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13 (Note)</b>	<b>2013/14</b>	<b>2014/15</b>	<b>2015/16</b>
CityU	1,250 (12%)	1,281 (12%)	1,601 (13%)	1,715 (13%)	1,889 (14%)	<b>1,994 (14%)</b>
HKBU	617 (11%)	628 (11%)	840 (12%)	895 (13%)	917 (13%)	<b>949 (13%)</b>
LU	239 (10%)	226 (10%)	230 (9%)	221 (8%)	211 (8%)	<b>225 (9%)</b>
CUHK	2,117 (15%)	2,300 (16%)	2,930 (16%)	3,118 (17%)	3,318 (17%)	<b>3,514 (18%)</b>
EdUHK	260 (4%)	249 (3%)	259 (3%)	276 (4%)	294 (4%)	<b>336 (4%)</b>
PolyU	1,379 (9%)	1,398 (10%)	1,756 (10%)	1,891 (11%)	2,015 (12%)	<b>2,117 (12%)</b>
HKUST	1,599 (22%)	1,815 (24%)	2,257 (23%)	2,458 (24%)	2,493 (24%)	<b>2,562 (25%)</b>
HKU	2,613 (19%)	2,873 (21%)	3,787 (22%)	3,936 (22%)	4,015 (22%)	<b>4,033 (21%)</b>
Overall	10,074 (14%)	10,770 (14%)	13,661 (15%)	14,510 (15%)	15,151 (16%)	<b>15,730 (16%)</b>

*Source:* UGC records

*Note:* To tie in with the implementation of the new academic structure, the universities had admitted two cohorts of students under the old and new academic structures in 2012/13.

*Remarks 1:* Figures in brackets denote percentages of non-local students to total student enrolment.

*2:* Figures may not add up to total due to rounding.

4.31 The issue of mix of non-local students at the universities had been deliberated in the 2010 Report (see para. 3.16(b)). According to the Report:

- (a) internationalisation is not the same thing as encouraging Mainland students to study in Hong Kong; and
- (b) although it is important to encourage Mainland students to enter Hong Kong universities, true internationalisation requires a much greater diversity of nationalities and cultural background.

4.32 Audit analysed the mix of non-local students at the universities and noted that Mainland students made up the largest group of non-local students at the universities (e.g. 87% in 2010/11 and 76% in 2015/16), albeit that non-local students other than Mainland students also grew by 184% from 1,350 in 2010/11 to 3,837 in 2015/16. In 2015/16, non-local students other than Mainland students accounted for 3.9% of total student enrolment (see Table 24). The UGC needs to further encourage the universities to continue their efforts to attract more non-local students, in particular those other than Mainland students, and promote diversity at the universities.

**Table 24**

**Number of non-local students other than Mainland students (headcount)  
enrolled in UGC-funded programmes  
(2010/11 to 2015/16)**

<b>University</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13 (Note)</b>	<b>2013/14</b>	<b>2014/15</b>	<b>2015/16</b>
CityU	126 (1.2%)	161 (1.5%)	283 (2.2%)	421 (3.2%)	534 (3.9%)	<b>578</b> <b>(4.1%)</b>
HKBU	24 (0.4%)	27 (0.5%)	41 (0.6%)	43 (0.6%)	50 (0.7%)	<b>55</b> <b>(0.7%)</b>
LU	24 (1.0%)	31 (1.4%)	43 (1.6%)	41 (1.6%)	38 (1.5%)	<b>36</b> <b>(1.4%)</b>
CUHK	204 (1.5%)	271 (1.9%)	392 (2.1%)	482 (2.6%)	546 (2.8%)	<b>637</b> <b>(3.2%)</b>
EdUHK	4 (0.1%)	10 (0.1%)	13 (0.2%)	17 (0.2%)	20 (0.3%)	<b>24</b> <b>(0.3%)</b>
PolyU	146 (1.0%)	207 (1.4%)	290 (1.7%)	339 (2.0%)	418 (2.4%)	<b>470</b> <b>(2.7%)</b>
HKUST	306 (4.2%)	439 (5.8%)	629 (6.4%)	720 (7.1%)	797 (7.8%)	<b>873</b> <b>(8.4%)</b>
HKU	516 (3.8%)	687 (5.0%)	1,007 (5.7%)	1,073 (6.0%)	1,139 (6.2%)	<b>1,164</b> <b>(6.2%)</b>
Overall	1,350 (1.8%)	1,833 (2.4%)	2,698 (2.9%)	3,136 (3.3%)	3,542 (3.7%)	<b>3,837</b> <b>(3.9%)</b>

*Source: Audit analysis of UGC records*

*Note: To tie in with the implementation of the new academic structure, the universities had admitted two cohorts of students under the old and new academic structures in 2012/13.*

*Remarks: Figures in brackets denote percentages of non-local students other than Mainland students to total student enrolment.*

4.33 In response to Audit's enquiry, the UGC Secretariat informed Audit in October 2016 that:

- (a) internationalisation might come in many forms (see para. 3.17(a));
- (b) the UGC had all along been encouraging, and would continue to encourage, universities to internationalise in ways that fit its institutional context. In the 2012-15 triennium, the UGC put together a "tripartite" funding scheme (funding from the EDB, the UGC and the participating universities) of \$30 million to support four new initiatives on internationalisation and engagement with the Mainland, all of which were implemented in 2013/14 and 2014/15. Funding would continue to be provided to the universities in the 2016-19 triennium. Apart from the major international education conferences, the universities were given some additional funding to expand into new markets they consider to be desirable, for example, conferences in South America; and
- (c) in any case, it was worth noting that the universities in Hong Kong were regarded to be doing well in terms of internationalisation.

### ***Issues concerning implementation of internationalisation and self-financing operations outside Hong Kong***

4.34 In the 2010 Report, a number of recommendations were made on the internationalisation of the universities. In November 2011, the EDB informed the LegCo Panel on Education that the EDB/UGC would implement the recommendations together with some other EDB initiated measures on internationalisation. Audit noted that greater efforts could be made in implementing the recommendations/measures:

- (a) ***Mix of universities' academic staff.*** Internationalisation of the universities is not confined to the mix of students. The 2010 Report stated that "*Hong Kong needs a good mixture of academics: those who have done their doctoral work abroad, those who have worked in universities abroad, and those whose ethnic origins are not in Hong Kong*", and that "*a true diversity of cultural background is conducive to the creation of an internationalised learning environment*". The Report recommended that the universities should actively maintain an

international mix of their academic staff. In response to Audit's enquiry, the UGC Secretariat informed Audit in September 2016 that strategic dialogues on internationalisation were conducted with the universities during April to September 2012 which covered discussions of the issue on staff mix, and good practices to maintain the diversity of staff identified from the discussions were shared with the universities in January 2013. Furthermore, the second cycle of QAC quality audits (see para. 4.50) also examined the contribution of the international staff and staff recruitment policies of the universities. Nevertheless, Audit noted that while the UGC Secretariat has been collecting from the universities on a regular basis information on the mix of their students, it has not collected information on the mix of their staff (e.g. qualifications, experience and countries of origin). The UGC needs to consider if there is merit in including information on staff mix in the regular data collection from the universities;

- (b) ***Key performance indicators on internationalisation.*** The 2010 Report recommended that the UGC should agree with individual universities on a set of key performance indicators relating to internationalisation and monitor the universities' performance on internationalisation. In response to Audit's enquiry, the UGC Secretariat informed Audit in September 2016 that the universities had set key performance indicators on internationalisation. In addition, in the second cycle of QAC quality audits, the audit panels also looked into the impact of international developments on the students' learning experience and the steps taken by the universities to ensure that students are prepared for participation in the international community. Furthermore, the UGC was following up on the review report on institutional governance (see para. 4.45), in which one of the recommendations was the establishment of a written accountability framework. It was contemplated that internationalisation would be one of the agreed domains of performance measurements/key performance indicators for the proposed accountability framework. Audit considers that the UGC needs to ensure that a set of key performance indicators on internationalisation are agreed with the universities. The UGC also needs to continue to monitor the universities' performance on internationalisation as recommended by the 2010 Report;

- (c) ***Guidelines on the universities' self-financing operations outside Hong Kong.*** In November 2011, the EDB informed the LegCo Panel on Education that operation of an off-shore full-fledged institution or branch campus would involve significant commitment, and acknowledged that there were legitimate concerns about financial and human resources implications on the parent institution and potential dilution of brand name. The EDB undertook to invite the UGC to take stock of the universities' self-financing operations outside Hong Kong and recommend guidelines on the operations as appropriate. In a subsequent UGC meeting in January 2012, the UGC agreed to take on the matter. In response to Audit's enquiry, the UGC Secretariat informed Audit in September 2016 that it had taken stock of the universities' self-financing operations and had drawn up guidelines on the operations (i.e. the NoP and the cost allocation guidelines — see para. 4.41). Audit considers that the UGC Secretariat, in collaboration with the EDB, needs to keep in view the latest developments of the universities' self-financing operations outside Hong Kong and consider the need to draw up additional guidelines; and
- (d) ***Setting up an internationalisation forum.*** Also in November 2011, the EDB committed to the LegCo Panel on Education that it would set up an internationalisation forum (with representatives from the universities, the UGC Secretariat and other stakeholders) to determine strategies, foster collaboration and share best practices on internationalisation. As at 31 July 2016, the forum had not been set up. In response to Audit's enquiry in June 2016, the EDB contended that at present, most non-local students in the post-secondary education sector were enrolled in the eight universities and these universities had already established a platform to share best practices on internationalisation. Hence, the EDB did not see any imminent need to set up an internationalisation forum for the time being. Audit considers that the EDB needs to keep in view the latest developments in the internationalisation of the higher education sector and revisit the need to set up an internationalisation forum in due course.



## Audit recommendations

4.35      **Audit has *recommended* that the Secretary-General, University Grants Committee should:**

- (a)      **further encourage the universities to continue their efforts to attract more non-local students, in particular those other than Mainland students, and promote more diversity at the universities;**
- (b)      **consider including information on the mix of academic staff (e.g. qualifications, experience and countries of origin) in the regular data collection from the universities;**
- (c)      **agree with the universities on a set of key performance indicators on internationalisation and continue to monitor the universities' performance on internationalisation; and**
- (d)      **in collaboration with the Secretary for Education, keep in view the latest developments of the universities' self-financing operations outside Hong Kong and consider the need to draw up additional guidelines.**

4.36      **Audit has *recommended* that the Secretary for Education should keep in view the latest developments in the internationalisation of the higher education sector and revisit the need to set up an internationalisation forum in due course.**

## Response from the Government

4.37      **The Secretary-General, University Grants Committee agrees with the audit recommendations in paragraph 4.35. He has said that:**

- (a)      **the UGC Secretariat will invite the UGC to consider ways to further encourage the universities to continue their efforts to attract non-local students from different countries with a view to promoting diversity at the universities. As a related matter, the UGC Secretariat is pleased to note that, starting from 2012/13, up to ten targeted scholarships per annum**

under the HKSAR Government Scholarship Fund are offered to first-year non-local full-time students from ASEAN countries, India and Korea, who are enrolled in publicly-funded degree programmes in Hong Kong. Besides, starting from 2016/17, up to ten additional scholarships under the Fund and bearing the name “Hong Kong Scholarship for ‘Belt and Road’ Students (Indonesia)” are made available for first-year Indonesian students to pursue full-time study in publicly-funded degree programmes in Hong Kong. The UGC Secretariat believes that these efforts undertaken by the EDB are conducive to attracting more talented non-local students from different countries to join our universities;

- (b) the UGC Secretariat will consider including information on the mix of academic staff in the regular data collection from the universities;
- (c) the UGC will, under the context of accountability framework, discuss with the universities key performance indicators including those on internationalisation, and continue to monitor the universities’ performance on internationalisation; and
- (d) the purpose of the recently promulgated cost allocation guidelines (see para. 4.41) is to ensure there is no cross-subsidisation of UGC resources to non-UGC-funded activities, including universities’ self-financing operations conducted within or outside Hong Kong. Notwithstanding this, the UGC Secretariat will, in collaboration with the EDB, keep in view the latest developments of the universities’ self-financing operations outside Hong Kong and consider the need to draw up additional guidelines.

4.38 The Secretary for Education agrees with the audit recommendation in paragraph 4.36.

## **Governance of the universities**

4.39 The UGC stated in its 2015-16 Annual Report that the UGC strongly believes that effective governance is the fundamental key to sustain the public confidence in the universities. At its meeting in May 2014, the UGC’s Strategy Sub-Committee agreed that the UGC must satisfy itself as to the effectiveness of the governance of the universities it funded in order to assure itself that its investment was properly stewarded.

***Need to monitor implementation of recommendations  
of review report on universities' financial affairs***

4.40 In January 2011, the UGC established a Financial Affairs Working Group (FAWG) to undertake a review of the finances of the universities. The purpose of the review was to offer recommendations on the universities' cost allocation practices and financial transparency, so as to provide more assurance to the public that the use of public funds was appropriate, i.e. the universities should only use the UGC funds for the activities eligible for public support.

4.41 In October 2013, the FAWG completed its review and published a review report. The FAWG considered that there was room for improvement in the cost allocation practices and the level of financial transparency of the universities, and put forward nine recommendations (see Appendix E). The recommendations on cost allocation practices were mainly related to the methods for allocation of costs, in particular, indirect overheads of non-UGC-funded activities and premises as well as staff cost recovery. The recommendations on financial transparency concerned the requirement to incorporate segment reporting in the financial statements of the universities, appropriate disclosures in respect of allocation of costs to UGC-funded and non-UGC-funded activities and exemption of overhead charges. To implement the recommendations, a new set of cost allocation guidelines (for the universities to comply with in their financial statements for 2018/19) and an updated version of the Statement of Recommended Practice (for the universities to comply with in their financial statements for 2015/16, except for segment reporting between UGC-funded and non-UGC-funded activities, which would be put into effect in the financial statements for 2016/17) were promulgated to the universities in October 2015.

4.42 Audit noted that the cost allocation guidelines were originally planned to be effective from 2017/18. However, recognising the comprehensive nature of the guidelines and to facilitate the universities' preparation, the implementation of the guidelines had been deferred to 2018/19, which would still be within the next funding triennium (i.e. 2016-19) and in line with the implementation date stipulated in the review report. In 2016, the UGC engaged a consultant to provide technical support and professional advice to the universities regarding the implementation of the aforesaid guidelines as well as accounting and disclosure practices. As at 31 August 2016, the consultant's comments on the universities' implementation

plans had been sent to each university for their follow-up. The UGC needs to continue to monitor the implementation of the guidelines and the accounting and disclosure practices by the universities to ensure that the guidelines and practices are adopted by the universities in the designated timeframes.

4.43 In addition, in response to the comments raised by the universities during the consultation of the draft cost allocation guidelines in March 2015, the UGC Secretariat advised the universities that “student unit costs fluctuate every year and that the proposed cost charging may lead to changes in student unit costs. At this stage, however, the Secretariat is unable to estimate the amount of the change, if any, in the student unit costs arising from the implementation of the new guidelines, though it is not unreasonable to envisage that part of the UGC costs (not charged out under the existing cost allocation mechanism) would be re-allocated to non-UGC-funded activities under the proposed cost allocation mechanism.” According to the UGC Secretariat, it undertook in June 2015 to pay particular attention to the effect of this when assessing the recurrent funding of the universities after the guidelines’ requirements are incorporated in the universities’ financial statements in 2018/19. The Secretariat needs to keep in view the actual impacts on the recurrent funding to the universities after requirements of the guidelines are incorporated in the universities’ financial statements in 2018/19.

### *Need to monitor implementation of recommendations of review report on institutional governance*

4.44 At the request of the EDB in December 2013, the UGC conducted a consultancy study on the governance of the universities focusing on the roles of the university councils. The study aimed to identify good international practices on the governance of higher education institutions so as to draw up pointers and advice to help enhance the effectiveness and transparency of the councils of the universities, and to better prepare members of the councils to fulfill their roles.

4.45 In March 2016, the UGC released its report on institutional governance entitled “Governance in UGC-funded Higher Education Institutions in Hong Kong” after the EDB had endorsed the overall direction and recommendations of the report. The report pointed out that the core values of institutional autonomy and academic freedom, balanced with public accountability, were underpinned and protected by effective governance of the universities. Good governance would help ensure that the universities would continue to flourish in the future. A list of the

report recommendations is at Appendix F. The UGC will monitor the implementation of all the recommendations (Note 15), which should be completed before the start of the 2019-22 triennium. As at 30 June 2016, the UGC had established a task force to follow up the implementation of the recommendations in consultation with the universities. A timetable had also been drawn up for the implementation of the recommendations.

### Audit recommendations

4.46 **Audit has *recommended* that the Secretary-General, University Grants Committee should:**

- (a) **continue to monitor the implementation of the cost allocation guidelines and the accounting and disclosure practices by individual universities to ensure that the guidelines and practices are adopted by the universities in the designated timeframes;**
- (b) **keep in view the impacts on the recurrent funding to individual universities after the requirements of the cost allocation guidelines are incorporated in the universities' financial statements in 2018/19; and**
- (c) **continue to closely monitor the progress of the implementation of the recommendations of the UGC's report on institutional governance of individual universities.**

### Response from the Government

4.47 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

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**Note 15:** *According to the UGC Secretariat, recommendation 6 of the review report, i.e. the UGC should undertake a review of university governance on a regular basis, ideally every five years, will be implemented by the UGC in conjunction with the universities in due course.*

- (a) the UGC Secretariat has all along been working hard to monitor the implementation of the cost allocation guidelines and the accounting and disclosure practices by the universities, to ensure that the guidelines and practices will be adopted by the universities in the designated timeframes. The UGC Secretariat will continue the efforts in this regard. The universities will continue to be required to report on the implementation progress as necessary;
- (b) year on year changes in recurrent funding are caused by various factors (such as change in approved student number targets, price adjustment etc.). The impact of change in student unit costs as a result of incorporating the new cost allocation guidelines requirements on recurrent funding, if any, will only affect the funding period after 2018/19, and along with the impact of other factors, will be difficult, if not impossible, to be clearly identified; and
- (c) the UGC will continue to monitor the progress of the implementation of the recommendations of the UGC's report on institutional governance in accordance with the timetable drawn up.

## Quality Assurance Council

4.48 The QAC (see para. 1.7(b)) assists the UGC in providing oversight of the quality of the universities' educational provision. The QAC is supported by the QAC Secretariat. As at 30 June 2016, the Secretariat was headed by a Deputy Secretary-General, UGC, who was assisted by three staff of the UGC Secretariat.

### *QAC mission*

4.49 The mission of the QAC (Note 16) is:

- (a) "To assure that the quality of the educational experience in all programmes at the levels of sub-degree, first degree and above (however funded) offered in UGC-funded institutions is sustained and improved, and is at an internationally competitive level"; and

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**Note 16:** *Prior to mid-September 2016, paragraph 4.49(a) was not applicable to sub-degree programmes.*

- (b) “To encourage institutions to excel in this area of activity”.

The QAC conducts quality audits and issues audit reports with recommendations for the universities to make improvements. The QAC’s audit findings also include features of good practice and confirmation of progress with actions already in place.

### ***QAC quality audits***

4.50 The principal aims of the QAC quality audit are to confirm that:

- (a) existing arrangements for quality assurance are fit for purpose;
- (b) the quality of provision is comparable to international best practices;
- (c) the universities are committed to continuously improving the quality of their academic programmes; and
- (d) students are well taught and well supported, to ensure that they are able to achieve the expected academic standards.

4.51 Under the first and the second QAC audit cycles (the second one is currently being conducted), quality audits cover all first degree programmes and above, however funded, offered by the universities (including their continuing education arms and community colleges). The sub-degree audit cycle, planned to commence in end 2016, will cover sub-degree programmes.

4.52 The QAC has compiled an Audit Manual for each of its audit cycle. According to its Audit Manual for the second audit cycle:

- (a) a QAC audit starts with the Institutional Submission (Note 17) submitted by the university to the QAC;
- (b) this is followed by a QAC audit visit, which normally lasts for three days and involves meetings with various representative groups (e.g. teaching staff, academic support staff, students and stakeholders) of the university; and
- (c) a QAC audit report is then compiled and published, thereby concluding the audit process.

Following the completion of a QAC audit, the university is expected to reflect on the outcomes of the audit in order to identify areas for institutional improvement. In this regard, the university is required to submit an action plan and a progress report, three months and 18 months respectively, after the publication of the QAC audit report.

### *Insufficient local academic auditors*

4.53 Before a QAC audit is conducted, an audit panel is formed by auditors drawn from a Register of Auditors. The Register of Auditors comprises senior academics from outside of Hong Kong with experience in external quality audit in higher education (non-local auditors), local academics and lay persons from the business and professional communities (local auditors). As at 30 June 2016, the Register of Auditors had 54 auditors, comprising 37 (69%) non-local auditors and 17 (31%) local auditors (16 academics and one lay person).

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**Note 17:** *Before the conduct of a QAC quality audit, the university is required to perform an institutional self-evaluation (i.e. a self-review of its current arrangements for the management of quality assurance and an assessment of their effectiveness). The outcomes of the institutional self-evaluation will be the central component of the Institutional Submission. The Submission covers various topics (e.g. mission, organisational structure, and policies and procedures for quality enhancement) and forms the principal source of information for the conduct of the QAC audit.*



4.54 According to the QAC's Audit Manual for the second audit cycle, for each QAC quality audit, four auditors, comprising two local academics and two non-local auditors, are drawn from the Register of Auditors to form an audit panel. As each audit panel required two local academics, a total of 16 local academics were required for the eight audit panels of QAC quality audits (for the eight universities).

4.55 Audit examined the QAC's records of appointment of eight local academics to four audit panels (two panels in each audit cycle). Audit noted that in one appointment case, as a result of the limited number of local academics in the Register of Auditors, the appointment was not as smooth as expected, and the QAC took seven months to form the audit panel. In this case, when the QAC tried to line up an audit panel in mid-January 2015, due to various reasons (e.g. local academics having conflicts of interest with the university to be audited or unavailability owing to work commitments), the two local academics could only be appointed to the audit panel in mid-August 2015. Moreover, Audit examined the membership of the 16 QAC audit panels in the first and second audit cycles. Audit noted that in each of the two audit cycles, one local academic had been appointed to serve two QAC audit panels.

### ***Need to improve checking of conflicts of interest before appointing auditors***

4.56 According to the QAC's practices on managing conflicts of interest:

- (a) for appointment to the Register of Auditors, an auditor (local or non-local) has to complete a registration form specifying his/her personal details and quality audit experience; and
- (b) when an auditor is drawn from the Register of Auditors for forming an QAC audit panel, the university to be audited will be asked whether the auditor has any conflicts of interest with the university. After obtaining the university's view, the QAC will form its own view on whether the auditor has any conflicts of interest, and will approach the auditor and offer him appointment to the QAC audit panel if it considers that the auditor has no conflicts of interest. If the auditor accepts the offer, he/she is asked to complete a declaration form declaring that he/she has no conflicts of interest. Upon receipt of the completed declaration form, the QAC will appoint the auditor to the audit panel.

4.57 According to the QAC's declaration forms, circumstances in which conflicts of interest may exist or be perceived to exist include an auditor being a graduate of the university. Audit examined the QAC's records of ten local auditors on four of the 16 QAC audit panels (two panels in each audit cycle). Audit found that of the three local auditors on one audit panel in the first audit cycle, one local lay person had conflicts of interest. According to the lay person's curriculum vitae submitted to the QAC, he was a graduate of the continuing education arm of the university. However, in his declaration form submitted to the QAC, the lay person declared that he had no conflicts of interest with the university.

### Audit recommendations

4.58 **Audit has *recommended* that the Secretary-General, University Grants Committee should:**

- (a) **take measures to ensure that there are sufficient local academic auditors in the Register of Auditors to facilitate the formation of audit panels for conducting QAC quality audits for the universities in future; and**
- (b) **improve the checking of conflicts of interest to ensure that auditors appointed to an QAC audit panel do not have conflicts of interest with the university to be audited.**

### Response from the Government

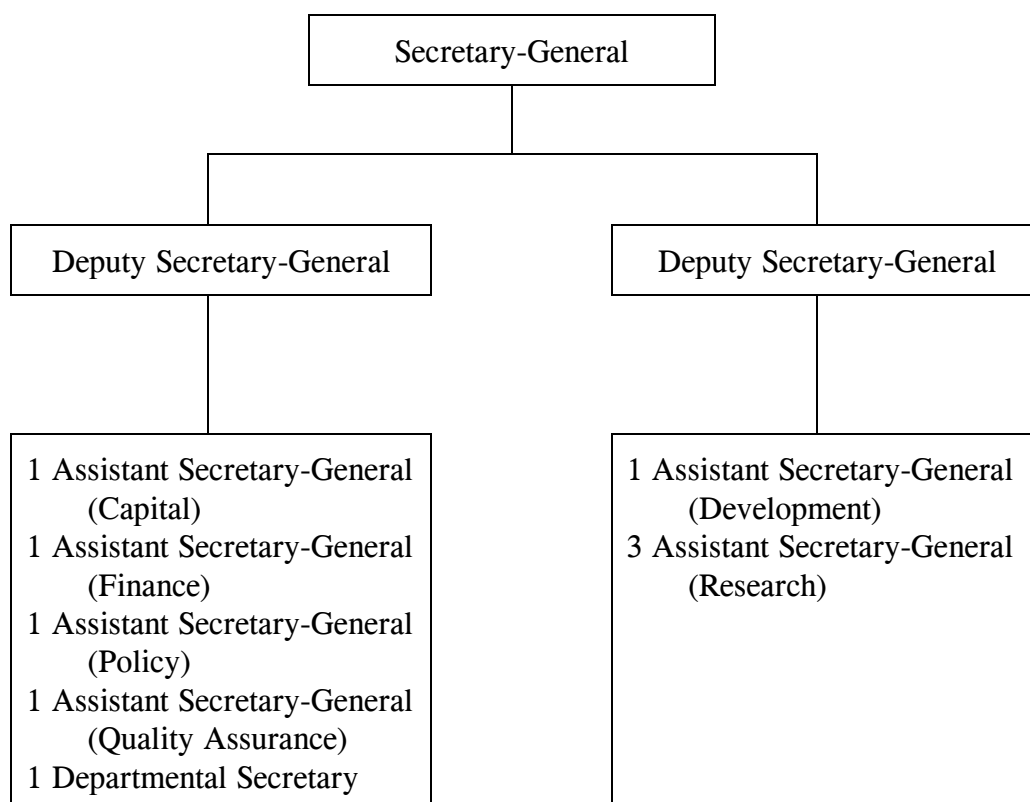
4.59 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that the following measures have already been implemented for the upcoming audit cycle on sub-degree operations:

- (a) in view of the situation in the second audit cycle, and with a view to alleviating the burden of auditors to serve on more than one audit panel, each university has been asked to nominate three local academics for appointment to the Register of Auditors (instead of two as in the second audit cycle) in order to increase the size of the pool of local auditors.

There will also be a review on the audit arrangements and processes, including the audit panel composition, upon the completion of the second audit cycle. The QAC always attempts to be self-critical of its own arrangements and strives for improvement; and

- (b) to facilitate the universities in making their decisions, recent graduates, i.e. within the last three years, will be debarred from being appointed to the particular audit panels before the nominations are passed to the universities for consideration. The QAC Secretariat will continue with the efforts to ensure that auditors appointed to an audit panel do not have conflicts of interest with the university to be audited.

**UGC Secretariat: Organisation chart (extract)**  
**(30 June 2016)**



*Source: UGC records*

**Appendix B**  
(para. 1.10 refers)

**Total number of students (FTE)  
enrolled in UGC-funded programmes by level of study  
(2010/11 to 2015/16)**

<b>University/ Level of study</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13 (Note)</b>	<b>2013/14</b>	<b>2014/15</b>	<b>2015/16</b>
<b><i>CityU</i></b>						
Sub-degree	900	1,102	1,052	916	903	913
Undergraduate	8,518	8,497	10,912	11,288	12,028	12,423
Taught postgraduate	52	53	53	53	53	53
Research postgraduate	656	676	681	665	741	809
Sub-total	10,126	10,328	12,698	12,922	13,725	14,198
<b><i>HKBU</i></b>						
Undergraduate	4,649	4,655	6,109	6,198	6,259	6,515
Taught postgraduate	279	278	254	224	226	227
Research postgraduate	238	222	237	251	268	277
Sub-total	5,166	5,155	6,600	6,673	6,752	7,019
<b><i>LU</i></b>						
Undergraduate	2,233	2,152	2,622	2,570	2,532	2,532
Research postgraduate	57	61	65	74	82	76
Sub-total	2,290	2,213	2,687	2,644	2,613	2,608
<b><i>CUHK</i></b>						
Undergraduate	11,069	11,343	15,138	15,729	16,241	16,408
Taught postgraduate	695	731	799	710	735	701
Research postgraduate	1,689	1,728	1,786	1,790	1,825	1,976
Sub-total	13,453	13,801	17,723	18,228	18,801	19,084
<b><i>EdUHK</i></b>						
Sub-degree	983	977	924	841	763	1,012
Undergraduate	3,571	3,867	4,753	4,756	4,747	4,644
Taught postgraduate	525	509	508	507	524	526
Research postgraduate	10	29	36	36	29	38
Sub-total	5,090	5,382	6,222	6,141	6,063	6,221

**Appendix B**  
(Cont'd)  
(para. 1.10 refers)

University/ Level of study	2010/11	2011/12	2012/13 (Note)	2013/14	2014/15	2015/16
<b><i>PolyU</i></b>						
Sub-degree	3,553	3,527	3,481	3,212	2,634	2,231
Undergraduate	9,798	9,827	12,833	13,171	13,861	14,388
Taught postgraduate	29	18	15	15	15	13
Research postgraduate	607	604	626	677	694	713
Sub-total	13,987	13,977	16,955	17,074	17,204	17,345
<b><i>HKUST</i></b>						
Undergraduate	6,127	6,368	8,608	8,777	8,867	9,005
Research postgraduate	1,070	1,158	1,222	1,351	1,354	1,386
Sub-total	7,197	7,526	9,829	10,128	10,220	10,391
<b><i>HKU</i></b>						
Undergraduate	10,477	10,602	14,291	14,710	15,382	15,817
Taught postgraduate	798	791	801	763	748	752
Research postgraduate	2,027	2,020	2,118	2,141	2,112	2,086
Sub-total	13,302	13,413	17,210	17,613	18,241	18,655
<b><i>All universities</i></b>						
Sub-degree	5,437	5,606	5,457	4,969	4,300	4,156
Undergraduate	56,442	57,311	75,267	77,199	79,916	81,732
Taught postgraduate	2,378	2,379	2,428	2,271	2,299	2,271
Research postgraduate	6,355	6,496	6,771	6,985	7,103	7,360
Total	70,611	71,793	89,923	91,424	93,619	95,520

*Source: UGC records*

*Note: To tie in with the implementation of the new academic structure, the universities had admitted two cohorts of students under the old and new academic structures in 2012/13.*

*Remarks: Figures may not add up to total due to rounding.*

**Appendix C**  
(para. 1.11 refers)

**Total number of staff (FTE) in academic departments  
of the universities by staff grade  
(2010/11 to 2015/16)**

<b>University/ Staff grade</b>	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>	<b>2013/14</b>	<b>2014/15</b>	<b>2015/16</b>
<b><i>CityU</i></b>						
Academic staff	1,012	1,009	1,082	1,056	1,047	1,022
Administrative, technical and other staff	504	498	509	531	530	501
Technical research staff	298	275	323	354	289	225
Sub-total	1,814	1,783	1,914	1,940	1,866	1,748
<b><i>HKBU</i></b>						
Academic staff	423	443	494	484	485	501
Administrative, technical and other staff	159	156	163	178	182	186
Technical research staff	163	167	145	172	186	201
Sub-total	745	767	802	834	852	887
<b><i>LU</i></b>						
Academic staff	170	170	203	195	196	190
Administrative, technical and other staff	43	41	47	50	47	47
Technical research staff	7	8	10	8	10	10
Sub-total	220	219	260	253	254	248
<b><i>CUHK</i></b>						
Academic staff	1,233	1,240	1,321	1,362	1,377	1,384
Administrative, technical and other staff	1,123	1,110	1,161	1,170	1,159	1,222
Technical research staff	240	205	171	191	176	252
Sub-total	2,596	2,555	2,653	2,722	2,712	2,857
<b><i>EdUHK</i></b>						
Academic staff	388	372	420	442	448	462
Administrative, technical and other staff	96	106	111	117	122	129
Technical research staff	65	57	59	57	88	104
Sub-total	549	534	590	616	659	696

**Appendix C**  
(Cont'd)  
(para. 1.11 refers)

University/ Staff grade	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
<b><i>PolyU</i></b>						
Academic staff	1,157	1,100	1,191	1,201	1,190	1,174
Administrative, technical and other staff	651	640	671	673	677	671
Technical research staff	353	278	220	240	281	346
Sub-total	2,161	2,018	2,082	2,114	2,148	2,191
<b><i>HKUST</i></b>						
Academic staff	654	669	728	783	806	802
Administrative, technical and other staff	344	346	398	406	424	470
Technical research staff	236	228	274	271	255	281
Sub-total	1,233	1,243	1,399	1,461	1,485	1,552
<b><i>HKU</i></b>						
Academic staff	1,220	1,222	1,373	1,409	1,433	1,456
Administrative, technical and other staff	1,166	1,153	1,201	1,251	1,254	1,266
Technical research staff	229	181	166	188	175	172
Sub-total	2,616	2,556	2,740	2,848	2,862	2,894
<b><i>All universities</i></b>						
Academic staff	6,258	6,224	6,813	6,931	6,982	6,992
Administrative, technical and other staff	4,087	4,051	4,260	4,375	4,395	4,492
Technical research staff	1,591	1,400	1,366	1,481	1,461	1,590
Total	11,935	11,674	12,440	12,788	12,838	13,074

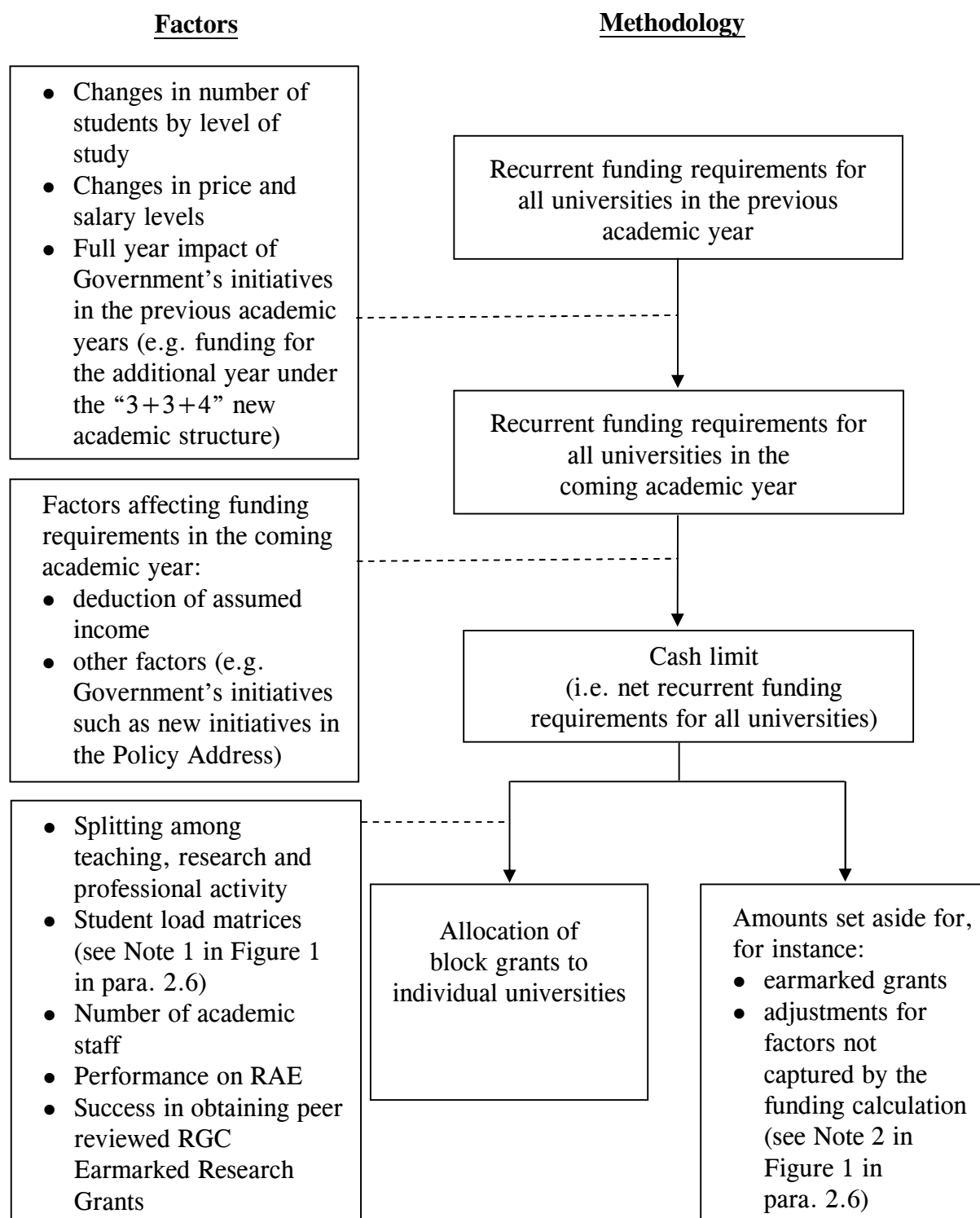
Source: UGC records

Remarks 1: Staff in this table refer to those with salaries wholly funded by General Funds, which include, for example, block grants (see para. 2.3), supplementary grants/adjustments (see para. 2.5) and tuition fees.

2: Figures may not add up to total due to rounding.



## Recurrent grant funding methodology



*Source: Audit analysis of UGC records*

**List of recommendations of the review report on universities' financial affairs**  
**(Published in October 2013)**

**Cost allocation practices**

1. As a matter of general principle:
  - (a) costs should be allocated to both the UGC vote and the non-UGC vote using appropriate and consistent methods such that the amounts charged to the UGC-funded activities are calculated using the same methodology as that used to calculate the cost of overheads to be charged to the non-UGC-funded activities; and
  - (b) indirect overheads charged to non-UGC-funded research projects and all other self-financed activities be charged on exactly the same basis (*Recommendation 1*).
2. The universities should re-examine their practices concerning staff cost recovery along the principles set out in the report to move towards the requirement of full staff cost recovery (*Recommendation 4*).
3. The universities should amend their overhead charging practices to recognise that the cost of buildings is a direct cost to be charged to a self-financed programme (*Recommendation 5*).

**Financial transparency**

4. The UGC establishes a Working Group to review the cost allocation recommendations with a view to establishing detailed guidance for the universities (*Recommendation 2*).
5. An appropriate disclosure in the documents submitted to the university's council and an annual declaration submitted to the UGC explaining the nature of the research projects for which exemptions on overhead charge have been applied together with a note of the quantum involved (*Recommendation 3*).

**Appendix E**  
(Cont'd)  
(para. 4.41 refers)

6. The way in which the university allocates costs to UGC-funded and non-UGC-funded activities should be explained clearly in a publicly available document (*Recommendation 6*).

7. Segment reporting by funding source should be mandated, and should be implemented in the universities' audited financial statements for the year ended 30 June 2017 (*Recommendation 7*).

8. The Statement of Recommended Accounting Practice for UGC-funded universities should be updated to reflect both current and recommended accounting practices and disclosures (*Recommendation 8*).

9. The UGC identifies an appropriate mechanism by which the cost allocation practices of the universities can be periodically reviewed and endorsed (*Recommendation 9*).

*Source: UGC records*

**List of recommendations of the review report on institutional governance  
(Published in March 2016)**

1. Consideration should be given by the universities and the Government to the processes of training and continuing professional development of council members, so that they may discharge their duties in a more informed manner. The identification of candidates should be made with regard to a skills template which each university should draw up and keep under review. Induction should be undertaken by both the UGC, with regard to sector-wide issues, and by each university in respect of individual universities.
2. In order to ensure that the fiduciary responsibilities of council members strike an appropriate and sustainable balance between institutional autonomy and public accountability, the UGC should create a mechanism to explore, drawing upon international good practice, the establishment of a written accountability framework on which the vice-chancellor/president and the council report annually.
3. Council has a vital role in strategic planning, the latter seen as a process which clearly sets out institutional priorities and forms the basis of the council's assessment of institutional performance. In order to discharge this role each university should draw up a set of key performance indicators which are timely and relevant and which allow council to assess the progress towards the priorities agreed in the strategic plan.
4. The oversight of risk management, whereby the council is satisfied that major institutional risks — both financial and reputational — have been clearly identified and are being effectively managed, is an irreducible responsibility of council. Each council should therefore draw up a risk register which is reviewed at least annually and, ideally, more frequently.
5. Each council should publish a scheme of delegation which sets out the sub-structure of its committees and includes the mechanism whereby council is satisfied that the related managerial oversight of university activities is being effectively handled, including appropriate delegation and reporting mechanisms.
6. The UGC should undertake a review of university governance on a regular basis, ideally every five years.

*Source: UGC records*

**Acronyms and abbreviations**

AA&I	Alterations, Additions, Repairs and Improvements
ArchSD	Architectural Services Department
Audit	Audit Commission
CityU	City University of Hong Kong
CUHK	The Chinese University of Hong Kong
CWP	Capital works project
CWRF	Capital Works Reserve Fund
EDB	Education Bureau
EdUHK	The Education University of Hong Kong
FAWG	Financial Affairs Working Group
FSTB	Financial Services and the Treasury Bureau
FTE	Full-time equivalent
HKBU	Hong Kong Baptist University
HKU	The University of Hong Kong
HKUST	The Hong Kong University of Science and Technology
LegCo	Legislative Council
LU	Lingnan University
m <sup>2</sup>	Square metres
NoP	Notes on Procedures
PolyU	The Hong Kong Polytechnic University
QAC	Quality Assurance Council
RAE	Research Assessment Exercise
RGC	Research Grants Council
SPRs	Stores and Procurement Regulations
UGC	University Grants Committee

## **CHAPTER 3**

**Fire Services Department  
Government Logistics Department  
Electrical and Mechanical Services Department  
Marine Department**

**Procurement and maintenance  
of fire services equipment**

**Audit Commission  
Hong Kong  
28 October 2016**

*This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.*

Report No. 67 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

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# PROCUREMENT AND MAINTENANCE OF FIRE SERVICES EQUIPMENT

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# PROCUREMENT AND MAINTENANCE OF FIRE SERVICES EQUIPMENT

## Executive Summary

1. The Fire Services Department (FSD) is responsible for fire-fighting and rescue on land and at sea, and providing emergency ambulance service for sick and injured persons under the Fire Services Ordinance (Cap. 95). Its fire services equipment (FSE), including communications systems, fire appliances and support vehicles, fire-fighting and rescue vessels and other fire services support equipment, is critical for delivering its core services and instrumental to the safe and efficient operations of frontline officers. In 2015-16, the FSD incurred \$482.7 million and \$127.1 million on the procurement and the maintenance of major FSE items respectively. The Audit Commission (Audit) has recently conducted a review to examine the FSD's work on the procurement and maintenance of FSE with a view to identifying areas for improvement.

### Communications systems

2. *Two communications systems.* The FSD has adopted a sophisticated telecommunication and computer integrated mobilising system, known as the Third Generation Mobilising System (TGMS) to enhance the identification, location and mobilisation of fire-fighting and ambulance resources with a view to meeting the targets of graded response time. The FSD has also installed a radio communications system, namely the Digital Trunked Radio System (DTRS), to provide effective and efficient radio communications at incident scenes (para. 1.8).

### *TGMS*

3. *Delay in commissioning of the TGMS.* In May 2000, the Finance Committee (FC) of the Legislative Council approved funding of \$718.6 million for the FSD to procure the TGMS for replacing the Second Generation Mobilising System (SGMS) in 2003. As of April 2016, \$708.2 million of the approved funding had been spent. In March 2001, a contract (Contract A) for the procurement, installation and maintenance of the TGMS was awarded to Contractor A. Owing to

## Executive Summary

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various reasons including slippage in building works and changes of user requirements, there were delays in completing certain milestones of Contract A. As the SGMS contractor indicated that it could no longer provide the maintenance services, the TGMS was commissioned in March 2005, i.e. 25 months before the completion of the System Acceptance Tests (SATs) in April 2007 (paras. 2.3 and 2.6 to 2.8), which had led to the following problems:

- (a) ***Targets of graded response time not met in the first year.*** Due to technical issues on the system side and teething problems for the frontline staff to adapt to the operation of the new system in the first year, the graded response times were only met in 89.2% of the fire calls and 89.6% of the emergency ambulance calls in 2005-06, i.e. below the target of 92.5% (para. 2.8(a)); and
- (b) ***Payment for live operation support of the TGMS before completion of the SATs.*** Contractor A had to support the live operation of the TGMS for 25 months before completion of the SATs, which was outside the scope of Contract A. The FSD had neither sought the approval for a contract variation nor agreed with Contractor A on whether and how the live operation support service fee should be paid before commencing the service. In the event, Contractor A was paid \$53.6 million for providing the live operation support services (para. 2.8(b)).

To prevent recurrence of similar problems, the FSD needs to take measures to tackle the root causes of contract delays and observe the laid-down requirements in procuring services outside the scope of a contract (para. 2.9).

4. ***Operational issues.*** The TGMS has a design serviceable life of 10 years and extendable to 15 years (para. 2.4). Audit examination has revealed the following operational issues after commissioning the TGMS in 2005:

- (a) ***Additional costs for monitoring the finalisation of outstanding contractual work.*** According to the funding paper of May 2000, an estimated \$13 million of the approved funding was for engaging the Government's trading funds to provide professional advice on the design, implementation and commissioning of the TGMS. Up to April 2016, \$81.2 million had been spent on engaging the trading fund services, of which \$35.9 million was for engaging the Electrical and Mechanical Services Trading Fund (EMSTF) in providing professional services for

## Executive Summary

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enhancing the TGMS and monitoring Contractor A's finalisation of outstanding contractual work from May 2007 onwards. Audit found that upon the completion of the SATs in April 2007, it had taken 4 years for the FSD and Contractor A to agree on the arrangements for handling the outstanding contractual work in March 2011. Afterwards, Contractor A spent some 4 years to complete all the outstanding contractual work in August 2015. In Audit's view, the FSD needs to take measures to ensure that outstanding contractual matters are dealt with expeditiously in similar projects in future to minimise professional service cost on contract management (para. 2.10); and

- (b) ***Delay in installation of TGMS equipment on new vehicles.*** Under Contract A, Contractor A was required to supply and install up to 763 sets of TGMS equipment on fire appliances, ambulances and vessels but there was no contract provision to cater for additional sets of TGMS equipment required by the FSD after September 2004 or for the relocation of TGMS equipment from the replaced vehicles to the new ones. As a result, the FSD had to procure such services from Contractor A for new vehicles. In two cases during the period October 2013 to January 2016, the FSD and the Government Logistics Department (GLD) took a long time to complete the procurement process, resulting in delays of about 7 months in installation of TGMS equipment on 25 new ambulances and 14 new fire appliances (para. 2.11).

5. ***Maintenance issues.*** According to Contract A, Contractor A was required to provide one-year warranty and a nine-year post-warranty maintenance service (para. 2.6). Audit has found the following areas for improvement:

- (a) ***Target maintenance response time and turnaround time not met.*** Contract A has set a target response time (i.e. time required for arrival on scene after a system incident is reported) and a target turnaround time (i.e. time required to rectify a breakdown after arrival on scene) for corrective maintenance of TGMS equipment. In 2015-16, for the maintenance of a sub-system of the TGMS: (i) the 2-hour response time target was not met in 423 (43%) of 985 cases; and (ii) the target of 6-hour turnaround time for critical faults was also not met in 248 (30%) of 814 cases (para. 2.12); and

## Executive Summary

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- (b) ***Lack of competitive bidding for extended maintenance services.*** While the TGMS has a design serviceable life of 10 years and extendable to 15 years, Contract A has only required a nine-year post-warranty maintenance service. When the FSD decided in February 2015 to extend the use of the TGMS for five years from April 2017 to April 2022, the maintenance service under Contract A had to be extended by means of a contract variation. The GLD's and the FSD's efforts to negotiate a reduced fee with Contractor A were not successful. In view of the significant cost of the extended maintenance services (\$58.5 million a year), the FSD needs to take measures in the future to acquire any extended maintenance services for procurement projects with an extendable design serviceable life through competitive bidding as far as practicable (para. 2.14).
6. ***Other enhancements for planning the next generation of the mobilising system.*** In 2014, the FSD commissioned a consultancy study to prepare for the replacement/upgrade of the TGMS (para. 2.16). The following enhancements need to be considered in planning for the next generation of the mobilising system:
- (a) ***Need to provide mobile phone location identification function.*** Over the years, the subscribed mobile phone numbers had increased by 104% from 8.2 million in 2004-05 to 16.7 million in 2015-16. The percentage of emergency calls from mobile phone users had also increased from 30% in 2001-02 to 44% in 2015-16. With the advancement in information and communications technology (e.g. location services in smartphones) in recent years, the FSD needs to explore the technical feasibility of providing mobile phone location identification function in the next generation of the mobilising system to facilitate speedy and accurate identification of incident addresses reported by mobile phone callers (para. 2.17); and
  - (b) ***Need to set a target time for answering emergency calls.*** The FSD had not set any target time for answering emergency calls. Audit analysis revealed that: (a) of the 864,426 emergency calls which were responded to in 2015-16, the waiting times for 288,002 (33%) calls were 10 seconds or more; and (b) of the 288,002 calls, the waiting times of 8,747 (3%) calls were 60 seconds or more. As the time taken to answer emergency calls also affects the timeliness of despatch of emergency resources, the FSD needs to consider setting a target time for answering emergency calls in the design of the next generation of the mobilising system (para. 2.18).

## Executive Summary

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### ***DTRS***

7. In December 2012, the FSD engaged the EMSTF to provide post-warranty maintenance services for the DTRS under a Service Level Agreement (SLA) (para. 2.24).

8. ***Preventive maintenance.*** Under the SLA, the EMSTF was required to provide preventive maintenance on a half-yearly basis. For 2015-16, of 1,055 fire appliances, support vehicles, ambulances and vessels under preventive maintenance, the DTRS terminal equipment installed in 433 (41%) vehicles/vessels received only one round of preventive maintenance services and that installed in 312 (30%) vehicles/vessels missed all two rounds of preventive maintenance services (paras. 2.25 and 2.26).

9. ***Corrective maintenance.*** For 2015-16, the actual compliance level for the response time to corrective maintenance for DTRS infrastructure equipment was 78%, i.e. below the SLA requirement of 90% or above (para. 2.28).

### **Fire appliances and support vehicles**

10. As at 1 May 2016, the FSD had a fleet of 434 fire appliances and 186 support vehicles. The FSD's Workshops and Transport Division is responsible for maintaining 415 fire appliances and 11 support vehicles while the EMSTF is responsible for maintaining the remaining 19 fire appliances and 175 support vehicles (para. 1.9).

11. ***Availability of fire appliances and support vehicles.*** The FSD has to ensure that its fire appliances and support vehicles are in an immediate state of readiness to respond to emergency calls at all times. For the fire appliances and support vehicles under the Workshops and Transport Division's maintenance, the FSD has set a target availability rate of 90%. Audit's examination revealed that the Division could not meet the target availability rate from 2013-14 to 2015-16. Since the Division had taken remedial measures to address the issue, the vehicle availability rate for August 2016 had increased to 89.5%, i.e. still slightly below the target of 90% (paras. 3.2 and 3.5 to 3.7).



## Executive Summary

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12. ***Termination of five fire-appliance procurement contracts.*** Between 2007 and 2009, the FSD obtained funding of \$175.9 million under the capital account of the General Revenue Account for procuring 37 fire appliances with target commissioning dates from May 2010 to January 2012. Between May 2008 and January 2010, the GLD on behalf of the FSD entered into five contracts with two contractors for procuring the 37 fire appliances at a total contract sum of \$136.4 million. However, all the five contracts were terminated by the Government between September 2011 and December 2012. Audit was concerned that this might render the cost and time spent on procuring the 37 fire appliances nugatory. In particular, the FSD paid a total of \$66 million under three of the five contracts but according to the Department of Justice, a counterclaim had been filed against the contractor to recover those costs, which is in the legal proceedings pending trial. Between January 2012 and March 2014, five new contracts were awarded to procure replacement fire appliances which were eventually put into operation between April 2014 and June 2016, some four years later than the original target commissioning dates from May 2010 to January 2012 (para. 3.11).

13. ***Scheduled maintenance.*** All the FSD's vehicles are subject to scheduled maintenance which is preventive in nature. The aim is to minimise the number of vehicle breakdowns during fire-fighting and rescue operations (para. 3.21). Audit has found the following areas for improvement:

- (a) ***Scheduled maintenance carried out by the FSD.*** From July 2015 to June 2016, 86 (20%) of the 426 FSD maintained vehicles had not undergone all stipulated rounds of scheduled maintenance. Besides, there were delays in carrying out 359 rounds of scheduled maintenance for 222 vehicles (35% of 1,022 rounds for the 426 vehicles) (para. 3.22); and
- (b) ***Scheduled maintenance carried out by the EMSTF.*** From April 2015 to March 2016, out of the 194 vehicles maintained by the EMSTF, 10 (5%) vehicles had missed all scheduled maintenance while another 23 (12%) vehicles each missed one round of the scheduled maintenance (para. 3.24).

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### Fire-fighting and rescue vessels

14. As of July 2016, the FSD operated a fleet of 21 vessels to provide fire-fighting and rescue services within Hong Kong waters. Of the 21 vessels, 14 (67%) had exceeded their designed serviceable lives by 0.7 to 11 years (paras. 4.2 and 4.4).

15. *Delay in implementing the replacement projects for a fireboat and two speedboats.* In June 2012, the FC approved funding of \$85 million for the FSD to replace a fireboat (FB 7) which had been in service for over 20 years. In May 2013, the FSD also obtained funding of \$16 million for replacing two speedboats which had been in service since June 1999 and with maximum speed reduced by 25% from 40 to 30 knots. The FSD sought the assistance of the Marine Department (MD), i.e. the designated endorsement authority and agent for procurement of government vessels, in implementing the two replacement projects. However, the procurement progress had been slow, mainly due to the need to review the vessel procurement procedures and the shortage of experienced staff in the MD. The MD estimated that the two new speedboats would be delivered by July 2018, more than three years later than the target commissioning date of April 2015 and that the new FB 7 would be delivered by August 2019, more than four years later than the target commissioning date of December 2014. As a result of the delays, the total financial commitments of the FB 7 and speedboat replacement projects had increased by \$13.3 million (16%) to \$98.3 million and by \$16 million (100%) to \$32 million respectively (paras. 4.5, 4.8 to 4.10, 4.12 and 4.13).

16. *Need to take measures to ensure the timely implementation of the 10-year vessel replacement/procurement plan.* Apart from ongoing replacement projects for the FB 7 and the two speedboats, in 2015, the FSD had drawn up a 10-year procurement plan for replacing another 11 old vessels. The FSD had also planned to procure one new fireboat and one new fast rescue vessel for commissioning in 2018. Given that a total of 13 fire-fighting and rescue vessels are to be replaced/procured in the coming years, the FSD needs to ascertain from the MD whether it is able to cope with the FSD's 10-year vessel replacement/procurement plan in a timely manner (para. 4.14).

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### Other fire services support equipment

17. *Asset Management and Maintenance System (AMMS).* To improve the efficiency and effectiveness of the FSD's management of some 19,000 types of operating assets, in April 2012, the FC approved funding of \$49.8 million for the FSD to develop an integrated computer system, i.e. the AMMS. According to the funding paper of April 2012, the AMMS would provide major functions on inventory control, repair and maintenance management, and business intelligence analysis for enhancing the FSD's procurement and asset management work. However, up to July 2016 (over one year after the rollout of the AMMS in February 2015), some of these major functions could only be provided in the testing environment pending further fine-tuning before they could be put into actual use (paras. 5.2, 5.3 and 5.5).

18. *Fire-fighting protective suits.* In May 2010, the GLD on behalf of the FSD awarded a contract for the supply of 13,000 sets of fire-fighting protective suits at a cost of \$81 million which included an option of requiring the contractor (Contractor E) to provide a comprehensive managed care and maintenance services (CMCMS) of the suits. From October 2010 to March 2013, the FSD obtained the approvals from the Financial Services and the Treasury Bureau (FSTB)/GLD Tender Board for making three contract variations totalling \$50.1 million for Contractor E to provide the CMCMS from April 2011 to March 2017. In August 2016, after considering the FSTB's and the Security Bureau's advice on the tendering mode, the FSD adopted open tendering for the provision of the CMCMS for the fire-fighting protective suits from April 2017 to March 2022. The FSD needs to explore new service providers and bring in competitive tendering as far as possible for the procurement and maintenance of its other fire services support equipment in future (paras. 5.9, 5.11 and 5.12).

19. *Specialised fire services support equipment.* The Workshops and Transport Division is responsible for maintaining 56 types of electrical/mechanical specialised fire services support equipment (such as light portable pumps). Of the 1,647 rounds of preventive maintenance completed from June 2015 to May 2016, there were delays in carrying out 259 (15.7%) rounds of maintenance. The FSD needs to step up monitoring of the preventive maintenance for specialised equipment to ensure that it is carried out in a timely manner to prevent equipment failures before they occur or develop into major defects (paras. 5.15, 5.17 and 5.18).

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### Audit recommendations

20. Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Director of Fire Services should:

#### *Communications systems*

- (a) seek prior approval from the appropriate authority when services outside the scope of a contract are required and take measures to negotiate the best or most favourable terms for the services (para. 2.19(a));
- (b) improve the preparation of user requirements to minimise subsequent changes after the award of contract and closely liaise with the works agents to sort out any unresolved issue of the installation site at the earliest opportunity in future procurement projects (para. 2.19(b));
- (c) take measures to ensure that any outstanding contractual matters are dealt with expeditiously in similar projects in future to minimise professional service cost on contract management (para. 2.19(c));
- (d) take measures to ensure that the procurement of additional TGMS equipment for installation on new emergency vehicles is carried out in a timely manner (para. 2.19(d));
- (e) require Contractor A to strengthen its maintenance services with a view to meeting the contract stipulated response time and turnaround time targets (para. 2.19(f));
- (f) for procurement projects with an extendable design serviceable life, take measures to acquire any extended maintenance services through competitive bidding as far as practicable (para. 2.19(h));
- (g) explore the technical feasibility of providing mobile phone location identification function in the next generation of the mobilising system (para. 2.19(j));

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- (h) **consider setting a target time for answering emergency calls in the design of the next generation of the mobilising system (para. 2.19(k));**
- (i) **closely monitor the compliance by the EMSTF with the service requirements stipulated in the SLA (para. 2.29(a));**

### ***Fire appliances and support vehicles***

- (j) **closely monitor the effectiveness of the Workshops and Transport Division's remedial measures in attaining the 90% target availability rate of the fire appliances and support vehicles (para. 3.9);**
- (k) **step up monitoring of the compliance with the scheduled maintenance requirements to ensure that the fire appliances and support vehicles receive proper maintenance in a timely manner (para. 3.27(a));**

### ***Fire-fighting and rescue vessels***

- (l) **closely monitor the progress of the replacement projects for FB 7 and the two speedboats to guard against further slippage (para. 4.15(b));**
- (m) **ascertain from the MD whether it is able to cope with the FSD's 10-year vessel replacement/procurement plan in a timely manner (para. 4.15(c));**

### ***Other fire services support equipment***

- (n) **expedite the fine-tuning of the outstanding functions in the AMMS and put them into use as soon as possible (para. 5.7(a));**
- (o) **explore new service providers and bring in competitive tendering as far as possible for the supply and maintenance of other fire services support equipment in future (para. 5.13); and**

## **Executive Summary**

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- (p) **step up monitoring of the preventive maintenance for specialised equipment to ensure that it is carried out in a timely manner (para. 5.19(a)).**

## **Response from the Government**

- 21. The Government agrees with the audit recommendations.



## PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

### *Background*

1.2 The Fire Services Department (FSD) is responsible for fire-fighting and rescue on land and at sea, and providing emergency ambulance service for sick and injured persons under the Fire Services Ordinance (Cap. 95). Under the policy directives of the Security Bureau (SB) and headed by the Director of Fire Services, the FSD is organised into seven Commands and one Administration Division. Among the seven Commands, three Operational Commands (Note 1) provide fire-fighting and rescue services while the Ambulance Command provides emergency ambulance services. An extract of the organisation chart of the FSD is at Appendix A. As at 30 June 2016, the FSD had a strength of 10,114 staff, comprising 9,418 disciplined staff and 696 civilian staff.

### *Fire and emergency ambulance services*

1.3 The mission of the FSD is to protect life and property of Hong Kong citizens from fire or other calamities. Upon receipt of fire calls, ambulance calls and special service calls (Note 2), the FSD will mobilise its fire-fighting and rescue resources to the incident scenes to take appropriate actions. Time is of the essence. The FSD's graded response times for building fire calls are six minutes for built-up areas and nine to 23 minutes for areas of

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**Note 1:** *They are the Hong Kong Command (including the Marine and Offshore Islands Division), the Kowloon Command and the New Territories Command (including the Airport Fire Contingent which is located at the Hong Kong International Airport).*

**Note 2:** *Special service calls cover a wide range of incidents including traffic and industrial accidents, landslides, flooding, house collapse, malfunctioning of lifts, immersion and ship collision.*



## Introduction

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more dispersed risk/isolated developments. For emergency ambulance services, the target on-scene response time is 12 minutes (Note 3). According to its Controlling Officer's Report, the FSD aims to achieve its targets of graded response time:

- (a) in 92.5% of building fire calls in built-up areas;
- (b) in 94.5% of building fire calls for areas of more dispersed risk/isolated developments; and
- (c) in 92.5% of emergency ambulance calls.

For attendance to fire calls, the FSD will generally classify the fire incidents into five categories, from No. 1 alarm escalating to No. 5 alarm, according to their severity. Additional fire appliances, equipment and personnel will be despatched to the fire scenes of higher alarm incidents.

1.4 From 2011 to 2015, the total number of call cases had increased by 9% from 752,564 to 818,066 (see Table 1). The FSD had achieved its targets of graded response time for both fire and emergency ambulance calls (ranging from 93.2% to 95% of the calls).

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**Note 3:** *The response time is counted from the time when the location of an incident has been established. There are no graded response time targets for special service calls and for fire-fighting and rescue services provided by the FSD's vessels (see para. 4.3(b)).*

**Table 1**  
**Number of call cases**  
**(2011 to 2015)**

Type of call cases	Number of calls					Percentage increase/ (decrease) from 2011 to 2015
	2011	2012	2013	2014	2015	
Fire calls (Note 1)						
— real fire incidents	7,355	6,182	6,209	6,364	6,330	(14%)
— false/ unwanted alarms	26,833	31,456	30,564	29,971	27,990	4%
Emergency ambulance calls	646,996	683,921	675,424	699,427	710,041	10%
Emergency ambulance calls attended by first responders (Note 2)	44,221	46,972	42,047	44,676	40,022	(9%)
Special service calls (Note 3)	27,159	30,191	31,115	33,420	33,683	24%
Overall	752,564	798,722	785,359	813,858	818,066	9%

Source: FSD records

Note 1: The fire calls included false/unwanted alarms due to faulty alarm system or humid weather.

Note 2: First responders are frontline fire personnel specially trained in advanced ambulance aid and qualified to operate defibrillators. They provide prompt basic life support to patients before the arrival of ambulances to increase their survival rate.

Note 3: The increase in number of special service calls was mainly due to increase in cases of people trapped in lifts and cases of incidents reported by the public with good intent (e.g. suspected gas leakage) but subsequently confirmed by the FSD as unfounded.

### *Fire services equipment*

1.5 The FSD has altogether 81 fire stations, 39 ambulance depots and six fireboat stations, which are strategically located in different areas of Hong Kong to provide fire-fighting, rescue and emergency services for the public. The FSD's fire services equipment (FSE), including communications systems, fire appliances and support vehicles, fire-fighting and rescue vessels, and other fire services support equipment (see paras. 1.8 to 1.11), is critical for delivering its core services and instrumental to the safe and efficient operations of frontline officers.

1.6 The FSD's capital and recurrent expenses on procuring, replacing and maintaining its FSE are the largest expenditure area after personal emolument. In 2015-16, the FSD incurred \$482.7 million under the General Revenue Account/Capital Works Reserve Fund (CWRP) on the procurement of major FSE items. Table 2 shows the expenditure in the past five financial years. In 2015-16, the FSD also incurred \$127.1 million under the General Revenue Account on the maintenance of major FSE items (Note 4), comprising:

- (a) \$71.6 million on maintaining the communications systems;
- (b) \$47.9 million on maintaining fire appliances and support vehicles; and
- (c) \$7.6 million on maintaining fire-fighting and rescue vessels (Note 5).

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**Note 4:** *Other fire services support equipment is maintained by the FSD's Workshops and Transport Division or its maintenance contractors. There is no costing information on the maintenance of such equipment.*

**Note 5:** *In 2015-16, the Marine Department had also incurred \$15.7 million under its departmental account for maintaining the FSD's vessels (see Note 13 to para. 1.10).*

**Table 2**  
**Expenditure on procurement of FSE**  
**(2011-12 to 2015-16)**

Type	Expenditure				
	2011-12	2012-13	2013-14	2014-15	2015-16
	(\$ million)				
Fire appliances and support vehicles	98.3	77.0	48.0	43.3	249.3 (Note)
Ambulances	83.8	81.8	81.9	68.9	99.3
Fire-fighting and rescue vessels	2.1	—	8.2	1.5	0.1
Communications systems and information technology (IT) equipment	97.6	97.4	38.3	32.7	26.2
Other fire services support equipment	56.7	68.6	88.6	120.6	107.8
Total	338.5	324.8	265.0	267.0	482.7

Source: FSD records

Note: The increase in expenditure in 2015-16 is mainly due to procurement of: (a) 13 hydraulic platforms (\$61.5 million); (b) 7 turntable ladders (\$50.4 million); (c) 13 light pumping appliances (\$35.5 million); (d) 8 major pumps (\$30.8 million); (e) 2 rail road fire appliances (\$23.7 million); (f) 7 major rescue units (\$11.5 million); (g) 6 light rescue units (\$9 million); and (h) 1 aerial ladder platform (\$8.4 million).

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1.7 ***Procurement and maintenance.*** The FSD's procurement function is centrally carried out by the Procurement and Logistics (P&L) Group (Note 6) of the Fire Services Headquarters Command. Its vision of procurement is "Getting the right equipment at the right time and right cost". Its procurement strategy is to achieve the best value for money while maintaining open and fair competition on purchases in accordance with the Stores and Procurement Regulations (SPRs) and the relevant guidelines issued by the Financial Services and the Treasury Bureau (FSTB). The procurement process mainly comprises three stages:

- (a) ***Planning.*** The P&L Group collects initial requirements from users (including feedbacks from staff consultations), carries out preliminary studies and market research to identify suitable products and potential suppliers, and secures funding from either the FSD's budget in the General Revenue Account or as an expenditure item under the CWRP;
- (b) ***Tendering.*** The P&L Group, with the assistance of the Government Logistics Department (GLD — Note 7), prepares technical specifications and quotation/tender documents and invites quotations/tenders after confirmation of user requirements and obtaining approvals from appropriate authorities. Tender assessment panels will then be set up to examine the tender submissions and make recommendations for awarding contracts to the suppliers; and

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**Note 6:** *The P&L Group was established in April 2011 after completion of the Management Study on Procurement and Related Management Issues by the Efficiency Unit in December 2010. Headed by a Senior Divisional Officer and supported by disciplined staff and supplies grade staff seconded from the Government Logistics Department, the P&L Group is responsible for planning, organising and implementing the FSD's centre-led procurement strategy. It also develops guidelines on procurement and logistics matters, monitors expenditure on stores and equipment, and operates six departmental storehouses to cope with the operational requirements. Before the establishment of the P&L Group, the FSD's procurement function was mainly carried out by supplies grade officers of the Logistics Unit of the Safety and Logistics Group under the Headquarters Command.*

**Note 7:** *The GLD is the Government's central procurement agent. It provides bureaux/departments with procurement and supplies services including: (a) arranging issue of tenders exceeding departmental direct purchase authority and award of contracts on behalf of bureaux/departments; (b) providing advice on tendering and quotation procedures; and (c) providing advice on contract administration and monitoring.*

- (c) **Delivery.** After award of contracts, the P&L Group will monitor the suppliers for delivery and installation of FSE, arrange product acceptance tests and distribute the FSE to users.

The various types of FSE are maintained by the FSD, the Marine Department (MD) or through the FSD's contractors to ensure their reliability and safety use. The FSD uses an integrated computer system, namely the Asset Management and Maintenance System (AMMS — Note 8), to help manage, procure and maintain its FSE.

**1.8 Communications systems.** The Fire Services Communication Centre (FSCC) of the FSD is responsible for mobilising all fire-fighting and ambulance resources. It also acts as a coordinator for government departments and public utilities during major incidents. According to the FSD, the Centre has adopted a sophisticated telecommunication and computer integrated mobilising system, known as the Third Generation Mobilising System (TGMS — Note 9) to enhance the identification, location and mobilisation of fire-fighting and ambulance resources with a view to meeting the targets of graded response time. The TGMS, which is linked to all fire stations, ambulance depots and fireboat stations, facilitates information exchange by means of graphics and text transmission through a wireless digital network. The FSD has also installed a radio communications system, namely the Digital Trunked Radio System (DTRS — Note 10), to provide effective and efficient radio communications at incident scenes. While the TGMS is maintained

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**Note 8:** *In April 2012, the Finance Committee of the Legislative Council approved funding of \$49.8 million under Head 710 of the CWRP for the procurement of the AMMS. As of July 2016, the accumulated expenditure on the AMMS was \$31.5 million.*

**Note 9:** *In May 2000, the Finance Committee approved funding of \$718.6 million under Head 708 of the CWRP for the procurement of the TGMS. As of April 2016, \$708.2 million had been spent.*

**Note 10:** *In May 2009, the Finance Committee approved funding of \$178.3 million under Head 708 of the CWRP for the procurement of the DTRS. As of July 2016, \$135.1 million had been spent.*

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by a private contractor, the DTRS is maintained by the Electrical and Mechanical Services Trading Fund (EMSTF — Note 11) of the Electrical and Mechanical Services Department (EMSD).

1.9 ***Fire appliances and support vehicles.*** As at 1 May 2016, the FSD had a fleet of 434 fire appliances and 186 support vehicles (e.g. staff cars, vans and lorries). The 434 fire appliance fleet comprised 274 frontline fire appliances (such as hydraulic platforms, rescue units, major pumps and turntable ladders — see Photograph 1) and 160 other fire appliances (e.g. mobile command units). The FSD's Workshops and Transport Division (Note 12) is responsible for maintaining 415 fire appliances and 11 support vehicles while the EMSTF is responsible for maintaining the remaining 19 fire appliances (17 of which are specialised fire appliances of the Airport Fire Contingent at the Hong Kong International Airport at Chek Lap Kok — hereinafter referred to as the Airport) and 175 support vehicles (see Appendix B).

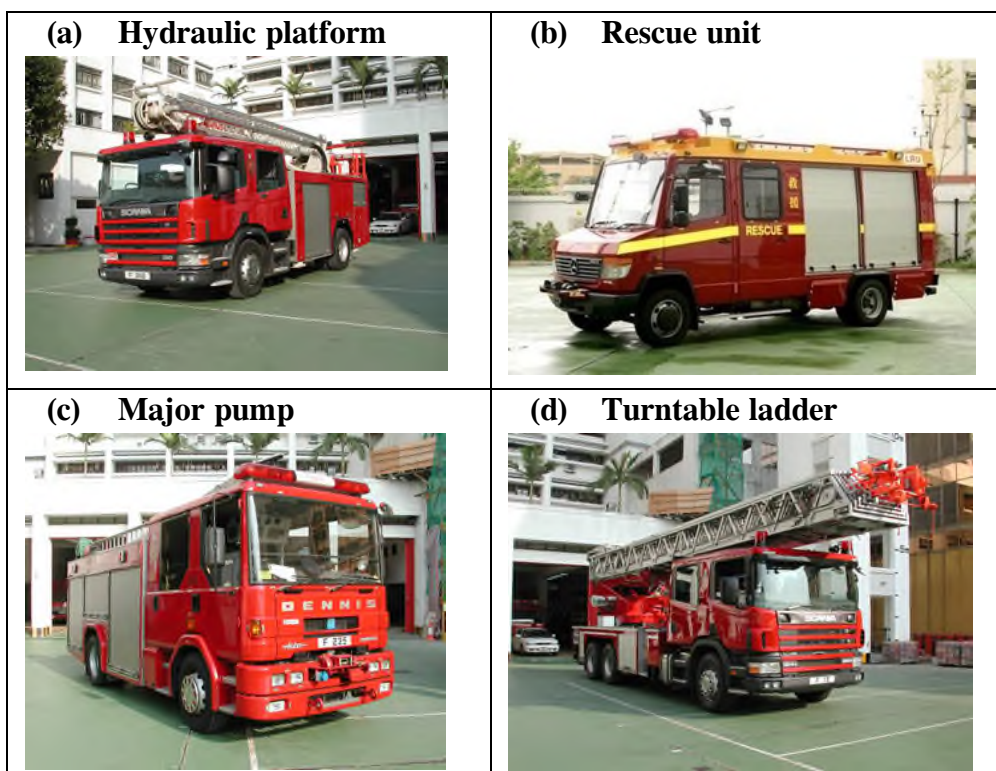
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**Note 11:** *The EMSTF is the trading arm of the Electrical and Mechanical Services Department which provides electrical and mechanical services to government bureaux/departments.*

**Note 12:** *Headed by a Senior Electrical and Mechanical Engineer, the Workshops and Transport Division is responsible for all engineering matters (e.g. design, testing, inspections and maintenance) relating to fire appliances and fire services support equipment.*

## Photograph 1

## Frontline fire appliances



Source: FSD records

Remarks: Frontline fire appliances are the first batch of fire-fighting vehicles deployed to respond to a fire call.

1.10 **Fire-fighting and rescue vessels.** As of July 2016, the FSD operated a fleet of 21 vessels to provide fire-fighting and rescue services within Hong Kong waters. Of the 21 vessels, 10 were acquired and owned by the Airport Authority Hong Kong (AA — Note 13) and they are berthed at the Airport to

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**Note 13:** *The Marine Department is responsible for the maintenance of the 11 FSD vessels while the AA's contractor is responsible for the maintenance of the AA's 10 vessels. While the FSD reimburses the AA its maintenance cost of the 10 vessels, the FSD and hence Audit did not have access to the AA contractor's maintenance records. According to the FSD, it will be responsible for the replacement of the 10 vessels and the MD will then be responsible for the maintenance of the replacement vessels. As such, this audit review focused on the procurement of the fire-fighting and rescue vessels by the FSD.*



## Introduction

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provide emergency services (Note 14). The FSD takes into consideration the overall risk assessment of different regions (such as the distribution of vessels, utilisation of shipping channels, existence of high risk facilities on the sea and along the coastline) in deciding the berthing locations of its fire vessels. According to the SPRs, the MD is the designated endorsement authority and agent for procurement of government vessels. A total commitment of \$295.3 million had been created from 2012-13 to 2015-16 for the FSD to procure vessels (Note 15), but up to 2015-16, no payment had been made.

1.11 ***Other fire services support equipment.*** The fire-fighting and rescue work of the FSD requires major FSE and other support equipment such as light portable pumps, positive pressure blowers, portable electricity generators and personal protective equipment (e.g. protective suits, helmets and gloves). As of July 2016, there were some 19,000 types of operating assets in the FSD either maintained by the Workshops and Transport Division or its maintenance contractors.

## Audit reviews

1.12 In 2004, the Audit Commission (Audit) conducted a review of “Management and maintenance of fire-fighting and rescue vehicles” covering the maintenance services provided by the FSD’s workshops and the EMSTF, and the management of the stocks of spare parts and traffic accidents involving the fire-fighting and rescue vehicles. The results were reported in Chapter 6 of the Director of Audit’s Report No. 42 of March 2004. In 2008, Audit conducted another review of “Emergency ambulance service” covering the procurement, replacement and maintenance of ambulances, the results of which were reported in Chapter 4 of the Director of Audit’s Report No. 51 of October 2008. In May 2016,

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**Note 14:** *The 10 vessels berthed at the Airport provide search and rescue service in accordance with the standards and recommended practices of the International Civil Aviation Organisation.*

**Note 15:** *The total commitment comprised: (a) \$85 million and \$13.3 million created in 2012-13 and 2015-16 respectively for the replacement of Fireboat No. 7 (see para. 4.5); (b) two commitments of \$16 million each created in 2013-14 and 2015-16 for the replacement of two diving support speedboats; and (c) \$125 million and \$40 million created in 2015-16 for the acquisition of a new fireboat and a new rescue vessel respectively.*

Audit commenced a review to examine the FSD's work on the procurement and maintenance of FSE (Note 16), focusing on:

- (a) communications systems (PART 2);
- (b) fire appliances and support vehicles (PART 3);
- (c) fire-fighting and rescue vessels (PART 4); and
- (d) other fire services support equipment (PART 5).

Audit has found room for improvement in the above areas and has made a number of recommendations to address the issues.

## General response from the Government

1.13 The Director of Fire Services generally agrees with the audit recommendations.

1.14 The Secretary for Security welcomes the audit recommendations. He has said that the FSD will, in consultation and collaboration with the relevant departments, follow up on the recommendations, and the SB will monitor the progress of the follow-up actions and ensure that the recommendations are implemented as far as possible in a timely manner.

## Acknowledgement

1.15 Audit would like to acknowledge with gratitude the assistance and full cooperation of the staff of the FSD, the EMSD, the GLD and the MD during the course of the audit review.

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**Note 16:** *This audit review has not covered the ambulance fleet, except in so far as the TGMS and the DTRS equipment installed in them is concerned.*

## PART 2: COMMUNICATIONS SYSTEMS

2.1 This PART examines the procurement and maintenance of the following two communications systems:

- (a) Third Generation Mobilising System (paras. 2.2 to 2.21); and
- (b) Digital Trunked Radio System (paras. 2.22 to 2.32).

### Third Generation Mobilising System

2.2 The TGMS is a mission-critical system for the mobilisation of the FSD's fire-fighting and rescue resources to the incident scenes. The TGMS, comprising 21 sub-systems, provides a command and control system for the efficient deployment of fire and ambulance resources to scenes of emergencies by enhancing the identification, location and mobilisation of resources. It has been put into use since 2005 to replace the Second Generation Mobilising System (SGMS) which was commissioned in 1991. According to the FSD's consultancy study of 1999, the SGMS would reach the end of its serviceable life in 2003 and its capacity would not be able to cope with the growth in emergency call volume.

2.3 In May 2000, the SB obtained funding approval of \$718.6 million from the Finance Committee (FC) of the Legislative Council for procuring the TGMS. The approved funding of \$718.6 million comprised: (a) \$631.9 million for the procurement and installation of the TGMS; (b) \$35.6 million for the construction and related building services works; (c) \$13 million for engaging trading fund services; (d) \$27.6 million for the hiring of staff and services for project implementation; and (e) \$10.5 million for contingency (Note 17). According to the funding paper, the TGMS would:

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**Note 17:** *Up to April 2016, the actual expenditure amounted to \$708.2 million, which comprised: (a) \$563.1 million for the procurement and installation of the TGMS; (b) \$81.2 million for engaging trading fund services (see para. 2.10); (c) \$42.8 million for the construction and related building services works; and (d) \$21.1 million for the hiring of staff and services by the FSD and other departments for project planning and implementation.*

- (a) replace the SGMS in 2003;
- (b) provide a larger design capacity to handle fire and ambulance calls, enhancement in various mobilising activities and resource identification, and flexibility for upgrading to cope with growth in emergency call volume; and
- (c) comprise a number of sub-systems (see Appendix C for details of the major sub-systems) and TGMS equipment (e.g. console workstations and mobile data terminals) would be installed in the FSCC (see Photograph 2), fire stations, fireboat stations, ambulance depots, fire appliances and ambulances (see Photograph 3), vessels and base stations in remote sites (e.g. tunnels and hilltops).

### Photograph 2

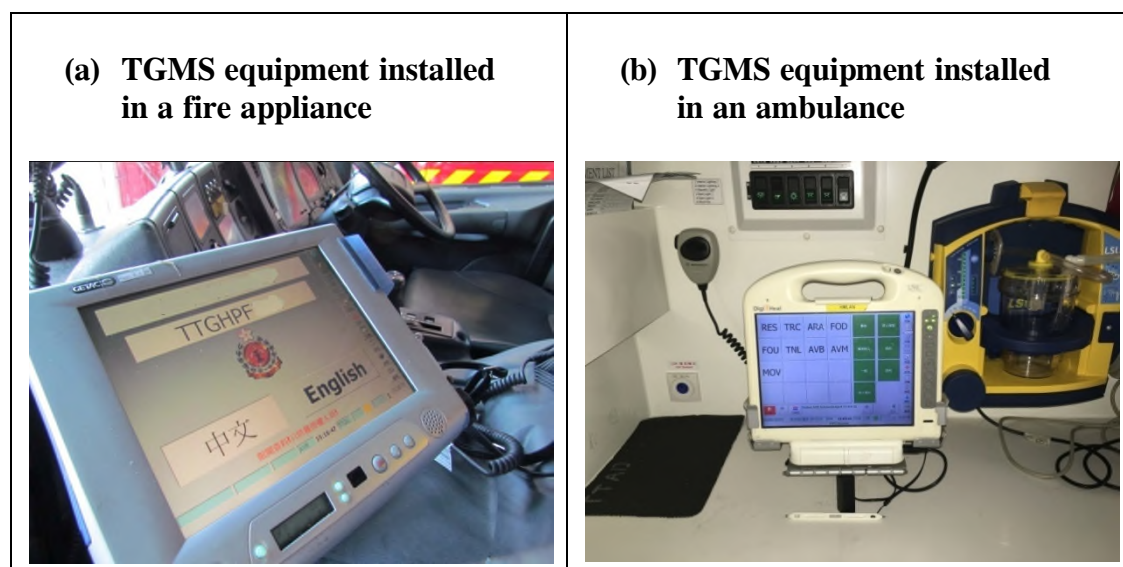
#### TGMS installed in the FSCC



*Source: FSD records*

**Photograph 3**

**TGMS installed in FSD vehicles**



*Source: FSD records*

2.4 In light of the delay in commissioning of the TGMS in 2005 instead of 2003, Audit conducted a review and the findings are set out in paragraphs 2.5 to 2.9. The TGMS has a design serviceable life of 10 years and extendable to 15 years. In 2015, the FSD decided to extend the use of the TGMS to April 2022 (Note 18). Audit also reviewed other operational and maintenance related issues after commissioning the TGMS and the findings are set out in paragraphs 2.10 to 2.15.

### ***Delay in commissioning of the TGMS***

2.5 The FSD implemented the TGMS project through the following arrangements:

- (a) letting out a contract (Contract A) for the design, supply, implementation, commissioning, maintenance and other related services for the TGMS;

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**Note 18:** *In 2014, the FSD commissioned a consultancy study to prepare for the replacement/upgrade of the TGMS.*

- (b) engaging the Architectural Services Department to carry out the construction and related building services works (e.g. fitting out works for the FSCC); and
- (c) engaging trading fund services (e.g. the EMSTF) for providing professional advice on the design, implementation and commissioning of the TGMS and hiring of additional staff including those from other departments (e.g. the then Information Technology Services Department, now the Office of the Government Chief Information Officer) for the management, logistics and development support of the implementation of the TGMS.

2.6 In accordance with the SPRs, Contract A was procured by open tendering (Note 19). The tender documents were prepared by the FSD for vetting by the then Government Supplies Department (now the GLD — Note 20) and the Department of Justice (DoJ). A marking scheme was adopted in the tender evaluation process (Note 21). In March 2001, upon the advice of the Central Tender Board (CTB), the then Secretary for the Treasury (now the Secretary for Financial Services and the Treasury) approved the award of Contract A to Contractor A for:

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**Note 19:** *The SPRs provide that departments should as far as practicable adopt open tendering for invitation of tenders so as to promote fair, competitive and open bidding.*

**Note 20:** *The Government Supplies Department merged with the Government Land Transport Agency and the Printing Department to form the GLD in July 2003.*

**Note 21:** *The relative weightings for technical and price assessments were 60% and 40% respectively.*

## Communications systems

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- (a) the procurement and installation of the TGMS cum one-year warranty at a contract sum of \$443.2 million (Note 22); and
- (b) a nine-year post-warranty maintenance service at a contract sum of \$350.8 million (Note 23).

2.7 In the course of implementing Contract A, there were some delays in completing certain milestones. The delays (by a comparison of the scheduled and actual completion dates) and the underlying reasons are summarised in Table 3. According to the FSD, it encountered various challenges in implementing the TGMS (Note 24).

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**Note 22:** *Up to April 2016, \$563.1 million was incurred for the procurement and installation of the TGMS (see Note 17 to para. 2.3), which comprised: (a) \$451.3 million under Contract A and the related contract variations (see Note 27 to para. 2.11); (b) \$53.6 million for settling an extra-contractual claim by Contractor A (see para. 2.8(b)); and (c) \$58.2 million for other expenditures for the implementation of the TGMS project (e.g. miscellaneous upgrades and enhancements to the TGMS procured through tendering/quotations in accordance with the SPRs requirements).*

**Note 23:** *The annual post-warranty maintenance service cost might be adjusted after the first year in accordance with the Consumer Price Index (B) figures published by the Census and Statistics Department. The post-warranty maintenance service cost was recurrent in nature and funded under the FSD's annual provision in the General Revenue Account.*

**Note 24:** *According to the FSD, in order to develop an advanced mission-critical system to cope with the rapid development of Hong Kong, it had spent enormous efforts in overcoming the unforeseen obstacles arising from the tremendous changes to be incorporated into the TGMS under development as compared with the SGMS in terms of operational workflow requirements, system architectures and advancement in information and communications technology such as the introduction of the advanced geographical information system, wireless digital network and data transmission technology.*

Table 3

**Delays in completing some milestones  
under Contract A and the underlying reasons**

Key milestone	Completion date		Underlying reasons for the delays
	Scheduled	Actual	
Project initiation	Apr 2001	Apr 2001	N/A
Detailed system design	Jan 2002	Oct 2002	(i) change of design of the FSCC to cope with operational needs (in terms of workflow requirements, operational accuracy, efficiency and flexibility to handle disastrous situations) and slippage in the building works of the FSCC by the Architectural Services Department;  (ii) difficulties in deploying technical staff during the outbreak of Severe Acute Respiratory Syndrome;  (iii) changes of user requirements (e.g. change of software design to cope with the implementation of newly introduced services namely the First Responder and the Fire Motorcycle in 2003); and  (iv) extended SATs due to the need to align the test approaches and passing criteria of the SATs for some sub-systems with Contractor A.
Site preparation and building service works	Jan 2002	Jul 2003	
Programme development and system installation	Dec 2002	Jun 2005	
System rollout	Sep 2003	Mar & Jun 2005 (Note 1)	
Completion of System Acceptance Tests (SATs)	Dec 2003 (Note 2)	Apr 2007	

Source: FSD records

Note 1: The TGMS was commissioned in the New Territories Command in March 2005 and in the Hong Kong and Kowloon Commands in June 2005.

Note 2: According to Contract A, a series of SATs would be carried out from October 2002 to December 2003. The last SAT was a three-month live performance and system reliability test which would be carried out after the system rollout to monitor the system performance.



2.8 As shown in Table 3 in paragraph 2.7, the TGMS was put into use in March 2005, i.e. 25 months before the completion of the SATs. This was because the SGMS contractor indicated that it could no longer provide maintenance services due to the shortage of spare parts for maintenance of the outdated hardware of the SGMS. The FSD was of the view that without a mobilising system in place, the FSD would be at the risk of being incapable of mobilising fire and ambulance resources effectively and efficiently. Therefore, there was an imminent need to roll out the TGMS in parallel with the ongoing SATs in March 2005 in order to avoid any interruption of the FSD's daily operation. However, the commissioning of the TGMS before the completion of the SATs had led to the following problems in the first two years of operations:

- (a) ***Targets of graded response time not met in the first year.*** As the TGMS was commissioned phase by phase in March and June 2005 before the completion of the SATs in April 2007 (see Table 3), there were both technical issues on the system side and teething problems for the frontline staff to adapt to the operation of the new system in the first year. As a result, the graded response times were only met in 89.2% of the fire calls and 89.6% of the emergency ambulance calls in 2005-06, i.e. below the target of 92.5%; and
- (b) ***Payment for live operation support of the TGMS before completion of the SATs.*** According to Contract A, the SATs were scheduled to be completed within 3 months after the system rollout and the one-year warranty should commence after completion of the SATs (which turned out to be in April 2007). As a result, Contractor A had to support the live operation of the TGMS for a period of 25 months (i.e. from March 2005 to April 2007) before the commencement of the warranty. While such additional service was outside the scope of Contract A, the FSD had neither sought the approval of the FSTB (i.e. the authority for approving variations to GLD contracts awarded on the advice of the CTB with the accumulated value of the variations exceeding \$15 million) for a contract variation (contrary to the SPRs requirement) nor agreed with Contractor A on whether and how the live operation support service fee should be paid before commencing the service. According to the FSD, it had been the department's understanding at that time that the maintenance and support of the TGMS were covered in the terms of Contract A even though the SATs had yet to be completed. Therefore, it did not see the need for a variation of the contract. It was not until June 2006 when Contractor A submitted a claim for the live operation support services

provided since the system rollout that the FSD realised that the services fell outside the original contract scope, and hence approval was only sought for contract variation afterwards. In approving the settlement of the claim in February 2007, the FSTB commented that the case was far from satisfactory and reminded the FSD to seek prior approval from the relevant authority for any variation to the existing contract in accordance with the SPRs. In the event, Contractor A was paid \$53.6 million for providing the live operation support services (Note 25).

2.9 The FSD needs to observe the SPRs requirements in procuring services outside the scope of a contract and take measures to protect the government interest in such situation. To prevent recurrence of similar problems, Audit considers that the FSD also needs to take measures to tackle the root causes of contract delays. For example, one of the causes of delay in Contract A was changes in user requirements (see item (iii) in Table 3 in para. 2.7). The FSD needs to improve the preparation of user requirements to minimise subsequent changes after the award of contract. As for the slippage in building works of the FSCC (see item (i) in Table 3), the FSD needs to closely liaise with the works agents (such as the Architectural Services Department) to sort out any unresolved issue of the installation site at the earliest opportunity.

### ***Operational issues of the TGMS***

2.10 ***Additional costs for monitoring the finalisation of outstanding contractual work.*** According to the funding paper submitted by the SB to the FC in May 2000 (see para. 2.3), an estimated \$13 million of the approved funding was for engaging the trading funds (i.e. the EMSTF and the then Office of the Telecommunications Authority Trading Fund, now the Office of the Communications Authority Trading Fund) to provide professional advice on the design, implementation and commissioning of the TGMS. Audit noted that up to April 2016, a total of \$81.2 million had been spent on engaging the trading fund services, comprising:

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**Note 25:** *In accordance with the SPRs, the Permanent Secretary for Financial Services and the Treasury (Treasury) approved the extra-contractual settlement of the claim. The payment was made by three instalments during the period March 2007 to March 2011.*

## Communications systems

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- (a) \$33.4 million (i.e. \$24.1 million for the EMSTF and \$9.3 million for the then Office of the Telecommunications Authority Trading Fund) for paying the trading fund services from 2001 up to the full commissioning of the TGMS in June 2005;
- (b) \$11.9 million from July 2005 to April 2007 for engaging the EMSTF in providing professional advice and monitoring Contractor A's work for completing the SATs; and
- (c) \$35.9 million for engaging the EMSTF in providing professional services after the completion of the SATs for enhancing the TGMS and monitoring Contractor A's finalisation of outstanding contractual work from May 2007 onwards.

Audit found that upon the completion of the SATs in April 2007 (see Table 3 in para. 2.7), the FSD accepted the TGMS on the condition that outstanding contractual work items (e.g. outstanding system functions, training or documentation) were to be handled separately. It took 4 years for the FSD and Contractor A to agree on the arrangements for handling the outstanding contractual work items (Note 26). The agreed arrangements necessitated a variation to Contract A, which was approved by the GLD Tender Board in March 2011. Afterwards, Contractor A spent some 4 years to complete all the agreed outstanding contractual work in August 2015. In Audit's view, the FSD needs to take measures to ensure that outstanding contractual matters are dealt with expeditiously in similar projects in future to minimise professional service cost on contract management.

2.11 *Delay in installation of TGMS equipment on new vehicles.* Under Contract A, Contractor A was required to supply and install up to 763 sets of TGMS equipment on fire appliances, ambulances and vessels. However, there was no contract provision to cater for additional sets of TGMS equipment required by the FSD after September 2004 or for the relocation of TGMS equipment from replaced vehicles to new ones. As a result, the FSD engaged Contractor A to

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**Note 26:** *Of a total of 543 items of outstanding contractual work: (a) 343 items were no longer required and \$14.3 million was deducted from the original contract sum of \$443.2 million; and (b) for the remaining 200 items, contract payment of \$8.3 million was withheld by the FSD and to be released to Contractor A on a quarterly basis based on the items of outstanding work completed.*

provide such services by quotations in case the estimated value of the services required did not exceed \$1.43 million as stipulated in the SPRs. If the estimated value of required services exceeded \$1.43 million, the FSD procured Contractor A's services by means of contract variations (Note 27) prior to 2014 and by means of single tendering since 2014. Audit's examination revealed that, in two cases, the procurement process took a long time to complete, resulting in a delay in installation of TGMS equipment on new vehicles, as follows:

- (a) ***Delay in installing TGMS equipment for new ambulances.*** In September 2013, the FSD was informed that 25 new ambulances would be delivered in the third quarter of 2014 and the installation work of the TGMS equipment should be carried out by then. However, the procurement process took 13 months to complete, i.e. from October 2013 to November 2014 (see Appendix D). As a result, Contractor A carried out the installation work from December 2014 to February 2015, about 7 months after the delivery of the 25 ambulances from May to July 2014. In other words, the ambulances had, on average, been left idle for about 7 months; and
- (b) ***Delay in installing TGMS equipment for new fire appliances.*** In April 2015, the FSD requested the issue of a single tender for the installation of TGMS equipment on 126 new emergency vehicles. In processing the FSD's single tender request, from April to November 2015, the GLD raised 12 rounds of questions on the tender terms and conditions for the FSD's clarification (Note 28). In

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**Note 27:** *Up to June 2016, 42 variation orders had been issued under Contract A. Among them, 30 (71%) did not affect the original contract sum of 443.2 million (e.g. staff replacement and change of sub-contractors). The remaining 12 (29%) variation orders increased the original contract sum by \$35.1 million, which were partly funded by the TGMS project vote (\$8.1 million) and other funding sources (\$27 million). For example, the procurement of additional sets of TGMS equipment for installation on new emergency vehicles was funded by the capital account of the General Revenue Account. In view of the large number of contract variations, the GLD required the FSD to avoid as far as possible further contract variations in September 2013.*

**Note 28:** *According to the FSD, it had provided prompt responses for each round of questions received from the GLD and sent several reminders to the GLD to emphasise the urgent needs to put the new fire appliances into use.*

January 2016, the GLD Tender Board eventually approved the award of the contract. The installation work for 14 fire appliances with delivery dates from May to October 2015 was carried out from March to June 2016, i.e. they had, on average, been left idle for about 7 months.

In Audit's view, there is a need for the FSD and the GLD to take measures to ensure that the procurement of additional TGMS equipment for installation on new emergency vehicles is carried out in a timely manner to avoid similar delays. To streamline the arrangements of procuring additional equipment of the next generation of the mobilising system for installation on new emergency vehicles, the FSD needs to, in consultation with the GLD, explore the feasibility of including requirements in the tender for the supply and installation of necessary equipment on new vehicles and the relocation of the equipment from replaced vehicles to new ones throughout the contract period.

### *Maintenance issues of the TGMS*

2.12 *Target maintenance response time and turnaround time not met.* Contract A has set a target response time (i.e. time required for arrival on scene after a system incident is reported) and a target turnaround time (i.e. time required to rectify a breakdown after arrival on scene) for corrective maintenance of TGMS equipment installed in the FSCC, fire stations, fireboat stations, ambulance depots, fire appliances, ambulances, vessels and base stations in remote sites. Audit's examination revealed that the target response/turnaround times were not met in 2015-16, as follows:

- (a) for the maintenance of the Automatic Vehicle Location System (a sub-system of the TGMS — see para. (c) at Appendix C), the 2-hour response time target was not met in 423 (43%) of 985 cases; and
- (b) the target of 6-hour turnaround time for critical faults (e.g. inaccurate positioning of an emergency vehicle) was also not met in 248 (30%) of 814 cases.

In response to the above findings, the FSD informed Audit in September 2016 that since 2012-13, it had stepped up the mechanism to identify fault cases under the Automatic Vehicle Location System by using a separate computer programme to actively monitor the position of all emergency vehicles. Fault cases identified by

the computer programme were reported in bulk to Contractor A on a daily basis. Under the new mechanism, the total number of fault cases had increased by 152% from 496 in 2011-12 to 1,251 in 2015-16. As a result, Contractor A had encountered difficulties in meeting the target response time and turnaround time for the maintenance services. However, as timely repair of faulty equipment is essential to ensure the operational efficiency of the TGMS in mobilising the FSD's emergency resources, Audit considers that the FSD needs to require Contractor A to strengthen its maintenance services with a view to meeting the contract stipulated response time and turnaround time targets.

**2.13 *Delays in claiming damages in case of default by the contractor.*** According to Contract A, the FSD may claim damages on Contractor A in case of its failure in meeting the performance targets for the maintenance work (Note 29). Audit's examination revealed that there were delays in claiming damages from Contractor A. Up to July 2016, the FSD had only claimed damages for 2009 and the first half-year of 2010. Upon enquiry, the FSD informed Audit in September 2016 that:

- (a) due to the complexities of the formulas used and the significant number of components in various sub-systems of the TGMS, the approach and details of the calculation were only agreed with Contractor A in 2014 after a tedious negotiation;
- (b) based on the confirmed amount of damages claimed for 2009 and the first half-year of 2010, the FSD had made estimation on the damages for the years up to 2015-16 and deducted the estimated damages from the maintenance charges paid to Contractor A in August 2016; and
- (c) pending finalisation of the actual loss suffered, the difference between the estimated damages and the actual damages would be settled through adjustments in the maintenance charges payable to Contractor A in the coming months.

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**Note 29:** *In case of default by Contractor A, it shall pay damages to the FSD on a half-yearly basis with computation methodologies stipulated in the addendum to Contract A, which was concluded in June 2010. For example, for every case of default which exceeded the 2-hour response time, Contractor A shall pay damages at 5% of the monthly maintenance cost of the equipment.*

In Audit's view, the contract right for claiming damages is not just a retributive measure but can also have a deterrent effect on contractors to prevent recurrence of the same unsatisfactory performance. The FSD needs to take measures to ensure that contract damages are claimed in a timely manner.

2.14 ***Lack of competitive bidding for extended maintenance services.*** While the TGMS tender document (which became the contract document upon award of contract) required the design serviceable life of the system to be 10 years and extendable to 15 years, the tenderers were only requested to bid for a nine-year post-warranty maintenance service. In response to Audit's enquiry on the reason for not requesting a bid for the service over the extendable serviceable life, the FSD said that, with the rapid change and development in information and communications technology, it was very difficult for the tenderers to accurately project the maintenance cost under the extensive use of the system over 10 years together with other inflation factors (see Note 23 to para. 2.6). In February 2015, the FSD decided to extend the system use for five years from April 2017 to April 2022 on the same terms and conditions at a mutually agreed maintenance charge in accordance with Contract A. After a lengthy discussion with all concerned parties, the FSD sought the FSTB's approval to extend the maintenance services by means of a contract variation in February 2016. In April 2016, in approving the contract variation, the FSTB requested the FSD and the GLD to negotiate a reduced fee with Contractor A but their efforts were not successful. In the event, the annual fee for the five-year extended maintenance services of \$58.5 million (Note 30) was about 7.4% higher than the existing level in 2015, after discounting the estimated inflation of 4% each year in 2016 and 2017 (see para. 2.6). In view of the significant cost of the maintenance services, the FSD needs to take measures in the future to acquire any extended maintenance services for procurement projects with an extendable design serviceable life through competitive bidding as far as practicable.

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**Note 30:** *In April 2016, the FSTB approved the contract variation on extending the maintenance services to April 2022 at an estimated cost of \$390 million with an option of extending the services for two more years to April 2024 at an estimated cost of \$156 million. The maintenance fee of \$390 million for the five-year services included the cost of \$97.5 million for upgrading the TGMS and procurement of spare parts, and the annual maintenance cost of \$58.5 million. In justifying the contract variation request, the FSD informed the FSTB that the system upgrading was necessary after 10 years of use. According to the FSD, the cost of \$97.5 million for upgrading the TGMS, which represented 22% of the original project cost of \$443.2 million (see para. 2.6(a)), was accepted after considering details of the system upgrading proposals and carrying out detailed sub-systems comparison.*

2.15 ***Need to conduct a post-implementation review.*** As laid down in the best practice guide entitled “A User Guide to Post Implementation Reviews” issued by the Efficiency Unit in February 2009, conducting a post-implementation review is a good practice of modern day public sector management. It helps bureaux and departments evaluate whether a programme/project has achieved its intended objectives, review its performance and capture learning points to improve the delivery and outputs of future programmes/projects. The areas for improvement in implementing the TGMS found by Audit in the above paragraphs highlighted the importance of a post-implementation review. Audit considers that the FSD needs to conduct a post-implementation review of major procurement projects including the TGMS after completion of critical milestones.

### ***Other enhancements for planning the next generation of the mobilising system***

2.16 In 2014, the FSD commissioned a consultancy study to prepare for the replacement/upgrade of the TGMS which would reach the end of its extended serviceable life by 2022 (see para. 2.4). Apart from the lessons highlighted in paragraphs 2.5 to 2.15, there are other enhancements that need to be considered in planning for the next generation of the mobilising system as set out in paragraphs 2.17 and 2.18.

2.17 ***Need to provide mobile phone location identification function.*** As revealed in the consultancy study of the TGMS in 1999 (see para. 2.2), the technology for mobile phone location identification was not mature at that time. Hence, the address identification function of the TGMS (see para. (b) at Appendix C) did not cater for mobile phone calls. Over the years, the subscribed mobile phone numbers had increased by 104% from 8.2 million in 2004-05 to 16.7 million in 2015-16. The percentage of emergency calls from mobile phone users had also increased from 30% in 2001-02 to 44% in 2015-16. With the advancement in information and communications technology (e.g. location services in smartphones) in recent years, the FSD needs to explore the technical feasibility of providing mobile phone location identification function in the next generation of the mobilising system to facilitate speedy and accurate identification of incident addresses reported by mobile phone callers.



2.18 ***Need to set a target time for answering emergency calls.*** The Telephone System of the TGMS was equipped with Computer Telephony Integration technology to facilitate automatic call distribution (see para. (b) at Appendix C) for telephone operators working in the FSCC to attend to emergency calls. According to the FSD's records, of the 864,426 emergency calls which were responded to in 2015-16, the waiting times for 288,002 (33%) calls were 10 seconds or more. Audit's further analysis of the 288,002 calls revealed that the waiting times of 8,747 (3%) were 60 seconds or more. Upon enquiry, in July and September 2016, the FSD informed Audit that:

- (a) the Telephone System of the TGMS had fulfilled the contract specification that it should be properly designed so that no less than 98% of calls could get answered within the maximum acceptable waiting time of 10 seconds; and
- (b) the present service level of answering emergency calls was not attributable to the equipment capacity nor the number of console workstations under the current provision. In fact, the service level mainly depended on the number of telephone operators working in the FSCC and their availability to answer the calls.

Audit noted that the FSD had not set any target time for answering emergency calls. Audit also noted that such performance target had been set for other government services (e.g. 9 seconds for 999 emergency calls set by the Hong Kong Police Force and 12 seconds for 1823 hotline set by the Efficiency Unit). As the time taken to answer emergency calls also affects the timeliness of despatch of emergency resources, the FSD needs to consider setting a target time for answering emergency calls in the design of the next generation of the mobilising system.

## Audit recommendations

2.19 **Audit has recommended that the Director of Fire Services should:**

### *Delay in commissioning of the TGMS*

- (a) seek prior approval from the appropriate authority when services outside the scope of a contract are required and take measures to negotiate the best or most favourable terms for the services;

- (b) **improve the preparation of user requirements to minimise subsequent changes after the award of contract and closely liaise with the works agents to sort out any unresolved issue of the installation site at the earliest opportunity in future procurement projects;**

*Operational issues of the TGMS*

- (c) **take measures to ensure that any outstanding contractual matters are dealt with expeditiously in similar projects in future to minimise professional service cost on contract management;**
- (d) **in collaboration with the Director of Government Logistics, take measures to ensure that the procurement of additional TGMS equipment for installation on new emergency vehicles is carried out in a timely manner;**
- (e) **in consultation with the Director of Government Logistics, explore the feasibility of including in the tender for the next generation of the mobilising system requirements for the supply and installation of necessary equipment on new vehicles and the relocation of the equipment from replaced vehicles to new ones throughout the contract period;**

*Maintenance issues of the TGMS*

- (f) **require Contractor A to strengthen its maintenance services with a view to meeting the contract stipulated response time and turnaround time targets;**
- (g) **take measures to ensure that contract damages are claimed in a timely manner in case of a contractor's default in meeting performance targets for maintenance work in accordance with the contract provisions in future;**
- (h) **for procurement projects with an extendable design serviceable life, take measures to acquire any extended maintenance services through competitive bidding as far as practicable;**

- (i) **conduct a post-implementation review of major procurement projects, including the TGMS, taking on board the audit observations and recommendations in this Audit Report;**

### *Other enhancements for planning the next generation of the mobilising system*

- (j) **explore the technical feasibility of providing mobile phone location identification function in the next generation of the mobilising system to facilitate speedy and accurate identification of incident addresses reported by mobile phone callers; and**
- (k) **consider setting a target time for answering emergency calls in the design of the next generation of the mobilising system.**

## Response from the Government

2.20 The Director of Fire Services agrees with the audit recommendations. He has said that:

### *Delay in commissioning of the TGMS*

- (a) the FSD will improve the preparation of user requirements in formulating the tender for the next generation of the mobilising system by widely consulting the frontline members and respective stakeholders. The FSD will also closely liaise with the works agents on the site installation to avoid undue delay. The FSD will strengthen the monitoring of projects implementation in similar projects to complete all project works in accordance with contract specifications in a timely manner;

### *Operational issues of the TGMS*

- (b) the FSD will collaborate with the GLD, through periodical progress review and inter-departmental meetings, to ensure that the procurement of additional TGMS equipment for installation on new emergency vehicles is carried out in a timely manner;

- (c) the FSD will, in consultation with the GLD, explore the feasibility of including in the tender for the next generation of the mobilising system the requirements for the supply and installation of necessary equipment on new vehicles and the relocation of the equipment from obsolete vehicles to new ones throughout the contract period;

### *Maintenance issues of the TGMS*

- (d) the FSD will instruct Contractor A to strengthen its maintenance services with a view to meeting the contract stipulated response time and turnaround time targets. On the other hand, all contract damages with Contractor A will be settled in the first quarter of 2017;
- (e) for procurement projects with an extendable design serviceable life, the FSD will consult the GLD to acquire any extended maintenance services through competitive bidding as far as practicable;
- (f) after the implementation of the TGMS, the FSD has kept under review its functionalities and operation to ensure that the mission-critical system meets its operational needs. While it may not be practicable for the FSD to follow the guidelines subsequently promulgated by the Efficiency Unit on conducting post-implementation review in full at this point in time, the FSD will conduct a review on major procurement projects after their implementation in the light of the experience gained from their procurement/implementation for the benefit of future projects. Having considered the long lapse of time from the commissioning of the TGMS, the FSD will take on board the audit observations and recommendations to conduct a post-implementation review for the TGMS as far as practicable;

### *Other enhancements for planning the next generation of the mobilising system*

- (g) the FSD will approach the mobile operators to explore the technical feasibility and consult the Office of the Communications Authority on the personal data privacy issue of providing mobile phone location identification function in the next generation of the mobilising system; and

- (h) the FSD will also consider setting a target time for answering emergency calls in the design of the next generation of the mobilising system in accordance with the recommendation of the consultancy study for the replacement/upgrade of the TGMS.

2.21 The Director of Government Logistics accepts the audit recommendations in paragraph 2.19(d) and (e). She has said that the GLD:

- (a) will provide assistance to the FSD to facilitate timely procurement of the FSD's stores and equipment; and
- (b) will assist the FSD to work out the procurement approach for the new mobilising system where necessary.

## **Digital Trunked Radio System**

2.22 In 1997, the FSD used an analogue radio communications system to facilitate communications among frontline officers at the scene of incidents. According to a consultancy study conducted by the EMSD in July 2008, the system should be replaced by a new digital system, namely the DTRS (see para. 1.8), because the analogue system was approaching the end of its serviceable life. In May 2009, the SB obtained the FC's funding approval of \$178 million for procuring the DTRS which would provide the following benefits:

- (a) some 200 portable repeaters could be deployed flexibly inside buildings at the scene of incidents to enhance the reliability and coverage of indoor communications;
- (b) the DTRS would offer improved voice quality and better protection against interference and interception; and
- (c) the DTRS would make more efficient use of the radio spectrum, and had the capacity to provide more voice channels and increase the usable or effective airtime.

2.23 The EMSTF was appointed by the FSD as the management consultant of the DTRS project. After open tendering, the EMSTF, on behalf of the FSD, awarded:

- (a) in March 2010 the DTRS infrastructure contract (Contract B) to Contractor B for setting up the radio infrastructure at a cost of \$44 million; and
- (b) in October 2010 the DTRS terminal contract (Contract C) to Contractor C for procuring terminal equipment (see Photograph 4) at a cost of \$30 million.

**Photograph 4**

**DTRS terminal equipment installed in FSD's vehicles**



*Source: FSD records*

2.24 With the completion of the DTRS infrastructure and terminal equipment installation work, the DTRS was commissioned in February 2012 (Note 31). In December 2012, the FSD engaged the EMSTF to provide post-warranty

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**Note 31:** *According to the funding paper, the DTRS would commission in July 2011. According to the FSD, the 7-month delay in commissioning of the DTRS was mainly due to inclement weather and the unavailability of two remote sites for the installation of DTRS infrastructure equipment.*

maintenance services for both the DTRS infrastructure and terminal equipment (Note 32) at an annual sum of \$8.95 million for the first year. Provision of the maintenance services was incorporated into the then Service Level Agreement (SLA) with the EMSTF which covered the period from April 2006 to March 2016 (Note 33). While the EMSTF's maintenance team carried out maintenance of DTRS terminal equipment, the maintenance of DTRS infrastructure equipment was subcontracted to Contractor B (which provided the DTRS infrastructure). In 2015-16, the maintenance fee of the DTRS charged by the EMSTF amounted to \$12 million.

### *Maintenance services falling short of SLA requirements*

2.25 Under the SLA, the EMSTF was required to provide maintenance for the DTRS infrastructure and terminal equipment, as follows:

- (a) preventive maintenance would be provided on a half-yearly basis; and
- (b) corrective maintenance would be provided to rectify a fault in accordance with the target fault response times and rectification times set for different types of faults (Note 34). The target compliance level was 90% or above in both response time and rectification time.

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**Note 32:** *According to Financial Circular No. 6/2001 (in force at that time), a Controlling Officer might use the in-house services provided by a trading fund if he was satisfied that, having regard to the circumstances of the case (such as special service requirements), inviting competitive bidding for the delivery of such services was not appropriate.*

**Note 33:** *According to the FSD, the SLA was extended for 5 years from April 2016 to March 2021.*

**Note 34:** *Under the SLA, there are a number of target response times and rectification times. For example, for faults relating to DTRS infrastructure equipment in the FSD's Headquarters Building, the maintenance staff are required to arrive on site within 1 hour and rectify the fault within 6 hours for major faults and 12 hours for minor faults.*

According to the FSD, it held regular meetings with the EMSTF to review the maintenance service level under the SLA. However, unlike Contract A of the TGMS (see para. 2.13), there was no provision for claiming damages in the SLA to address default in achieving the target compliance level by the EMSTF or Contractor B.

**2.26 *Preventive maintenance.*** Audit's examination of the preventive maintenance records of the EMSTF for 2015-16 revealed that, when the DTRS terminal equipment installed in a vehicle/vessel was not available for preventive maintenance (e.g. deployed to provide emergency services) in a scheduled visit by the EMSTF maintenance team, the team would not arrange for a supplementary maintenance. Audit's further analysis revealed that, of 1,055 fire appliances, support vehicles, ambulances and vessels under preventive maintenance in 2015-16, the DTRS terminal equipment installed in:

- (a) 310 (29%) vehicles/vessels received all two rounds of preventive maintenance services;
- (b) 433 (41%) vehicles/vessels received only one round of preventive maintenance services; and
- (c) 312 (30%) vehicles/vessels missed all two rounds of preventive maintenance services.

**2.27** Upon enquiry, the FSD and the EMSTF informed Audit in October 2016 that with effect from July 2016:

- (a) in order to improve the service level of preventive maintenance of DTRS terminal equipment of vehicles/vessels in fire/fireboat stations and ambulance depots, a more detailed maintenance schedule would be sent to the FSD in advance for it to make available those stored terminal equipment for preventive maintenance services when the EMSTF teams visit the stations/depos. The stations/depos concerned would be informed of the maintenance scheduled and they could reschedule the maintenance with the EMSTF, if so required; and



- (b) in case that the DTRS terminal equipment was unable to receive preventive maintenance due to operational commitment, the EMSTF maintenance team would provide an outstanding list to the FSD for subsequent despatch to the concerned fire/fireboat stations and ambulance depots. The EMSTF would follow up with the fire/fireboat stations and ambulance depots concerned to carry out the outstanding preventive maintenance.

In Audit's view, the FSD needs to closely monitor the effectiveness of the enhanced measures to ensure that the EMSTF's preventive maintenance services are effectively provided in accordance with the SLA requirements.

2.28 ***Corrective maintenance.*** According to the SLA, the target compliance level for response time of corrective maintenance for the DTRS was 90% or above (see para. 2.25(b)). According to the EMSTF's performance report for 2015-16 submitted to the FSD, the compliance level achieved was 100%. However, Audit's examination of the EMSTF's corrective maintenance records revealed that:

- (a) for the DTRS infrastructure equipment maintained by the EMSTF sub-contractor (Contractor B), the actual compliance level was 78%, i.e. below the 90% SLA requirement. In response to Audit's enquiry, the EMSTF in August 2016 said that:
  - (i) the compliance level was incorrectly reported as 100% because Contractor B had wrongly reported the response time (Note 35) in the monthly reports submitted to the EMSTF;
  - (ii) in cases involving equipment located in the FSD's Headquarters Building, the EMSTF maintenance staff who stationed around-the-clock therein had provided the fault attendance services to the FSD so as to meet the target response time specified in the SLA. However, records were not always kept by the EMSTF in such cases;

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**Note 35:** *Contractor B misinterpreted the response time as the time it picked up a call for assistance instead of the time of actual arrival on scene of incident.*

- (iii) no complaint/enquiry was received from the FSD regarding the response time for the maintenance of the DTRS infrastructure equipment in the FSD's Headquarters Building in 2015-16; and
- (iv) the actual compliance level could reach 93% taking into account the factors mentioned in (ii) and (iii); and
- (b) for the DTRS terminal equipment maintained by the EMSTF maintenance team, Audit could not verify the reported 100% compliance rate because the team had not recorded essential information (such as the call receipt time and arrival time).

Upon enquiry, the FSD informed Audit in September 2016 that the EMSTF would review and closely monitor the service level of Contractor B for the DTRS maintenance to ensure that the actual service level would comply with the SLA requirements at all stages of maintenance work. Audit considers that the FSD should closely monitor the EMSTF's maintenance work to ensure that the agreed service requirements specified in the SLA are achieved and properly reported. To ensure the delivery of quality maintenance services, the FSD also needs to consider introducing provisions for claiming damages in future SLAs to guard against any non-compliance with the stipulated maintenance requirements by the EMSTF (see para. 2.25).

### **Audit recommendations**

**2.29      Audit has *recommended* that the Director of Fire Services should:**

- (a) **closely monitor the compliance by the EMSTF with the service requirements stipulated in the SLA to ensure that:**
  - (i) **preventive maintenance services for the DTRS terminal equipment are effectively provided in accordance with the SLA requirements;**
  - (ii) **corrective maintenance services are provided in a timely manner; and**

- (iii) **the actual service level of corrective maintenance services is accurately reported and properly documented; and**
- (b) **consider introducing provisions for claiming damages in future SLAs to guard against any non-compliance with the stipulated maintenance requirements by the EMSTF.**

2.30 **Audit has also *recommended* that the Director of Electrical and Mechanical Services should take measures to ensure that:**

- (a) **the maintenance work of the DTRS terminal equipment complies with the service requirements as stipulated in the SLA; and**
- (b) **proper records are kept by the EMSTF maintenance team for corrective maintenance provided for the DTRS.**

## Response from the Government

2.31 The Director of Fire Services agrees with the audit recommendations in paragraph 2.29. He has said that, in addition to the improvement measures mentioned in paragraph 2.27:

- (a) the FSD has asked the EMSTF to submit maintenance records in a timely and accurate manner for the FSD's monitoring of the maintenance services; and
- (b) the FSD will approach the EMSTF to explore the feasibility of introducing provisions for claiming damages in future SLAs to guard against any non-compliance with the stipulated maintenance requirements by the EMSTF.

2.32 The Director of Electrical and Mechanical Services agrees with the audit recommendations in paragraph 2.30. He has said that, in addition to the improvement measures mentioned in paragraph 2.27:

- (a) Contractor B has been instructed to correctly input data on the fault receiving time, the appointment time, the fault attendance time, and the fault completion time for proper calculation of the fault response time and fault rectification time; and
- (b) EMSTF staff have been reminded to accurately record similar data in the corrective maintenance job cards for proper calculation of the fault response time and fault rectification time.

## **PART 3: FIRE APPLIANCES AND SUPPORT VEHICLES**

3.1 This PART examines the procurement and maintenance of fire appliances and support vehicles, focusing on:

- (a) availability of fire appliances and support vehicles (paras. 3.2 to 3.10);
- (b) termination of five fire-appliance procurement contracts (paras. 3.11 to 3.12);
- (c) replacement of diesel vehicles not meeting European emission standard IV (hereinafter referred to as pre-Euro IV diesel vehicles — paras. 3.13 to 3.19);
- (d) scheduled maintenance (paras. 3.20 to 3.29); and
- (e) dormant stocks of vehicle spare parts (paras. 3.30 to 3.36).

### **Availability of fire appliances and support vehicles**

3.2 The FSD has to ensure that its fire appliances and support vehicles are in an immediate state of readiness to respond to emergency calls at all times. As of May 2016, the FSD had a fleet of 620 fire appliances and support vehicles, comprising 434 fire appliances and 186 support vehicles (see para. 1.9). Their expected serviceable lives (Note 36), which were assessed by the engineers in the EMSTF/Workshops and Transport Division (see para. 1.9), ranged from 5 to 15 years (see Table 4). Of these 620 vehicles, 565 (91 %) were serviceable vehicles and 55 (9 %) were supernumerary vehicles which were replaced old vehicles but retained for either training or reserve purposes (i.e. for temporary deployment to different fire stations when their serviceable vehicles were under maintenance).

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**Note 36:** *According to the FSD, expected serviceable life is one of the factors to be considered when deciding whether a vehicle has to be replaced (see para. 3.3 for details).*

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## Fire appliances and support vehicles

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According to the FSD, these supernumerary vehicles are essential to the effective operation in terms of maintaining the availability of the vehicle fleet and meeting training requirement (Note 37).

**Table 4**  
**Expected serviceable lives**  
**of fire appliances and support vehicles**  
**(1 May 2016)**

Vehicle type	Number of vehicles		Expected serviceable life (Year)
	Serviceable	Supernumerary	
Frontline fire appliances	241	33	10 — 15
Other fire appliances	147	13	6 — 15
Sub-total	388	46	—
Support vehicles	177	9	5 — 9
Total	565	55	—

*Source: FSD records*

**3.3 Vehicle procurement strategy.** Since 2011, the FSD has prepared its annual Departmental Procurement Strategy. The document covers topics such as the FSD's procurement strategy, an action plan for the procurement of the FSE in the coming year, a 10-year procurement plan for its FSE and a performance review of the achievement of the action plan of the preceding year. When devising the procurement plans of its fire appliances, the FSD takes into consideration factors such as: types, functions and serviceable lives of its fire appliances; maintenance and replacement costs; technical advice given by the Workshops and Transport

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**Note 37:** *The FSD had not set a ratio for the number of supernumerary vehicles against its serviceable vehicles. According to the FSD, in deciding the number of supernumerary vehicles to be kept, it would take into consideration factors such as the fleet condition, operational requirements and capacity of maintenance teams in the workshops. The number of supernumerary vehicles increased by 10 (22%) from 45 in March 2011 to 55 in May 2016.*

## Fire appliances and support vehicles

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Division and the EMSTF; breakdown and fault rates of its fire appliances and availability of spare parts. According to the FSD, usually, the condition of a vehicle would be critically and regularly reviewed according to the above factors when the vehicle approaches the end of its expected serviceable life. The FSD will then determine if it is fit for the vehicle to continue its service or a planned replacement is needed. According to the 2015 Departmental Procurement Strategy, the FSD adopted the following principles in devising the 10-year procurement plan of its fire appliances:

- (a) replacing diesel vehicles of 15 years old;
- (b) replacing vehicles reaching the end of their serviceable lives as far as possible, with due consideration of the conditions of individual vehicles;
- (c) evening out the expenditure for procuring new fire appliances as far as practicable (subject to its plan to phase out pre-Euro, and Euro I to Euro III diesel vehicles by December 2019 — see paras. 3.13 and 3.14); and
- (d) giving priority to procuring frontline fire appliances (see para. 1.9).

3.4 **Vehicle age profile.** To ascertain the age profile of the FSD's vehicle fleet, Audit performed an ageing analysis of the 620 fire appliances and support vehicles. As at 1 May 2016, of the FSD's 620 vehicles, 246 (40%) vehicles (comprising 191 serviceable fire appliances and support vehicles and 55 supernumerary vehicles — Note 38) had exceeded their expected serviceable lives (averaging 4 years — see Appendix E). Audit noted that:

- (a) of the 388 serviceable fire appliances (see Table 4 in para. 3.2), 114 (29%) had, on average, exceeded their expected serviceable lives by 4.5 years;

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**Note 38:** *According to the FSD, it will carefully assess the reliability, roadworthiness and operational suitability of those replaced vehicles before they are arranged to become supernumerary vehicles. These supernumerary vehicles will undergo the same level of scheduled maintenance (see paras. 3.20 and 3.21) as other vehicles of the fleet so as to ensure that such arrangement provides good value for money.*

- (b) of the 177 serviceable support vehicles (see Table 4), 43 (24%) had, on average, exceeded their expected serviceable lives by 2.5 years; and
- (c) of the total 55 supernumerary vehicles (see Table 4), 37 (67%) had, on average, exceeded their expected serviceable lives by 7.7 years.

***Availability rate of fire appliances and support vehicles***

3.5 ***Target availability rates.*** For the 415 fire appliances and 11 support vehicles maintained by the FSD's Workshops and Transport Division (see Appendix B), the FSD has set a target availability rate (Note 39) of 90%. For the 19 fire appliances and 175 support vehicles under the EMSTF's maintenance (see Appendix B), the FSD has stipulated in the SLA a target availability rate of 92%. According to the SLA, the 92% availability rate only accounts for downtime due to normal maintenance work. Downtime caused by factors not controlled by the EMSTF (e.g. repair of damages caused by car accident) is excluded from the computation. However, for calculating the availability rate of vehicles under the Workshops and Transport Division's maintenance, all downtime will be taken into account.

3.6 ***Actual availability rates.*** While the EMSTF achieved the target availability rates for the last three years 2013-14 to 2015-16 (i.e. the actual availability rates were 95.4%, 95.8% and 96.8% respectively), the Workshops and Transport Division could not achieve the target availability rate in the corresponding period. As indicated in Table 5, the actual availability rates decreased from 88.6% in 2013-14 to 84.9% in 2015-16.

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**Note 39:** *Availability rate of a vehicle is calculated by dividing the number of hours that the vehicle is available for operation against the total number of hours in a month.*



## Fire appliances and support vehicles

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**Table 5**

**Availability rate of fire appliances and support vehicles  
maintained by the Workshops and Transport Division  
(2013-14 to 2015-16)**

Workshop	Availability rate		
	2013-14	2014-15	2015-16
Hong Kong Workshop	89.2%	88.4%	88.3%
Kowloon Workshop	88.6%	89.3%	85.5%
New Territories Workshop	88.1%	88.2%	81.9%
Overall (Note)	88.6%	88.6%	84.9%

*Source: FSD records*

*Note: Overall availability rates were weighted average figures.*

3.7 Upon Audit's enquiry on the non-achievement of the target availability rates in the three years 2013-14 to 2015-16, the Workshops and Transport Division informed Audit in June and August to October 2016 that:

- (a) the workload of the Division's workshop staff had increased by 22% since 2004, partly attributed to the increase in number of fire appliances, fire-fighting equipment and supernumerary vehicles (see Note 37 to para. 3.2). In addition, traffic accidents involving FSD vehicles (Note 40) and ad hoc jobs (e.g. modification of vehicles to house fire-fighting equipment to suit operational needs) throughout the years resulted in additional maintenance time and hence affected the availability rates. Moreover, the workforce size had decreased by 11% from 137 in 2004 to 122 in 2016;

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**Note 40:** *The numbers of traffic accidents involving fire appliances and support vehicles of the FSD were 136, 134 and 156 in 2013, 2014 and 2015 respectively.*

- (b) the Division had taken the following remedial measures to improve the availability rates of vehicles:
  - (i) outsourcing some repair works (e.g. tyres and air-conditioners) to maintenance contractors to reduce the downtime;
  - (ii) using state-of-the-art technology to improve the maintenance effectiveness (e.g. using better type of engine lubrication oil and gearbox hydraulic oil); and
  - (iii) according priority to vehicles with greater maintenance need (e.g. in case of significant delays in scheduled maintenance, the workshops would defer the scheduled maintenance of recently acquired vehicles for one to two months so that older ones could undergo scheduled maintenance first);
- (c) the Division believed that the operation of the FSD had not been affected after the implementation of the remedial measures in (b) above. Notwithstanding this, the FSD would continue to review the number of supernumerary vehicles required as operational reserves (see para. 3.2) and the number of maintenance staff required. Subject to the result of the review, the FSD would bid funds to procure extra vehicles to serve as operational reserves and recruit extra maintenance staff if necessary; and
- (d) due to input errors, the 2015-16 availability rate as indicated in the report generated by the AMMS (see para. 1.7) might have been affected and become inaccurate. While it was not practicable to recalculate the availability rate for 2015-16, the availability rate for August 2016 was 89.5% after the input errors had been rectified.

3.8 Audit noted the Workshops and Transport Division's efforts to improve the availability rate. However, given that the target availability rate was consistently not met from 2013-14 to 2015-16, the FSD needs to closely monitor the effectiveness of the Division's remedial measures in addressing the issue and take further measures where necessary.

### Audit recommendation

3.9        **Audit has *recommended* that the Director of Fire Services should closely monitor the effectiveness of the Workshops and Transport Division's remedial measures in attaining the 90% target availability rate of the fire appliances and support vehicles, and take further measures where necessary.**

### Response from the Government

3.10        The Director of Fire Services agrees with the audit recommendation. He has said that:

- (a)        the FSD will take necessary measures to attain the 90% target availability rate of the fire appliances and support vehicles; and
- (b)        among the 114 vehicles which had exceeded their expected serviceable lives as at 1 May 2016 (see para. 3.4(a)), the oldest 18 vehicles were originally planned for replacement but affected by unexpected contract disputes (see paras. 3.11 and 3.12). While ensuring that these vehicles were suitable for extending their serviceable lives, the FSD had expedited the re-tender exercises. In fact, all these 18 vehicles had been replaced or condemned as at July 2016. Excluding these 18 oldest vehicles, the remaining 96 vehicles are working in their extended serviceable lives of 7 years or less.

### Termination of five fire-appliance procurement contracts

3.11        Between 2007 and 2009, the FSD obtained funding of \$175.9 million under the capital account of the General Revenue Account for procuring 37 fire appliances with target commissioning dates from May 2010 to January 2012. Between May 2008 and January 2010, the GLD on behalf of the FSD entered into five contracts with two contractors for procuring the 37 fire appliances at a total contract sum of \$136.4 million. However, all the five contracts were terminated by the Government between September 2011 and December 2012. Audit was concerned that this might render the cost and time spent on procuring the 37 fire appliances nugatory. In particular, the FSD paid a total of \$66 million under three of the five contracts but according to the DoJ, a counterclaim had been filed against

the contractor to recover those costs, which is in the legal proceedings pending trial (Note 41). Between January 2012 and March 2014, five new contracts were awarded to procure replacement fire appliances which were eventually put into operation between April 2014 and June 2016, some four years later than the original target commissioning dates from May 2010 to January 2012.

3.12 In light of the DoJ's advice that there are pending or potential legal proceedings under the five contracts, in order not to prejudice any pending or potential court proceedings, Audit will not make any comment in relation thereto in this Audit Report.

### Replacement of pre-Euro IV diesel vehicles

3.13 Under the Air Pollution Control (Vehicle Design Standards) (Emission) Regulations (Cap. 311J), since April 1995, vehicles seeking first registration in Hong Kong have been required to meet the related European (Euro) emission standards. Since the introduction of Euro emission standards in 1993 in Europe, there have been six Euro emission standards, namely Euro I, Euro II, Euro III, Euro IV, Euro V and Euro VI. The standards are progressively becoming more stringent from Euro I to Euro VI. Vehicles registered before April 1995 are classified as pre-Euro vehicles. In general, diesel vehicles registered in early years are more polluting than those registered in later years.

3.14 In his 2013 Policy Address, the Chief Executive of the Hong Kong Special Administrative Region said that in order to reduce roadside air pollution in Hong Kong, the Government had proposed financial subsidies for vehicle owners to phase out their pre-Euro IV diesel commercial vehicles. In line with the Government's environmental policy, the FSD stated:

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**Note 41:** *In February 2012, the contractor of the first three contracts filed a Statement of Claim to the High Court against the Government. Thereafter, the Government had filed a Defence and Counterclaim. According to the DoJ, there might be potential court proceedings for the remaining two contracts.*

## Fire appliances and support vehicles

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- (a) in its 2013 Departmental Procurement Strategy that it would study the feasibility of using electric vehicles as fire appliances and include the replacement of its pre-Euro IV diesel fire appliances in its vehicle procurement plan. The vehicle procurement plan in the 2013 Departmental Procurement Strategy also specified that the FSD would phase out its pre-Euro to Euro II and Euro III diesel vehicles by January 2017 and January 2019 respectively (Note 42);
- (b) in its 2014 Departmental Procurement Strategy that it had earmarked funds for progressively phasing out its pre-Euro IV diesel fire appliances and specialised vehicles (e.g. canteen van, hose layer and mobile command unit) in order to support the Government's emission reduction initiatives. Notwithstanding that the FSD's fire appliances and specialised vehicles were not covered by the Government's replacement plan of diesel vehicles, the FSD still supported the phasing out of its pre-Euro to Euro II diesel vehicles by January 2017 and Euro III diesel vehicles by January 2019 (Note 43); and
- (c) in its 2015 Departmental Procurement Strategy that it would defer the end date of replacing its pre-Euro IV diesel fire appliances and specialised vehicles to December 2019.

### *Slow progress in replacing pre-Euro IV diesel vehicles*

3.15 Audit noted that the progress of replacing the pre-Euro IV diesel fire appliances/specialised vehicles was slow as the target end dates of replacing such appliances/specialised vehicles had already been deferred by three years and one year respectively to December 2019 (see para. 3.14(b) and (c)). Audit further noted that as at 1 May 2016, the FSD still had a total of 250 pre-Euro IV diesel vehicles (see Table 6) in operation, comprising:

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**Note 42:** *The 2013 Departmental Procurement Strategy stated that 55 Euro II and 50 Euro III diesel vehicles should be replaced by January 2017 and January 2019 respectively.*

**Note 43:** *The 2014 Departmental Procurement Strategy stated that 50 Euro III diesel vehicles should be replaced by January 2019.*

## Fire appliances and support vehicles

- (a) 206 serviceable fire appliances and support vehicles (representing 36% of its 565 serviceable fire-fighting and support vehicle fleet); and
- (b) 44 supernumerary vehicles (representing 80% of its 55 supernumerary vehicles or 7% of the 620 fire-fighting and support vehicle fleet — see para. 3.4(c)).

**Table 6**

**Analysis of the FSD's diesel vehicles by Euro emission standards  
(1 May 2016)**

	<b>Pre-Euro (Number)</b>	<b>Euro I (Number)</b>	<b>Euro II (Number)</b>	<b>Euro III (Number)</b>	<b>Total (Number)</b>
<b>Serviceable</b>					
Fire appliances	1	17	98	88	204
Support vehicles	0	0	1	1	2
Sub-total	1	17	99	89	206
<b>Supernumerary</b>					
Fire appliances	9	12	20	1	42
Support vehicles	0	0	1	1	2
Sub-total	9	12	21	2	44
Total	10	29	120	91	250

*Source: Audit analysis of FSD records*

3.16 Audit's analysis revealed that, as at 1 May 2016, 133 of the 206 serviceable pre-Euro IV diesel vehicles had, on average, exceeded their serviceable lives by 3.8 years. Audit's examination of the progress of replacement of these 206 diesel vehicles revealed that as at 1 May 2016, replacement exercises for 163 (79%) vehicles were in progress but the replacement schedule of 43 (21%) vehicles was still under planning.

## Fire appliances and support vehicles

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3.17 Given the procurement lead time of some 36 months (Note 44) for some vehicles (such as hydraulic platforms and major pumps) and that the replacement schedule of the 43 diesel vehicles was still under planning, there is a risk that the FSD could not meet the target replacement date of December 2019. To support the Government's emission reduction initiatives, the FSD needs to closely monitor the progress of replacing the 206 serviceable diesel vehicles and, in particular, expedite action on the 43 vehicles for which replacement schedule was still under planning.

### Audit recommendation

3.18 Audit has *recommended* that the Director of Fire Services should closely monitor the progress of replacing 206 serviceable pre-Euro IV diesel vehicles and, in particular, expedite action on the 43 vehicles for which the replacement schedule was still under planning.

### Response from the Government

3.19 The Director of Fire Services agrees with the audit recommendation. He has said that:

- (a) although fire appliances are exempted from the government-wide replacement plan of pre-Euro IV diesel vehicles, the FSD supports the Government's emission reduction initiative and will revise the fire appliance replacement programme to this effect; and
- (b) the FSD agrees to closely monitor the replacement progress of relevant fire appliances and support vehicles to meet the objective (see para. 3.14(c)).

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**Note 44:** *The procurement lead time was arrived at by counting from the start date of preparation of tender specifications to the target commissioning date as estimated by the FSD in its submission of the Department's draft estimates for 2014-15 and 2016-17.*

## Scheduled maintenance

3.20 The Workshops and Transport Division has a team of some 90 disciplined-grade workshop staff to carry out the maintenance work in its three workshops located on Hong Kong Island, in Kowloon and in the New Territories respectively. The FSD has also entered into an SLA with the EMSTF for maintaining the FSD's specialised fire appliances at the Airport and support vehicles (mainly staff cars and lorries). The number and types of vehicles maintained by the FSD and the EMSTF respectively as of May 2016 are shown at Appendix B.

### *Scheduled maintenance falling short of requirements*

3.21 All the FSD's vehicles are subject to scheduled maintenance which is preventive in nature. The services include replacing consumable items (e.g. lubrication oil and filter), and checking vehicle systems and moving parts (e.g. ladder). The aim is to minimise the number of vehicle breakdowns during fire-fighting and rescue operations (Note 45).

3.22 *Scheduled maintenance carried out by the FSD.* The Workshops and Transport Division is responsible for the maintenance of the FSD's 426 fire appliances and support vehicles (see Appendix B). According to the Division, in order to ensure that the fire appliances and support vehicles are well-maintained, the scheduled maintenance cycles are four months for frontline fire appliances (i.e. 3 rounds per annum), four to six months for other fire appliances (i.e. 2 to 3 rounds per annum) and six months for support vehicles (i.e. 2 rounds per annum). Audit reviewed the implementation of 1,022 rounds of scheduled maintenance of the 426 vehicles from July 2015 to June 2016. Audit found that 86 vehicles

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**Note 45:** *According to the FSD, during the period July 2015 to June 2016, there were 3,021 cases of breakdown maintenance involving the FSD's fire appliances and support vehicles. Among the 3,021 cases: (a) 479 (16%) were breakdowns of vehicles which were unable to be deployed to emergency operations; (b) 36 (1%) cases were vehicle breakdowns either on their way to the scenes of incidents or at the scenes of incidents; and (c) 2,506 (83%) were mainly minor breakdowns identified during inspections by staff at the fire stations. For the vehicles maintained by the EMSTF, there were 106 cases of vehicle breakdowns on the roadside which required the EMSTF's vehicle recovery service in the same period.*



## Fire appliances and support vehicles

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(i.e. 75 frontline fire appliances and 11 other fire appliances and support vehicles), representing 20% of the 426 FSD maintained vehicles, had not undergone all stipulated rounds of scheduled maintenance in the period concerned (Note 46). Besides, as shown in Table 7, there were delays in carrying out 359 (35% of 1,022) rounds of scheduled maintenance for 222 vehicles. Of the 359 cases, 284 (79%) cases involved frontline fire appliances, 49 (14%) involved other fire appliances and 26 (7%) involved support vehicles.

**Table 7**

**Delays in carrying out scheduled maintenance  
for fire appliances and support vehicles  
(July 2015 to June 2016)**

<b>Time elapsed between the scheduled and actual maintenance  (Day)</b>	<b>Frontline fire appliances  (Number of cases)</b>	<b>Other fire appliances  (Number of cases)</b>	<b>Support vehicles  (Number of cases)</b>	<b>Total  (Number of cases)</b>
< 30	222	39	13	274 (76%)
30 to < 60	47	5	6	58 (16%)
60 to < 120	15	3	5	23 (7%)
120 to < 180	–	2	1	3 (1%)
180 to < 210	–	–	1	1 (0%)
Total	284	49	26	359 (100%)

*Source: Audit analysis of FSD records*

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**Note 46:** *For the 75 frontline fire appliances, 72 and 3 appliances had missed 1 round and 2 rounds of scheduled maintenance respectively. For the 11 other fire appliances and support vehicles, they had each missed 1 to 2 rounds of scheduled maintenance.*

3.23 In response to Audit's findings in paragraph 3.22, in June and August 2016, the Workshops and Transport Division said that:

- (a) there were cases where the workshops would defer the scheduled maintenance of recently acquired vehicles for one to two months so that older vehicles could undergo scheduled maintenance first, thus minimising the risk of vehicle breakdown. The daily checking of the fire appliances by the fire station staff could also identify defective components/functions on the appliances and they could call for the assistance of the workshop staff to carry out corrective maintenance; and
- (b) all reserve vehicles were fully engaged at that time and hence, the vehicles concerned could not be released for maintenance. For vehicles which were overdue for maintenance for over two months, maintenance staff of the Division would visit the relevant fire stations to inspect the concerned vehicles.

3.24 *Scheduled maintenance carried out by the EMSTF.* According to the SLA, the EMSTF has to provide scheduled maintenance to the FSD's vehicles. The EMSTF follows the guideline in its work instruction when providing scheduled maintenance service, viz. ranging from 2 rounds (e.g. for cross country vehicles and medium trucks) to 6 rounds (e.g. for large motorcycles) per annum. The EMSTF will inform the FSD of the scheduled maintenance one month in advance of the scheduled date and for any vehicles which have missed the scheduled maintenance, send reminders (via e-mail) every two to three months to the FSD requesting their release for maintenance. However, Audit's analysis of the scheduled maintenance work carried out by the EMSTF from April 2015 to March 2016 revealed that some vehicles had not undergone all stipulated rounds of scheduled maintenance similar to those carried out by the Workshops and Transport Division as mentioned in paragraph 3.22. Of the 194 vehicles maintained by the EMSTF (see Appendix B):

- (a) 10 (5%) vehicles had missed all scheduled maintenance; and
- (b) the number of scheduled maintenance of 23 (12%) vehicles was less than the stipulated frequency (see Table 8).

**Table 8**

**Scheduled maintenance of support vehicles  
below the frequency stipulated in the EMSTF's work instruction  
(April 2015 to March 2016)**

Vehicle type	Number of rounds of scheduled maintenance required per annum	Number of vehicles with missed scheduled maintenance in		
		All rounds	One round	Total
Light bus	3	–	1	1
Medium saloon car	2	9	15	24
Small saloon car	2	1	–	1
Medium van	2	–	7	7
Total		10	23	33

*Source: Audit analysis of EMSTF records*

3.25 In August 2016, the FSD informed Audit that the relevant vehicles could not be released to undergo scheduled maintenance by the EMSTF because all reserve vehicles were fully engaged at that time.

***Need to step up monitoring of compliance with scheduled maintenance requirements***

3.26 According to the FSD, the cases of non-compliance with the scheduled maintenance requirements as stipulated by the Workshops and Transport Division and the EMSTF's work instruction were not brought to the attention of the senior management of the FSD. Audit considers that the FSD needs to step up monitoring of such non-compliance issues and take measures to ensure that all operational vehicles, in particular the frontline fire appliances, receive proper maintenance in a timely manner and are in good working order during emergency operations. The FSD should also explore with the EMSTF the feasibility of providing supplementary service to vehicles that have missed the maintenance on the scheduled dates

(e.g. sending EMSTF maintenance staff to inspect them at relevant fire stations similar to the arrangement made by the FSD's Workshops and Transport Division — see para. 3.23(b)).

### Audit recommendations

**3.27      Audit has *recommended* that the Director of Fire Services should:**

- (a)      step up monitoring of the compliance with the scheduled maintenance requirements, including reporting to the FSD senior management of any non-compliance cases and taking measures to ensure that the fire appliances and support vehicles receive proper maintenance in a timely manner; and**
- (b)      explore with the EMSTF the feasibility of providing supplementary service (e.g. inspection service at fire stations) to vehicles that have missed the maintenance on the scheduled dates.**

### Response from the Government

**3.28      The Director of Fire Services agrees with the audit recommendations. He has said that the FSD will take necessary measures to ensure that its fire appliances and support vehicles undergo proper maintenance in a timely manner to maintain their effective working order.**

**3.29      The Director of Electrical and Mechanical Services agrees with the audit recommendation in paragraph 3.27(b). He has said that the EMSTF has coordinated with the FSD for the provision of a monthly outstanding report listing out those fire services vehicles with deferred preventive maintenance for further arrangement.**

### Dormant stocks of vehicle spare parts

3.30 The Workshops and Transport Division is responsible for the maintenance of the FSD's 426 fire appliances and support vehicles (see Appendix B), which had expected serviceable lives ranging from six years (for mini passenger vans) to 15 years (for hydraulic platforms and aerial ladder platforms). It is the Division's practice to procure and keep adequate vehicle spare parts in order to provide efficient maintenance services over the vehicle serviceable lives. Table 9 shows the expenditure of the FSD on procuring vehicles spare parts in the past three financial years and the inventory value as at 31 March in each financial year.

**Table 9**  
**Expenditure on vehicle spare parts**  
**and year-end inventory value**  
**(2013-14 to 2015-16)**

<b>Financial year</b>	<b>Expenditure (\$ million)</b>	<b>Inventory value as at 31 March (\$ million)</b>
2013-14	29.4	51.8
2014-15	39.6	53.6
2015-16	38.3	61.4
Average	35.8	55.6

*Source: FSD records*

*Remarks: The expenditure and inventory value figures included those for spare parts of other specialised fire services support equipment maintained by the Workshops and Transport Division (see para. 5.15). According to the FSD, there was no readily available breakdown of such records.*

3.31 According to the System Analysis and Design Report of the AMMS, for those spare part items without movement in or out of the storehouses of the Workshops and Transport Division in the preceding three years, the AMMS (see para. 1.7) will classify them as dormant spare parts. In June 2016, Audit requested the P&L Group to generate the dormant stock report as at June 2016 from the

AMMS. Although the inventory data of the three years preceding the rollout of the AMMS in February 2015 had been fully migrated to the AMMS, the P&L Group could not successfully generate a dormant stock report because of unresolved technical problem of the AMMS. As such, Audit carried out an ageing analysis of the dormant spare parts based on the P&L Group's latest available record as of March 2015. The results are shown in Table 10.

**Table 10**

**Ageing analysis of dormant stocks of vehicle spare parts  
(March 2015)**

<b>Dormant period (Note)  (Year)</b>	<b>Number of stock items  (Number)</b>	<b>Amount  (\$ million)</b>
<b>More than 3 years to 10 years</b>		
> 3 to 5	690	4.46
> 5 to 10	1,547	6.83
Sub-total	2,237	11.29
<b>More than 10 years</b>		
> 10 to 15	2,107	7.40
> 15 to 20	1,599	6.93
> 20 to 25	328	0.95
> 25	22	0.05
Sub-total	4,056	15.33
Total	6,293	26.62

*Source: Audit analysis of FSD records*

*Note: The dormant period is counted from the date of last movement to the end of March 2015.*

## Fire appliances and support vehicles

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3.32 Upon Audit's enquiry in August 2016 about the large number of dormant stock items, the FSD said that:

- (a) serviceable lives of some of the vehicles could be longer than 15 years. The Workshops and Transport Division had to hold stocks of spare parts for the corresponding periods; and
- (b) many spare parts could be commonly used for vehicles of different/new models under the same brand.

3.33 However, as indicated in Table 10 in paragraph 3.31, as of March 2015, 1,949 stock items of vehicle spare parts with a total value of \$7.93 million had been kept for more than 15 years (see para. 3.2) without movement in the three storehouses of the Workshops and Transport Division. Audit noted that in February 2013 and July 2014, the FSD carried out two reviews of dormant/excessive spare parts (Note 47) and identified a total of 1,305 such items with an aggregate value of \$1.7 million for disposal. In mid-July 2016 (during the course of this audit review), the FSD informed Audit that another review of the dormant/excessive vehicle spare parts had just started.

3.34 In light of the 1,305 items of dormant/excessive spare parts with an aggregate value of \$1.7 million identified in the 2013 and 2014 reviews for disposal, the FSD needs to improve its inventory control to prevent accumulation of dormant/excessive spare parts. In this connection, Audit noted that the AMMS had a designed inventory control function to forecast spare parts demand based on factors such as past consumption rate, procurement lead time and life span of the spare parts. However, some features of the inventory control function (e.g. issuing notifications automatically to remind users to timely replenish an inventory item — see para. 5.5(a)) had not been put into use due to technical problem. Audit considers that the FSD needs to expedite action on resolving the technical problem of the AMMS so that it can properly perform its designed inventory control function.

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**Note 47:** *An item is classified as excessive by the AMMS if its stock balance is greater than the average annual consumption of the past 36 months.*

## Audit recommendations

- 3.35      **Audit has *recommended* that the Director of Fire Services should:**
- (a)      **improve the inventory control of spare parts for vehicles to prevent accumulation of dormant/excessive stocks; and**
  - (b)      **expedite action on resolving the technical problem of the AMMS so that it can properly perform its designed inventory control function.**

## Response from the Government

3.36      The Director of Fire Services agrees with the audit recommendations. He has said that:

- (a)      the July 2016 review (see para. 3.33) had been completed in one of the three spare parts stores. The review revealed that most of the vehicle spare parts held for 20 years or more should be maintained as they could be used for vehicles of different/new models under the same brand and the production of such spare parts might even have ceased for some time. The Workshops and Transport Division has regularly reviewed the lists of dormant spare parts having regard to the types of fire appliances and equipment in services. As the spare parts for the old model fire appliances and equipment can be out of production, maintaining such spare parts in stock is considered essential to support unforeseen repair operations. The FSD will arrange disposal of such spare parts when the fire appliances and equipment concerned are to be disposed of or when the conditions of the spare parts are no longer suitable for use; and
- (b)      as of October 2016, the AMMS dormant stock report (see para. 3.31) could be generated for reviewing the dormant stock and only the data for “last issue date” in the report was missing. However, it will not affect the review operations as “last issue date” is for reference only (which could be made available from other sources). Moreover, the function of issuing notifications automatically had not been put in use due to teething problem of the AMMS.



## PART 4: FIRE-FIGHTING AND RESCUE VESSELS

4.1 This PART examines the procurement of fire-fighting and rescue vessels.

### Vessel fleet

4.2 As of July 2016, the FSD operated a fleet of 21 fire-fighting and rescue vessels and 23 small boats (Note 48) to provide fire-fighting and rescue services within Hong Kong waters (see para. 1.10). The 21 fire-fighting and rescue vessels included:

- (a) 11 vessels (eight fireboats, one diving support vessel and two diving support speedboats) operated by the Marine and Offshore Islands Division of the Hong Kong Command to provide fire-fighting and rescue services in different areas of Hong Kong waters. These vessels were strategically berthed at six fireboat stations, a diving base and the Airport; and
- (b) 10 vessels (two command boats and eight speedboats berthed at the Airport) operated by the Airport Fire Contingent of the New Territories Command to provide fire-fighting and rescue services at the Airport (see Note 13 to para. 1.10).

4.3 According to the FSD:

- (a) from time to time, the FSD assesses potential fire risks of different areas of waters and flexibly deploys its resources to strategic positions. In the event of incidents, the vessels will be strategically deployed to the incident scenes to provide fire-fighting and rescue services. The years of commissioning and designed maximum speeds of the 21 vessels, and their berthing places as of July 2016 are shown at Appendix F; and

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**Note 48:** *These 23 small boats are mainly dinghies, hovercrafts and inflatable boats.*

- (b) vessels in marine areas are more widely spread and of higher mobility. Unlike the land areas, there is no risk category for the marine areas for regular specific risk assessments. In view of such practical difficulties, the FSD has not set any response times or performance pledges for services provided by its vessels in individual areas of waters. From 2011 to 2015, the FSD handled a total of 212 marine fire incidents (averaging 42 a year, of which 21 were related to vessel fires) and 1,089 marine rescue incidents (averaging 218 a year — Note 49).

4.4 The 21 fire-fighting and rescue vessels operated by the FSD can be categorised into three types with designed serviceable lives of 15 and 20 years. An ageing analysis of the 21 vessels shows that as of July 2016, their service years since commissioning ranged from 7.2 to 26 years (see Table 11). Of these 21 vessels, 14 (67%) (10 speedboats, 2 command boats and 2 fireboats) had exceeded their designed serviceable lives by 0.7 to 11 years (see Appendix G). According to the FSD, the vessels undergo dry-docking inspection, regular overhaul and scheduled maintenance services. With a view to ascertaining their seaworthiness and suitability for operational use, the MD will from time to time conduct condition surveys for the vessels after they reach their serviceable lives.

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**Note 49:** *Marine rescue incidents included those relating to drowning, chemical spillage and ship incidents.*

**Table 11****Ageing analysis of 21 vessels  
(31 July 2016)**

<b>Type of vessels</b>	<b>Designed serviceable life (Year)</b>	<b>Number of vessels</b>	<b>Service years since commissioning (Year)</b>
Fibre-hulled speedboat	15	10	17.1 to 19 (average: 18.3)
Aluminium-hulled fireboat, command boat and diving support vessel	15	5	7.2 to 26 (average: 16.8)
Steel-hulled fireboat	20	6	7.2 to 20.7 (average: 15)

*Source: Audit analysis of FSD records*

## **Replacement of vessels**

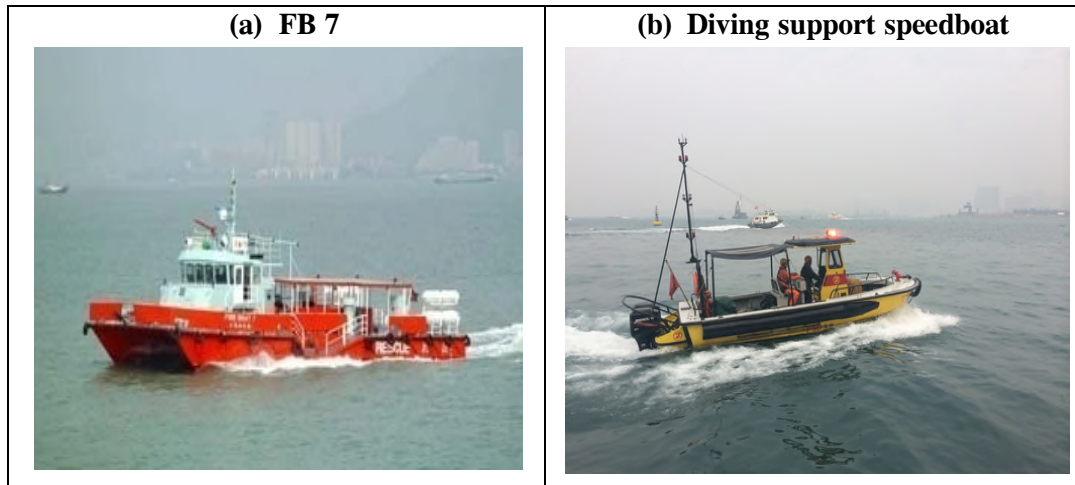
4.5 According to the FSD, there are a number of factors to determine whether a vessel is due for replacement, including its designed serviceable life (see Table 11 in para. 4.4), breakdown frequency and maintenance history (i.e. downtime and maintenance costs). The FSD will also assess the operational requirements of marine services and replace the equipment in a vessel replacement exercise (e.g. expiry of serviceable life of fire pumps installed in the vessels). From 2006 to October 2016, the FSD initiated actions and sought the MD's assistance (Note 50) in replacing a fireboat (i.e. Fireboat No. 7 — FB 7) and two diving support speedboats (i.e. diving support speedboats Nos. 1 and 2). Photograph 5 shows the existing FB 7 and a diving support speedboat which are due for replacement.

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**Note 50:** *The MD is the designated endorsement authority and agent for procurement of government vessels. It is responsible for approval of procurement proposals, concept design and preparation of technical specifications, tendering, and management of shipbuilding contracts for construction of vessels.*

**Photograph 5**

**FB 7 and a diving support speedboat**



*Source: FSD records*

### ***Delay in planning the replacement of FB 7***

4.6 FB 7 is an aluminium-hulled catamaran rescue boat which has been put into service since 1990. According to the FSD, it had been used to provide rescue services to the ex-Hong Kong International Airport at Kai Tak until its closure. With the MD's approval, it was modified and used by the FSD as maintenance reserve for fireboats in 1999. Before FB 7 reached the end of its designed serviceable life of 15 years in 2005, the MD conducted a condition survey and considered that FB 7 could remain in service for several more years. With the passage of time, the performance of FB 7 deteriorated (see para. 4.8(a) and (b)). In late 2009, the FSD initiated actions on procuring a new vessel to replace FB 7. After obtaining the MD's approval of the operational requirements of the new vessel in May 2010, the FSD revised the requirements and informed the MD in April 2011 that enhanced functions should be included in the new vessel in order to cope with the changing requirements for modern operational needs. After obtaining the MD's approval of the revised proposal in July 2011, the SB sought funding approval from the FC in May 2012. According to the 2012 funding paper, FB 7 was the FSD's only rescue boat designated for the purpose of mass rescue in marine areas other

than the Airport (Note 51). A chronology of key events from May 2009 to May 2012 is shown at Appendix H (see paras. 4.8 to 4.13 for developments after May 2012).

**4.7      *Need to improve the planning of operational requirements for vessel replacement projects.*** As indicated at Appendix H, after obtaining the MD's approval of replacing FB 7 in May 2010, the FSD revised the requirements of the new vessel in April 2011 to include the enhanced functions for modern operational needs. In the event, the MD's approval of the revised requirements was obtained in July 2011, i.e. an additional 14 months had been taken to finalise the operational requirements of FB 7 before seeking funding from the FC. Audit noted that some of the operational requirements of the new vessel prepared by the FSD in February 2010 were largely based on those of the existing FB 7 which was designed some 20 years ago, e.g. the proposed use of propeller and simple decontamination facilities. The proposed maximum speed requirement of 28.5 knots was only slightly above the 27.5 knots of the existing FB 7. It appeared that the FSD had not fully taken into consideration the operational requirements of the new vessel in light of the latest technology and operational environment until April 2011 when the FSD proposed various enhancements (see Appendix H), thus contributing to the 14-month delay in the planning process. To prevent recurrence of similar problems in vessel replacement projects, the FSD needs to improve its planning of operational requirements in future.

### ***Delay in implementing the replacement projects for FB 7 and two speedboats***

**4.8      *Funding approval for FB 7.*** In June 2012, the SB obtained funding approval from the FC for replacing FB 7 at an estimated cost of \$85 million. In the funding paper, the FC was informed that:

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**Note 51:** *With a large rescue capacity of 320 persons, FB 7 was mainly responsible for providing port safety and rescue services in Hong Kong waters in case of marine fire and sinking of a large vessel. It also served as a rescue boat and provided necessary on-site decontamination facilities in case of an incident involving a nuclear-powered vessel.*

- (a) FB 7 had been in service for over 20 years. The performance of the fireboat had deteriorated with the annual maintenance downtime due to mechanical fault increasing by about 62% from 24 days in 2008 to 39 days in 2011;
- (b) some components for the major parts such as engine and electricity generator of FB 7 had become obsolete and were no longer available in the market, making the maintenance of FB 7 increasingly difficult. The annual maintenance cost had increased from about \$590,000 in 2008 to about \$1,400,000 in 2011. The maintenance cost would continue to increase as the vessel aged further;
- (c) the FSD planned to procure a new vessel with enhanced fire-fighting and rescue functions and installations to meet the operational requirements more effectively (see Appendix I for the specifications and major equipment of FB 7 and the new fireboat); and
- (d) according to the FSD's plan, the target date of tender invitation would be February 2013 and the target commissioning date of FB 7 would be December 2014.

4.9 ***Funding approval for two speedboats.*** As mentioned in paragraph 4.5, the FSD also initiated actions on replacing two diving support speedboats after the MD's condition assessment in May 2011 revealed their deteriorated performance (e.g. their maximum speed had been reduced by 25% from 40 to 30 knots). The two speedboats with a designed life expectancy of 15 years had been put into service since June 1999. In March 2012, the FSD submitted to the MD a proposal for replacing the two diving support speedboats together with the operational requirements of the proposed new vessels. After obtaining the MD's approval in December 2012, the FSD in May 2013 obtained funding of \$16 million for replacing the two speedboats under the capital account of the General Revenue Account. The tender invitation date and the vessel commissioning date were scheduled for September 2013 and April 2015 respectively.

## Fire-fighting and rescue vessels

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4.10 *Delay in design and tender preparation by the MD.* The MD is responsible for procurement of new vessels for the use of government departments. The work includes concept design, preparing technical specifications and drafting tender document with specifications (Note 52). Shortly after obtaining funding approvals for replacing FB 7 in June 2012 and the two speedboats in May 2013, the FSD noted that the procurement progress had been slow, mainly because of the need to review the vessel procurement procedures and the shortage of experienced staff in the MD to proceed with the pre-tendering work. Despite the FSD's repeated requests to expedite the procurement process, the MD had difficulties in doing so, because there were a number of government vessel procurement projects in the pipeline.

4.11 *Interim measures.* In light of the delays in the procurement of the new vessels, the FSD/MD took the following interim measures:

- (a) replacing one engine of FB 7 by a second-hand one at \$0.8 million in September 2013; and
- (b) replacing the hull and engine of one speedboat at \$1.6 million in February 2015 to ensure that the aged vessel would continue to function properly. The FSD also planned to complete similar upgrading works at an estimated cost of \$2.2 million for the other speedboat in late 2016.

Since 2013, the MD had also taken actions on outsourcing some of its pre-tender work (Note 53 ) and project management work to external consultants. A chronology of key events from June 2013 to October 2016 is at Appendix J.

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**Note 52:** *Subsequent work includes invitation and evaluation of tenders, awarding contracts, approving design and monitoring the construction process, accepting vessels upon delivery, and providing support and professional advice to users during the warranty period.*

**Note 53:** *The outsourcing work included conducting market research on estimated costs of vessels, carrying out feasibility study on the design of vessels, carrying out research of suitability of functions to be incorporated in vessels, and preparing conceptual design and technical specifications for construction of vessels for incorporation in the tender document.*

***Need to closely monitor the progress  
of the replacement projects for FB 7 and two speedboats***

4.12 According to the funding submissions, the new FB 7 was targeted for commissioning in December 2014 while the two new speedboats were targeted for commissioning in April 2015 (see paras. 4.8(d) and 4.9). However, tenders for the two new speedboats and the new FB 7 were invited in September and October 2016 respectively (see Appendix J), some 3 years later than the targeted dates of February and September 2013 (see paras. 4.8(d) and 4.9). The MD estimated that the two speedboats and the new FB 7 would be delivered by July 2018 (i.e. more than three years later than the target commissioning date of April 2015) and August 2019 (i.e. more than four years later than the target commissioning date of December 2014) respectively.

4.13 As a result of the delays, the total financial commitment of the FB 7 replacement project had increased by \$13.3 million (16%) from \$85 million to \$98.3 million while the maintenance cost of the existing FB 7 had increased by 69% from \$1.3 million in 2014-15 (the planned year of replacement) to \$2.2 million in 2015-16. From the operational point of view, the situation was also unsatisfactory as the expected benefits of a new FB 7 with enhanced fire-fighting and rescue functions (see Appendix I) could not be realised earlier. As for the speedboat replacement project, the total financial commitment had increased by 100% from \$16 million to \$32 million to make allowance for the rising cost. Moreover, the objective of speedier arrival at incident scenes by the new speedboats with maximum speed of 40 knots also could not be realised as scheduled. In Audit's view, the MD as the government vessel procurement agent needs to take measures to ensure that the FSD's vessel replacement/procurement projects are implemented in a timely manner. The FSD also needs to closely monitor the progress of the two replacement projects to guard against further slippage.



### ***Need to take measures to ensure the timely implementation of the 10-year vessel replacement/procurement plan***

4.14 Apart from FB 7 and the two speedboats with ongoing replacement projects, another 11 vessels had exceeded their designed serviceable lives (of 15 to 20 years) by 0.7 to 4 years as of July 2016. In 2015, the FSD had drawn up a 10-year procurement plan for replacing the 11 old vessels. In December 2015, the SB informed the Panel on Security that the FSD had planned to procure one new fireboat and one new fast rescue vessel for commissioning in 2018 at estimated costs of \$125 million and \$40 million respectively (Note 54) to enhance its fire-fighting and rescue capability in the eastern waters of Hong Kong (Note 55). Given that a total of 13 fire-fighting and rescue vessels are to be replaced/procured in the coming years, the FSD needs to ascertain from the MD whether it is able to cope with the FSD's 10-year vessel replacement/procurement plan in a timely manner and where necessary, develop a contingency plan, including seeking the MD's assistance to outsource the procurement work to external consultants.

## **Audit recommendations**

4.15 **Audit has recommended that the Director of Fire Services should:**

- (a) **improve the planning of the operational requirements for the FSD's vessel replacement/procurement projects;**
- (b) **closely monitor the progress of the replacement projects for FB 7 and the two speedboats to guard against further slippage; and**
- (c) **ascertain from the MD whether it is able to cope with the FSD's 10-year vessel replacement/procurement plan in a timely manner and where necessary, develop a contingency plan.**

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**Note 54:** *Up to August 2016, the procurement proposals of the two new vessels had not yet been submitted to the MD for its approval.*

**Note 55:** *The eastern waters of Hong Kong include the waters in Sai Kung, east Lei Yue Mun, Tolo Harbour/Tai Po, and northeast and southeast Hong Kong.*

4.16      **Audit has also *recommended* that the Director of Marine should take measures to ensure that the FSD's vessel replacement/procurement projects are implemented in a timely manner.**

## **Response from the Government**

4.17      The Director of Fire Services agrees with the audit recommendations in paragraph 4.15. He has said that:

- (a)      the FSD will keep up-to-date knowledge on fire-fighting and rescue vessels and, where appropriate, introduce such knowledge during the planning stage of the operational requirements for the upcoming vessel replacement/procurement projects; and
- (b)      the FSD has been in close liaison with the MD on the progress of the replacement of FB 7 and the other two speedboats.

4.18      The Director of Marine agrees with the audit recommendation in paragraph 4.16.

## **PART 5: OTHER FIRE SERVICES SUPPORT EQUIPMENT**

5.1 This PART examines the management of other fire services support equipment and their maintenance, focusing on:

- (a) Asset Management and Maintenance System (paras. 5.2 to 5.8);
- (b) fire-fighting protective suits (paras. 5.9 to 5.14); and
- (c) specialised fire services support equipment (paras. 5.15 to 5.20).

### **Asset Management and Maintenance System**

5.2 The FSD has some 19,000 types of operating assets, including major FSE and other support equipment such as light portable pumps, positive pressure blowers, portable electricity generators and personal protective equipment (e.g. protective suits, helmets and gloves). To improve the efficiency and effectiveness of the FSD's asset management, in April 2012, the SB obtained funding approval of \$49.8 million from the FC for the FSD to develop an integrated computer system known as the AMMS to help manage, procure and maintain the FSE (see para. 1.7). With the assistance of the GLD, the FSD prepared the tender document for the procurement contract. In March 2013, the GLD awarded the AMMS contract (Contract D) to Contractor D at a sum of \$86.8 million for:

- (a) the procurement and installation of the AMMS cum one-year warranty at \$38.7 million; and
- (b) nine-year post-warranty system support and maintenance services at \$48.1 million.

5.3 In February 2015, the AMMS was rolled out notwithstanding that two key milestones, viz. IT security risk assessments and completion of SATs, were not fully completed as specified in Contract D (see Table 12).

Table 12

**Completion of key milestones under Contract D  
(July 2016)**

Key milestone	Completion date	
	Scheduled	Actual
Project initiation	Apr 2013	Mar 2013
System analysis and design	Sep 2013	Sep 2013
System development	Jul 2014	Aug 2014
Data conversion	Nov 2014	Sep 2014
IT security risk assessments	Nov 2014	Mar 2016 (Note 2)
Completion of SATs (Note 1)	Nov 2014	Apr 2016 (Note 2)
System rollout	Feb 2015	Feb 2015
System nursing	Aug 2015	Aug 2015

Source: FSD records

*Note 1: The six SATs were Function Tests, System Integration Tests, Load Tests, Resilience Tests, Reliability Tests and Disaster Recovery Drill Tests. Upon the system rollout in February 2015, only the Disaster Recovery Drill Tests were not yet completed.*

*Note 2: The delay was due to the closing down of the disaster recovery site at the then Fire Services Training School (see para. 5.4(b) and (c)).*

5.4 According to the FSD, the AMMS was rolled out in February 2015 notwithstanding that two key milestones were not fully completed because:

- (a) the data conversion process (e.g. conversion of inventory balance data from source documents such as paper and old computer records) was completed well before the system rollout. Postponement of system rollout would call for enormous efforts in checking the correctness and handling data discrepancies (i.e. necessitating an additional round of data conversion);

## Other fire services support equipment

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- (b) one aspect of the IT security risk assessments was the physical security of system servers, which could only be assessed upon commissioning of the new Fire and Ambulance Services Academy at Tseung Kwan O in 2016 to replace the Fire Services Training School at Pat Heung. As the other issues pertaining to the IT security risk assessments had been remedied, there was no concern to allow the rollout of the system; and
- (c) likewise, the Disaster Recovery Drill Tests (see Note 1 to Table 12 in para. 5.3) were outstanding in February 2015 owing to the relocation of the Fire Services Training School at Pat Heung to the Fire and Ambulance Services Academy at Tseung Kwan O. As the Disaster Recovery facilities had already been in place and fully functional (though the tests in accordance with contract requirement were not yet completed) before the system rollout in February 2015, it was considered that the normal operation of the AMMS would not be affected by allowing the outstanding test to be carried out later.

### *Some functions of the AMMS not yet put into use*

5.5 In the funding paper of April 2012, the FC was informed that the AMMS would provide an integrated database to centrally record all asset-related data of the FSD with major functions on inventory control, repair and maintenance management, and business intelligence analysis for enhancing the FSD's procurement and asset management work. Audit's examination of the system design documents and management reports generated by the AMMS revealed that up to July 2016, some of the functions of the AMMS mentioned in FC paper could only be provided in the testing environment pending further fine-tuning before they could be put into actual use, as follows:

- (a) ***Inventory control.*** According to the FC paper, the AMMS would forecast materials demand based on various factors (such as past consumption rate, procurement lead time and life span of products) and issue reminders to users to make timely replenishment. It would also support the use of barcode identification technology to facilitate the monitoring of materials distribution and consumption. However, as of July 2016, the function of issuing notifications automatically to remind

users to timely replenish an inventory item if it fell below the pre-defined safety stock level or before its expiry date was still under testing. Besides, the pilot use of barcode and radio frequency identification technology was still on trial in one equipment storehouse of the FSD;

- (b) ***Repair and maintenance management.*** According to the FC paper, the AMMS would formulate scheduled maintenance programme for the FSD's vehicles (mainly fire appliances), taking into account the number of maintenance staff and their workload, and pre-defined maintenance criteria such as the mileage and age of a vehicle, the availability of spare parts and supply of maintenance reserve. However, up to July 2016, the function of formulating preventive maintenance programme for the FSD's fire appliances still required fine-tuning before it could be put into actual use; and
- (c) ***Business intelligence analysis.*** According to the FC paper, the AMMS would provide analytical and reporting tools for more effective management and maintenance of assets. Audit's examination revealed that some of the AMMS reports generated for business intelligence analysis required further fine-tuning before they could be put into use, such as the dormant stock report of vehicle spare parts (see para. 3.31).

5.6 In Audit's view, the FSD needs to expedite the fine-tuning of the outstanding functions with a view to putting them into use as soon as possible. Moreover, in light of various problems encountered in implementing the AMMS (see paras. 5.3 to 5.5), Audit considers that the FSD also needs to conduct a post-implementation review to evaluate its effectiveness and consolidate lessons to be learnt for similar IT systems in future.

## Audit recommendations

5.7 **Audit has recommended that the Director of Fire Services should:**

- (a) **expedite the fine-tuning of the outstanding functions in the AMMS mentioned in paragraph 5.5 and put them into use as soon as possible; and**

## Other fire services support equipment

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- (b) conduct a post-implementation review of the AMMS to evaluate its effectiveness and consolidate lessons to be learnt for similar IT systems in future.

## Response from the Government

5.8 The Director of Fire Services agrees with the audit recommendations. He has said that:

- (a) apart from the dormant stock report mentioned in paragraph 3.36(b), and the use of radio frequency identification technology (see para. 5.5(a)) which has not been implemented in some storehouses, other outstanding functions in the AMMS mentioned in paragraph 5.5 have been put into use since September 2016; and
- (b) the FSD will conduct a post-implementation review of the AMMS to evaluate its effectiveness, and the lessons learnt will facilitate the implementation of similar IT systems in future.

## Fire-fighting protective suits

5.9 In May 2010, the GLD awarded Contract E to Contractor E for supplying the FSD 13,000 sets of fire-fighting protective suits at a cost of \$81 million with an option of requiring the Contractor to provide a comprehensive managed care and maintenance service (CMCMS — Note 56) of the suits for five years after the 12-month warranty. In view of the long shelf life of the suits (not less than ten years if properly maintained), after awarding Contract E in May 2010 (Note 57),

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**Note 56:** *The CMCMS of fire-fighting protective suits included: (a) inspection service (at least twice a year); (b) laundry and repair/replacement of components; (c) picking-up and delivery services to and from stations according to a monthly schedule; and (d) guaranteed turnaround time for laundry and/or repair services. The CMCMS was only an optional item in the tender document (of Contract E) in order to attract more competitors to submit tenders.*

**Note 57:** *As the 12-month warranty did not cover all the services under the CMCMS, the FSD spent \$6 million under the first contract variation to top up the maintenance services to the CMCMS level during the warranty period.*

the FSD obtained approvals from the FSTB/GLD Tender Board to make three contract variations (Note 58) from October 2010 to March 2013 amounting to \$50.1 million for Contractor E to provide the CMCMS from April 2011 to March 2017.

### ***Need to bring in competitive tendering in procurement and acquiring maintenance service***

5.10 The justifications provided by the FSD in the three contract variations for engaging Contractor E to provide the CMCMS of the fire-fighting protective suits were that:

- (a) the CMCMS of the protective suits was essential for meeting the operational and safety requirements of the FSD; and
- (b) pursuant to an international standard in the industry, the service should be performed by an independent service provider authorised by the manufacturer. Contractor E was the only authorised service provider.

5.11 In August 2016, after considering the FSTB's and the SB's advice on the tendering mode, the FSD adopted open tendering for the provision of the CMCMS for the fire-fighting protective suits from April 2017 to March 2022. As at October 2016, the tender evaluation was in progress.

5.12 While the FSD had brought in competitive tendering for the CMCMS for its fire-fighting protective suits, Audit considers that the FSD should also explore new service providers and bring in competitive tendering as far as possible for the procurement and maintenance of its other fire services support equipment in future.

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**Note 58:** *As the provision of the CMCMS was an optional item (to attract more competitors to submit tenders (see Note 56 to para. 5.9)), which had not been evaluated in the tender evaluation process, three contract variations were made in 2010, 2012 and 2013 respectively to procure the service.*



### **Audit recommendation**

5.13 Audit has *recommended* that the Director of Fire Services should explore new service providers and bring in competitive tendering as far as possible for the supply and maintenance of other fire services support equipment in future.

### **Response from the Government**

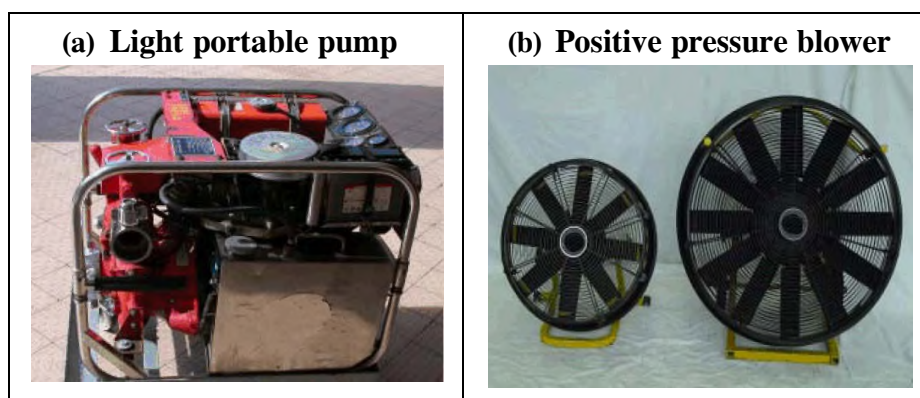
5.14 The Director of Fire Services agrees with the audit recommendation. He has said that the FSD will continue to explore new service providers and bring in competitive tendering for the supply and maintenance of other fire services support equipment.

### **Specialised fire services support equipment**

5.15 The Workshops and Transport Division is responsible for maintaining 56 types (913 items) of electrical/mechanical specialised fire services support equipment such as light portable pumps, positive pressure blowers and portable electricity generators (see examples in Photograph 6). The Division draws up annual maintenance schedule of the equipment for different fire stations. Based on the annual maintenance schedule, the station officers-in-charge will deliver the equipment to the designated workshops for carrying out preventive maintenance on the scheduled dates.

Photograph 6

**Light portable pump and positive pressure blower**



Source: FSD records

***Need to carry out preventive maintenance of specialised equipment in a timely manner***

5.16 The purpose of providing preventive maintenance for specialised equipment is to repair/replace defective components in a timely manner so that the equipment is always available for use in emergency operations. Depending on factors such as nature, usage and vulnerability of a piece of equipment and suppliers' recommendations, the maintenance cycle of equipment varies from once a year (e.g. for folding ladder of a fire appliance) to three rounds a year (e.g. for light portable pumps). According to the Workshops and Transport Division, the annual maintenance schedule is posted on the FSD's intranet and the AMMS will generate and issue notifications to the concerned holders of the equipment one week before the scheduled date to facilitate them to make appropriate arrangements for releasing the equipment for preventive maintenance.

5.17 To ascertain whether the specialised equipment had been delivered for preventive maintenance on schedule, Audit compared, for the period June 2015 to May 2016, the scheduled maintenance dates of the 913 items (1,647 rounds of maintenance in total) against the receipt dates of the equipment by the workshops. Audit found that, of the 1,647 rounds of preventive maintenance completed, 1,388 rounds (84.3%) were carried out according to the annual maintenance schedule. For the remaining 259 rounds, Audit found that:

## Other fire services support equipment

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- (a) 226 rounds (13.7% of 1,647) of maintenance for 161 items of equipment were carried out within 29 days after the scheduled dates;
- (b) 28 rounds (1.7% of 1,647) of maintenance for 26 items were carried out 30 to less than 60 days after the scheduled dates; and
- (c) 5 rounds (0.3% of 1,647) of maintenance for 5 items were carried out 60 to 360 days after the scheduled dates (Note 59).

5.18 Audit noted that there were cases where the equipment had been deployed to emergency operations on the scheduled date of maintenance. As for those cases with preventive maintenance conducted more than 30 days after the scheduled dates, the officers-in-charge informed Audit that the reasons included “oversight” and “mistaken that the equipment had already been sent to the workshops”. In this connection, Audit noted that the Workshops and Transport Division did not issue reminders to the concerned officers-in-charge despite that the original scheduled maintenance had been missed. Audit considers that the FSD needs to step up monitoring of the preventive maintenance for specialised equipment to ensure that it is carried out in a timely manner to prevent equipment failures before they occur or develop into major defects. The Workshops and Transport Division needs to make use of the AMMS to send reminders to the officers-in-charge requiring them to arrange preventive maintenance of specialised equipment once the scheduled maintenance is missed.

## Audit recommendations

5.19 **Audit has *recommended* that the Director of Fire Services should:**

- (a) **step up monitoring of the preventive maintenance for specialised equipment to ensure that it is carried out in a timely manner; and**
- (b) **make use of the AMMS to send reminders to the officers-in-charge requiring them to arrange preventive maintenance of specialised equipment once the scheduled maintenance is missed.**

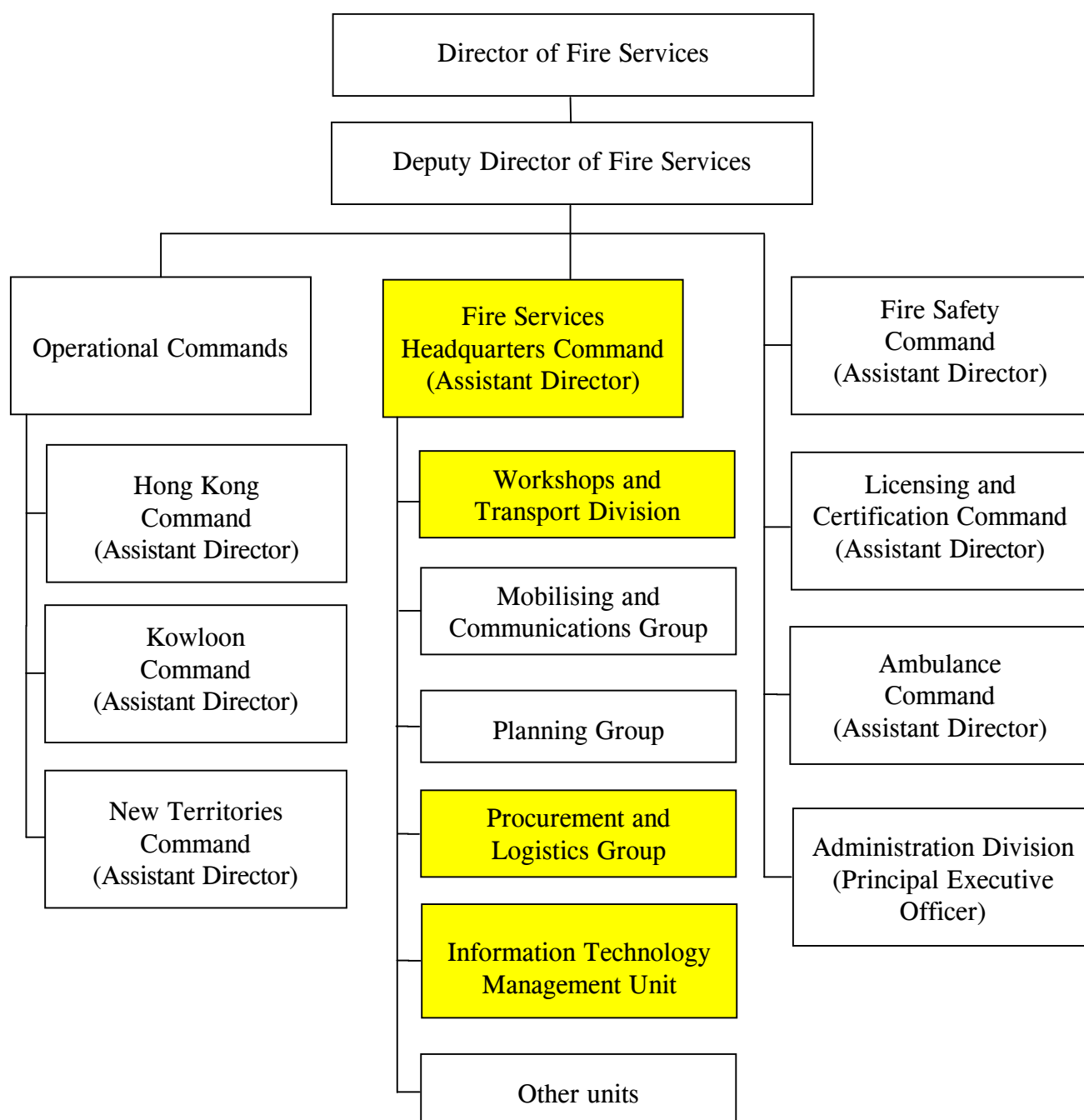
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**Note 59:** *The equipment included folding ladders, slim jet foam and water monitors.*

## **Response from the Government**

5.20 The Director of Fire Services agrees with the audit recommendations. He has said that in October 2016, the FSD fine-tuned the system logic to provide a preventive maintenance schedule for specialised equipment to ensure its timely maintenance, including using the AMMS to send reminders to inventory holders for making necessary arrangement.

**Fire Services Department:  
Organisation chart (extract)  
(30 June 2016)**



Legend:  Divisions/Offices covered in this Audit Report

Source: FSD records

**Fire-fighting and support vehicles  
maintained by the FSD and the EMSTF  
(1 May 2016)**

Type of vehicle	Maintained by EMSTF (a) (Number)	Maintained by FSD (b) (Number)	Total (c) = (a) + (b) (Number)
Frontline fire appliances (Note 1)		274	274
Other fire appliances	19	141	160
Light pumping appliances		19	
Hose layers		11	
Reserve heavy pumps		9	
Lighting tenders		8	
Mini equipment carriers		6	
Rescue tenders		6	
Fire motorcycles		6	
Specialised fire appliances at the Airport (Note 2)	17		
Others (Note 3)	2	76	
Support vehicles (Note 4)	<u>175</u>	<u>11</u>	<u>186</u>
Total	<u>194</u>	<u>426</u>	<u>620</u>

*Source: FSD records*

*Note 1: This category includes mainly hydraulic platforms, rescue units, major pumps and turntable ladders. They are the first batch of fire-fighting vehicles deployed to respond to a fire call.*

*Note 2: This category includes mainly crash fire tenders, hose foam carriers, rapid intervention vehicles and jackless snorkel.*

*Note 3: These include mainly foam tenders, diving tender and mobile command units.*

*Note 4: These include mainly the general purpose lorries, staff cars and multi-purpose vans.*

## **Major sub-systems of the TGMS**

According to the funding paper of May 2000, the TGMS included the following major sub-systems:

- (a) ***Computerised Mobilising System.*** It would be a high-power system built on an open platform with multi-tasking functionality to cope with the projected workload during the lifespan of the TGMS;
- (b) ***Telephone System.*** The system with Computer Telephony Integration technology would facilitate automatic call distribution. Through the Calling Line Identification System, address information of the caller using lined telephone network could be readily retrieved to help speedy identification of incident address;
- (c) ***Automatic Vehicle Location System.*** It would provide accurate location data of all FSD mobile resources, such as vehicles and fireboats, automatically;
- (d) ***Geographic Information System.*** The system would indicate on a digitised map the nearest available fire and ambulance resources to the reported address of incident for efficient mobilisation. If needed, it would also indicate the shortest route to the incident. Furthermore, it would provide other useful information, such as location of hydrants, gas pipe layouts, building information and vehicular access to facilitate fire-fighting and rescue operations;
- (e) ***Wireless Digital Network.*** This network would provide effective data and image transmission for equipment and terminals installed in emergency vehicles;
- (f) ***Mobile Data Terminals.*** The terminals would be installed in fire appliances, ambulances and support vehicles to receive and despatch incident information through the wireless digital network; and
- (g) ***Information Management System.*** It would integrate with all systems for records logging, analysis and resource management.

*Source: FSD records*

**Chronology of key events for procurement of  
TGMS equipment for 25 new ambulances  
(October 2013 to November 2014)**

<b>Date</b>	<b>Event</b>
October 2013	The FSD consulted the GLD on the way to handle the procurement of the TGMS equipment for the 25 new ambulances.
November 2013	The GLD advised the FSD to explore the possibility of acquiring the equipment through open tendering and that contract variation/single tender could be considered only with full and convincing justifications.
November 2013 to February 2014	The FSD proceeded with the internal clearance and went through several rounds of price confirmation and negotiation with Contractor A.
March 2014	The FSD submitted a contract variation request to the GLD.
March to June 2014	The GLD processed the contract variation request, including seeking the advice from the DoJ and considered whether the issue of a single tender with appropriate contract conditions being included might be more appropriate.
June 2014	The GLD advised the FSD to procure the installation service through single tendering instead of contract variation.
June 2014	The FSD submitted the single tender request to the GLD in June 2014.
November 2014	The GLD Tender Board approved the award of contract.

*Source: FSD records*



**Ageing analysis of 246 fire appliances and support vehicles  
(1 May 2016)**

Service year beyond expected serviceable life  (Year)	Number of vehicles			
	Frontline fire appliances	Other fire appliances	Support vehicles	Total
<b>Serviceable vehicles</b>				
< 1	18	5	11	34
1 to < 5	39	47	42	128
5 to < 10	5	22	1	28
10 to 11	0	1	0	1
Sub-total	62	75	54	191
<b>Supernumerary vehicles</b>				
< 1	0	0	0	0
1 to < 5	14	2	2	18
5 to < 10	16	8	7	31
10 to 13	3	3	0	6
Sub-total	33	13	9	55
Total	95	88	63	246

*Source: Audit analysis of FSD records*

- Remarks:*
- 1. Total numbers of fire appliances and support vehicles which had exceeded their expected serviceable lives by 1 year to 11 years were 114 and 43 respectively.*
  - 2. Total number of supernumerary vehicles which had exceeded their expected serviceable lives by 5 to 13 years was 37.*

**Years of commissioning, designed maximum speeds and  
berthing places of fire-fighting and rescue vessels  
(31 July 2016)**

<b>Vessel</b>	<b>Year of commissioning</b>	<b>Designed maximum speed (Knot)</b>	<b>Berthing place</b>
<b>Marine and Offshore Islands Division of the Hong Kong Command</b>			
Fireboat No. 1	2002	15	Central Fireboat Station
Fireboat No. 2	1995	15	North Point Fireboat Station
Fireboat No. 3	1998	20	Cheung Chau Fireboat Station
Fireboat No. 4	2009	22	Aberdeen Fireboat Station
Fireboat No. 5	1997	15	Tuen Mun Fireboat Station
Fireboat No. 6	2005	15	Tsing Yi Fireboat Station
Fireboat No. 7	1990	27.5	Airport
Fireboat No. 8	2009	28	North Point Fireboat Station
Diving support vessel	2003	22	Ngong Shuen Chau Diving Base
Diving support speedboats Nos. 1 and 2	1999	35	Ngong Shuen Chau Diving Base and the Airport
<b>Airport Fire Contingent of the New Territories Command</b>			
Command Boats Nos. 1 and 2	1997	28	Airport
Eight speedboats	1997 & 1998	35	Airport

*Source: FSD records*

**14 vessels exceeding designed serviceable lives  
(31 July 2016)**

<b>Type of vessels</b>	<b>Number of vessels</b>	<b>Number of years exceeding designed serviceable lives</b>
Fibre-hulled speedboat	10	2.1 to 4
Aluminium-hulled command boat	2	3.5 and 3.6
Aluminium-hulled fireboat	1	11
Steel-hulled fireboat	1	0.7

*Source: Audit analysis of FSD records*

**Chronology of key events for planning  
the replacement of FB 7  
(May 2009 to May 2012)**

<b>Date</b>	<b>Event</b>
May 2009	The FSD requested the MD to conduct a condition assessment of FB 7.
October 2009	The MD found in a sea trial that the maximum speed of FB 7 had been reduced by 16% from 27.5 to 23 knots.
December 2009	The MD advised the FSD to consider replacing FB 7 as soon as possible given that the maintenance cost of FB 7 had been consistently high and both the downtime and maintenance cost were expected to further increase.
February 2010	The FSD submitted to the MD a proposal for replacing FB 7 together with the operational requirements of the proposed new vessel.
May 2010	The MD approved the FSD's proposal for procuring a new vessel at an estimated cost of \$27 million.
April 2011	Subsequent to the 2011 Fukushima earthquake, the FSD informed the MD that the operational requirements of the new vessel should be revised to include enhanced functions: (a) increasing the maximum speed from the originally proposed 28.5 to 35 knots to enable speedier arrival at incident scenes; (b) using the water jet propulsion system instead of the originally proposed propeller; and (c) installing equipment to cater for chemical, biological, radiological and nuclear incidents instead of the simple decontamination facilities.
July 2011	The MD approved the revised proposal of procuring a new vessel with enhanced functions at an estimated cost of \$85 million.
May 2012	The SB submitted a paper to the FC seeking its funding approval of \$85 million for procuring the new vessel.

*Source: FSD records*

**Specifications and major equipment  
of FB 7 and the new fireboat**

Item	Description	FB 7	New fireboat
<b>Specifications</b>			
1.	Length	23 metres	Not more than 30 metres
2.	Breadth	10 metres	About 10 metres
3.	Engine	Two sets of 410-kilowatt diesel engines	Two sets of 2,200-kilowatt diesel engines
4.	Speed	27.5 knots	35 knots
5.	Electricity generator	One set	Two sets
6.	Type of propulsion system	Propeller	Waterjet
<b>Major equipment</b>			
7.	Rescue capacity (by means of life rafts)	320 persons	420 persons
8.	Installation and provision of equipment for handling chemical, biochemical and radiological related incidents	Only simple decontamination facilities	Air filtration system and radiation monitoring equipment Wheelhouse/cabin will have pressurisation system and with enhanced decontamination facilities
9.	Small boat (facilitating operation in shallow waters)	Nil	One unit (a rigid hull inflatable boat of about 6 metres long)
10.	Sonar	Nil	Equipped
11.	Night vision telescope	Nil	Equipped
12.	Fire pump	Driven by the power of fireboat engine	Driven by the power of an independent engine

*Source: FSD records*

*Remarks: In August 2016, the FSD and the MD confirmed the following specification changes under the approved funding:*

- (a) the length of the vessel would be 33 to 35 metres (see item 1);*
- (b) four sets of propulsion engine (see item 3) would be installed to meet the maximum speed of 35 knots; and*
- (c) fire pump would be driven by the propulsion engine (see item 12).*

**Chronology of key events for implementing the  
two vessel replacement projects  
(June 2013 to October 2016)**

<b>Date</b>	<b>Event</b>
June 2013	The MD informed the FSD that due to a shortage of experienced staff (only two surveyors and five inspectors available for managing three vessel procurement projects at the same time) and the need to review the vessel procurement procedures, committed tendering schedules could not be followed. According to the funding approval dates and based on the manpower of the MD, the revised tentative dates for tender invitation for the new FB 7 and the two new speedboats were December 2017 and December 2019 respectively (instead of February 2013 and September 2013 — see paras. 4.8(d) and 4.9).
August 2013	The MD informed the FSD that, to speed up clearing the backlog, the MD had considered employing Surveyors of Ships and outsourcing the pre-tender work and project management work to external consultants. After the employment of new surveyors and consultants, the FSD's vessel procurement projects would be handled earlier.
February 2014	The MD informed the FSD that tender invitation of the new FB 7 would be conducted in July 2015 and the fireboat would be commissioned in August 2017.
April 2014	The MD informed the FSD that tender invitation of the two new speedboats would be conducted in August 2015 and the speedboats would be delivered in February 2017.
March 2015	The MD informed the FSD that the procurement of the new FB 7 and two speedboats was halted due to insufficient manpower with relevant experience and accumulation of a backlog of approved projects. The FSD appealed to the MD to accord priority to recommencing the new FB 7 project.
June 2015	The MD resumed the tender preparation work for the new FB 7.
May 2016	The MD requested the FSD to comment on the tender document for procurement of the new FB 7.
September and October 2016	Tender notice for the procurement of the two speedboats was gazetted in September 2016 and that for FB 7 was gazetted in October 2016.

*Source: FSD records*

**Acronyms and abbreviations**

AA	Airport Authority Hong Kong
Airport	Hong Kong International Airport
AMMS	Asset Management and Maintenance System
Audit	Audit Commission
CMCMS	Comprehensive managed care and maintenance service
CTB	Central Tender Board
CWRF	Capital Works Reserve Fund
DoJ	Department of Justice
DTRS	Digital Trunked Radio System
EMSD	Electrical and Mechanical Services Department
EMSTF	Electrical and Mechanical Services Trading Fund
Euro	European
FB 7	Fireboat No. 7
FC	Finance Committee
FSCC	Fire Services Communication Centre
FSD	Fire Services Department
FSE	Fire services equipment
FSTB	Financial Services and the Treasury Bureau
GLD	Government Logistics Department
IT	Information technology
MD	Marine Department
P&L	Procurement and Logistics
SAT	System Acceptance Test
SB	Security Bureau
SGMS	Second Generation Mobilising System
SLA	Service Level Agreement
SPRs	Stores and Procurement Regulations
TGMS	Third Generation Mobilising System

## **CHAPTER 4**

**Environmental Protection Department  
Civil Engineering and Development Department**

**Management of abandoned construction  
and demolition materials**

**Audit Commission  
Hong Kong  
28 October 2016**



*This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.*

Report No. 67 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

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# **MANAGEMENT OF ABANDONED CONSTRUCTION AND DEMOLITION MATERIALS**

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# **MANAGEMENT OF ABANDONED CONSTRUCTION AND DEMOLITION MATERIALS**

## **Executive Summary**

1. Construction and demolition (C&D) activities give rise to abandoned C&D materials, comprising inert C&D materials (e.g. rocks, rubble and soil) which can be reused as fill materials in reclamation and site formation projects (hereinafter referred to as fill materials) and non-inert C&D materials (e.g. waste bamboos, timber and other organic substances) which need to be disposed of (hereinafter referred to as non-inert construction waste).

2. Under the Waste Disposal (Designated Waste Disposal Facility) Regulation (Cap. 354L), abandoned C&D materials may be disposed of at: (a) two public fill banks managed by the Civil Engineering and Development Department (CEDD) for receiving fill materials; (b) two fill material transfer facilities managed by the CEDD for receiving fill materials which would be transported to the two public fill banks; (c) two sorting facilities managed by the CEDD for receiving abandoned C&D materials containing more than 50% of fill materials by weight (hereinafter referred to as the inert-content requirement); (d) three landfills, namely the Southeast New Territories (SENT) Landfill, the Northeast New Territories (NENT) Landfill and the West New Territories (WENT) Landfill managed by the Environmental Protection Department (EPD) for receiving abandoned C&D materials containing not more than 50% of fill materials by weight; and (e) seven Outlying Islands Transfer Facilities (OITFs) managed by the EPD for receiving abandoned C&D materials containing any proportion of fill materials which would be transported to WENT Landfill.

3. In 2014, of the 21 million tonnes (Mt) of abandoned C&D materials generated, 19.56 Mt (93%) were fill materials for reuse and 1.44 Mt (7%) were mixed C&D materials (containing both fill materials and non-inert construction waste) which were disposed of at landfills. The 1.44 Mt of mixed C&D materials

## Executive Summary

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accounted for 27% of the 5.42 Mt of the total waste being disposed of at landfills in the year. According to the EPD, SENT Landfill and NENT Landfill could only cope with the territory-wide disposal need up to late 2020s. The Audit Commission (Audit) has recently conducted a review to examine the Government's efforts in managing abandoned C&D materials.

### Construction Waste Disposal Charging Scheme

4. Since January 2006, a charging scheme for disposal of abandoned C&D materials (hereinafter referred to as the charging scheme) has been in force, under which the charge rates per tonne of abandoned C&D materials are \$27 for disposal at public fill banks and fill material transfer facilities, \$100 for disposal at sorting facilities, and \$125 for disposal at landfills and OITFs (paras. 2.4, 2.5 and 2.16).

5. ***Significant under-recovery of cost.*** In 2003, during the deliberation of the charging scheme, the Government informed the Legislative Council that the levels of charges under the charging scheme were based on the user-pay principle, and full recovery of the capital and recurrent costs of the facilities deployed for disposal of abandoned C&D materials. However, Audit noted that the charge rates under the charging scheme had not been revised from January 2006 to August 2016, resulting in significant under-recovery of costs of providing services for disposal of abandoned C&D materials. For example, in 2014-15, only 33%, 44% and 63% of the costs of providing disposal services at sorting facilities, public fill banks and landfills were respectively recovered from the charges. From 2006-07 to 2014-15, the estimated unrecovered cost totalled \$3,811 million. The charge rates will be revised from April 2017 (paras. 2.8 to 2.11 and 2.17).

6. ***Annual review of the costs and charge rates not conducted.*** According to Financial Circular No. 6/2006, Controlling Officers should generally review fees and charges and, where necessary, revise them on an annual basis. However, Audit examination revealed that, despite repeated requests from the Financial Services and the Treasury Bureau (FSTB) from mid-2006 to mid-2014, the EPD and the CEDD had not conducted any review of the charge rates and related costs of disposal of abandoned C&D materials and provided the FSTB with the review results during the period (paras. 2.18 and 2.21).

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7. ***Inadequate enforcement actions under the charging scheme.*** Under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N), a main contractor who undertakes construction works under a contract having a value of \$1 million or above shall, within 21 days after being awarded the contract, make an application to the EPD to establish a billing account, which would enable the EPD to charge the contractor for disposal of abandoned C&D materials in respect of the contract. Contractors are not allowed to dispose of C&D materials at government facilities without establishing a billing account. Hence, contractors not having established a billing account may resort to illegal dumping. During the period December 2005 to December 2015, of the 19,453 applications for establishing billing accounts, 2,724 (14%) did not meet the 21-day requirement. However, the EPD had only taken prosecution actions in 338 cases. For the remaining 2,386 (2,724 less 338) cases, applicants on average took 78 days (ranging from 22 days to 5.8 years) to make applications after award of the pertinent works contracts (paras. 1.6 and 2.26 to 2.30).

### Measures to increase reuse of fill materials

8. Abandoned C&D materials meeting the inert-content requirement (i.e. containing more than 50% of fill materials by weight) would be accepted at sorting facilities and processed to recover fill materials for reuse. The residue would be disposed of at landfills. The CEDD has adopted a screening methodology (based on the weight ratio of a load of abandoned C&D materials) to determine whether a vehicle should be allowed to dispose of a load of abandoned C&D materials at a sorting facility (paras. 3.3 to 3.6).

9. ***Many vehicle loads of abandoned C&D materials being disposed of at sorting facilities not meeting the inert-content requirement.*** Under the inert-content requirement, only abandoned C&D materials containing more than 50% of fill materials by weight would be accepted at sorting facilities. From 2006 to 2015, on an annual basis, only 2% to 6% of vehicle loads of abandoned C&D materials were not accepted at sorting facilities on the grounds that they did not meet the inert-content requirement. However, surveys of the EPD and the CEDD during the period 2006 to 2014 revealed that, on an annual basis, 18% to 56% of vehicle loads of the materials accepted at sorting facilities did not meet the inert-content requirement. During the period 2006 to 2015, on average only 28%



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(ranging from 14% to 44%) of the annual quantities of abandoned C&D materials accepted at the sorting facilities were recovered as fill materials, indicating that the inert-content of many vehicle loads accepted might not meet the inert-content requirement (paras. 1.4(c) and 3.8 to 3.13).

### Measures to prevent and detect illegal dumping

10. The number of public reports on illegally dumped C&D materials had increased by 328% from 1,517 in 2005 to 6,499 in 2015. In 2015, 6,300 tonnes of illegally dumped C&D materials were cleared by government departments. In August 2015, the EPD commenced a trial scheme to install surveillance camera systems at 12 black-spot locations for detecting illegal dumping activities. During the trial-scheme period August 2015 to February 2016, the 12 camera systems captured images of 998 cases involving illegal dumping of waste by vehicles, of which 170 (17%) related to illegal dumping of C&D materials. As of July 2016, of the 170 cases, the EPD had taken prosecution actions on 46 cases and investigations on 2 cases were in progress (paras. 4.7 and 4.16 to 4.18).

11. *Inadequacies in taking enforcement actions.* Regarding the remaining 122 (170 less 46 less 2) cases, the EPD did not take prosecution actions on 80 cases because the images of the vehicle registration marks captured by the cameras were unclear, some due to the quality of the cameras installed. For the remaining 42 cases, the lack of prosecution actions was attributed to: (a) letters sent to the vehicle owners concerned according to addresses provided by the Transport Department (TD) being returned unclaimed; (b) the pertinent vehicle owners or drivers not providing details of the cases; (c) long lapse of time taken in handling the cases; and (d) the responsible drivers claiming that the waste dumping was carried out under instructions of persons hiring the delivery services (paras. 4.18 and 4.20 to 4.31).

### Way forward

12. *Need to formulate long-term plan for exporting surplus fill materials.* From 2007 to 2014, owing to the fact that local works projects could not fully utilise fill materials generated in Hong Kong, a total of 73.67 Mt of fill materials had been delivered to Taishan on the Mainland, representing 59% of the total 125.65 Mt of

## Executive Summary

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fill materials generated during the period. However, as the quantity of fill materials for export to Taishan is subject to agreement between the Environment Bureau and the related Mainland authority on a yearly basis, there is a risk that Taishan may not be able to absorb all surplus fill materials generated in Hong Kong in a given year and in the long term (paras. 5.6 and 5.7).

### Audit recommendations

13. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Government should:**

#### *Construction Waste Disposal Charging Scheme*

- (a) **take measures to ensure that fees and charges are revised in a timely manner (para. 2.36(a));**
- (b) **take measures to ensure that annual reviews of fees and charges are conducted and the review results are forwarded to the FSTB in a timely manner (para. 2.36(b));**
- (c) **issue specific guidelines on factors for consideration in taking prosecution actions against persons not complying with the 21-day statutory requirement on applying for establishing a billing account for disposal of abandoned C&D materials (para. 2.37(a));**

#### *Measures to increase reuse of fill materials*

- (d) **conduct a review of the screening methodology adopted for accepting vehicle loads of abandoned C&D materials at sorting facilities with a view to complying with the inert-content requirement as far as possible (para. 3.27(a));**

## **Executive Summary**

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### ***Measures to prevent and detect illegal dumping***

- (e) **take measures with a view to ensuring that surveillance camera systems installed for collecting evidence for prosecution purposes are capable of capturing clear images of registration marks of vehicles involved in illegal dumping of waste (para. 4.33(a));**
- (f) **forward cases where letters sent to vehicle owners using addresses provided by the TD are returned unclaimed to the TD for follow-up actions (para. 4.33(e));**
- (g) **seek legal advice on ways and means to take prosecution actions against the responsible persons involved in illegal waste dumping cases who do not provide case details (para. 4.33(f)); and**

### ***Way forward***

- (h) **explore destinations other than Taishan for receiving surplus fill materials generated in Hong Kong (para. 5.10).**

## **Response from the Government**

14. The Government agrees with the audit recommendations.

## PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

### Background

1.2 Construction and demolition (C&D) activities, such as site clearance, excavation, building, refurbishment, renovation, demolition and road works give rise to abandoned C&D materials, which comprise:

- (a) inert C&D materials, including rocks, rubble, boulders, earth, soil, sand, concrete, asphalt, bricks, tiles, masonry and used bentonite, which can be reused as fill materials in reclamation and site formation projects (hereinafter referred to as fill materials); and
- (b) non-inert C&D materials, including waste bamboos, timber, packaging materials and other organic substances which cannot be reused as fill materials and need to be disposed of (hereinafter referred to as non-inert construction waste).

1.3 In 2014, of the 21 million tonnes (Mt) of abandoned C&D materials generated, 19.56 Mt (93%) were fill materials which were reused or stockpiled for future reuse and 1.44 Mt (7%) were mixed C&D materials (containing both fill materials and non-inert construction waste — Note 1) which were disposed of at landfills.

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**Note 1:** *According to the Environmental Protection Department, abandoned C&D materials being disposed of at landfills comprised both fill materials and non-inert construction waste because mixed C&D materials containing 50% or less of fill materials by weight could only be disposed of at landfills.*

### *Handling of abandoned C&D materials*

1.4 Under the Waste Disposal (Designated Waste Disposal Facility) Regulation (Cap. 354L) of the Waste Disposal Ordinance (Cap. 354), abandoned C&D materials may be disposed of at the following government facilities:

- (a) ***two public fill banks.*** Two public fill banks, namely the Tseung Kwan O Fill Bank located in Tseung Kwan O Area 137 and the Tuen Mun Fill Bank located in Tuen Mun Area 38, were set up to stockpile surplus fill materials for future reuse. The two public fill banks together had a storage capacity of 23.3 Mt as of mid-2016. They are managed by the Civil Engineering and Development Department (CEDD) and they only accept fill materials for disposal;
- (b) ***two fill material transfer facilities.*** Fill materials may also be disposed of at fill material transfer facilities managed by the CEDD, namely the Chai Wan Public Fill Barging Point and the Mui Wo Temporary Public Fill Reception Facility. Fill materials disposed of at these facilities will be transported to the two public fill banks for future reuse;
- (c) ***two sorting facilities.*** Two sorting facilities set up in Tuen Mun and Tseung Kwan O (each of which is located within the boundary of the respective public fill bank) are managed by the CEDD, which only accept abandoned C&D materials containing more than 50% of fill materials by weight (hereinafter referred to as the inert-content requirement). Abandoned C&D materials accepted will be processed to recover fill materials as far as practicable which will be delivered to the two public fill banks for future reuse, and the residue to landfills for disposal;

- (d) ***three landfills.*** Three landfills are managed by the Environmental Protection Department (EPD), namely the Southeast New Territories (SENT) Landfill occupying an area of 100 hectares (ha — Note 2) in Tseung Kwan O, the Northeast New Territories (NENT) Landfill occupying an area of 61 ha in Ta Kwu Ling and the West New Territories (WENT) Landfill occupying an area of 110 ha in Nim Wan. Abandoned C&D materials to be disposed of at the three landfills must not contain more than 50% of fill materials by weight; and
- (e) ***seven Outlying Islands Transfer Facilities (OITFs).*** Seven OITFs managed by the EPD are located in Cheung Chau, Hei Ling Chau, Ma Wan, Mui Wo, Peng Chau, Sok Kwu Wan and Yung Shue Wan. These facilities accept abandoned C&D materials containing any proportion of fill materials, which would be transported to WENT Landfill for disposal.

1.5 After making an application to the CEDD, any person may take any quantity of fill materials from the public fill banks for reuse. For a public works project, no fee is levied on taking fill materials for reuse. However, a public works contractor needs to assess and deduct any resulting cost saving from the contract price. For a non-public works project, a contractor needs to pay for the cost of loading the materials onto vehicles and for transporting the materials from public fill banks to the contractor's works sites and the CEDD's administration cost.

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**Note 2:** *One ha (or 10,000 square metres) of land is approximately the size of a standard football pitch.*

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1.6 Since January 2006, upon implementation of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N) of the Waste Disposal Ordinance, the charge rate for:

- (a) fill materials being disposed of at public fill banks and fill material transfer facilities has been \$27 per tonne; and
- (b) abandoned C&D materials being disposed of at:
  - (i) sorting facilities has been \$100 per tonne; and
  - (ii) landfills and OITFs has been \$125 per tonne.

1.7 According to the CEDD, locally generated fill materials were mainly reused in local reclamation projects until early 2000s, and since then major reclamation projects in Hong Kong have mostly been suspended. As a result, fill materials generated from C&D activities in recent years could not be fully utilised by local works projects. After obtaining the agreement of the related Mainland authority, since 2007, some fill materials stockpiled at public fill banks have been exported to Taishan (Note 3) on the Mainland for use in a reclamation project. The cost of transporting fill materials to Taishan is borne by the CEDD (Note 4).

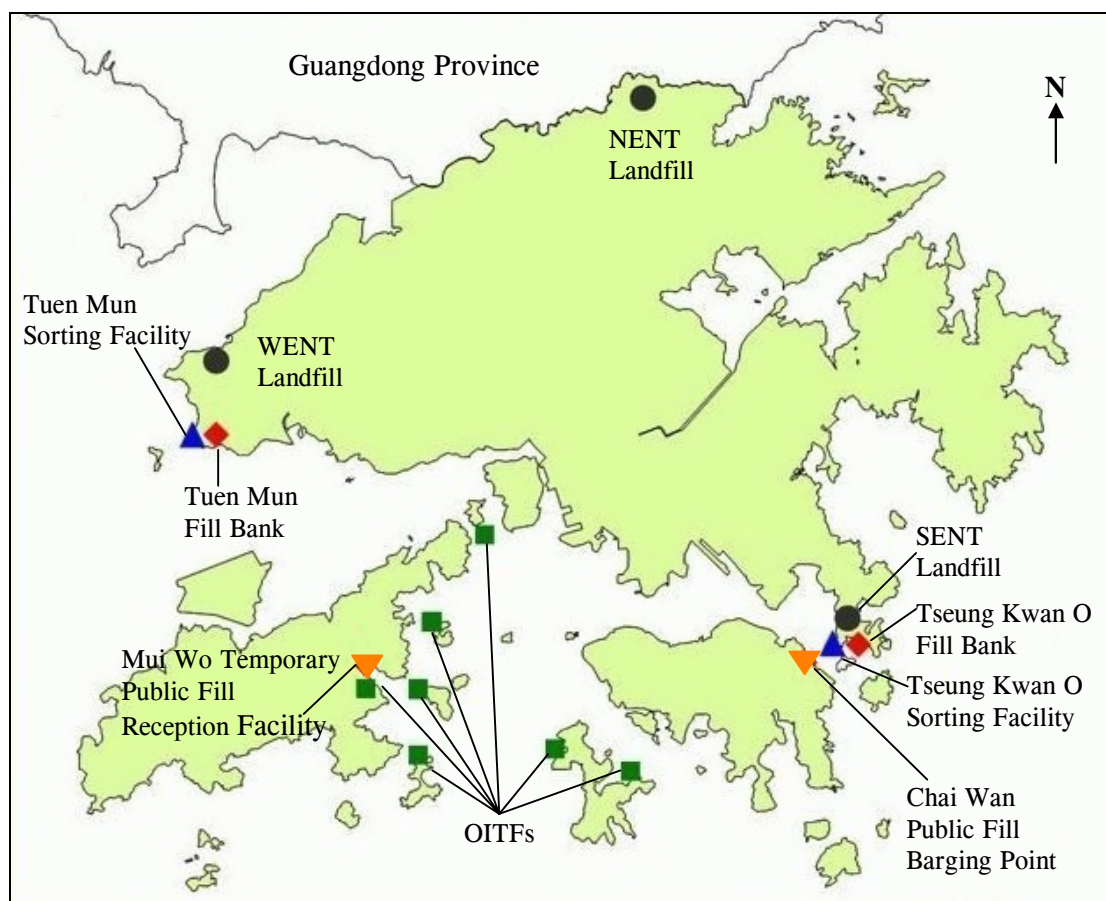
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**Note 3:** *Taishan is a county in Guangdong Province located in the southwest of Jiangmen, and is 140 kilometres west of Hong Kong.*

**Note 4:** *According to the CEDD, this cost information was not available because it formed part of the total operation cost of managing fill materials.*

1.8 Figure 1 shows the locations of government facilities for receiving abandoned C&D materials.

**Figure 1**  
**Government facilities for receiving abandoned C&D materials**



*Source:* EPD records

*Remarks:* The seven OITFs are located in Cheung Chau, Hei Ling Chau, Ma Wan, Mui Wo, Peng Chau, Sok Kwu Wan and Yung Shue Wan.



## Introduction

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1.9 According to the EPD, construction activities as reflected by related expenditures had increased significantly in the past ten years. Details are shown in Table 1.

**Table 1**

**Construction expenditure (at September 2015 prices)  
(2005-06 to 2014-15)**

Construction expenditure (\$ billion)	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Public sector	53.5	46.9	47.0	46.6	56.8	73.7	81.6	89.1	95.9	96.0
Private sector	85.3	93.2	96.4	94.3	80.2	78.6	89.0	106.9	106.6	119.4
Total	138.8	140.1	143.4	140.9	137.0	152.3	170.6	196.0	202.5	215.4

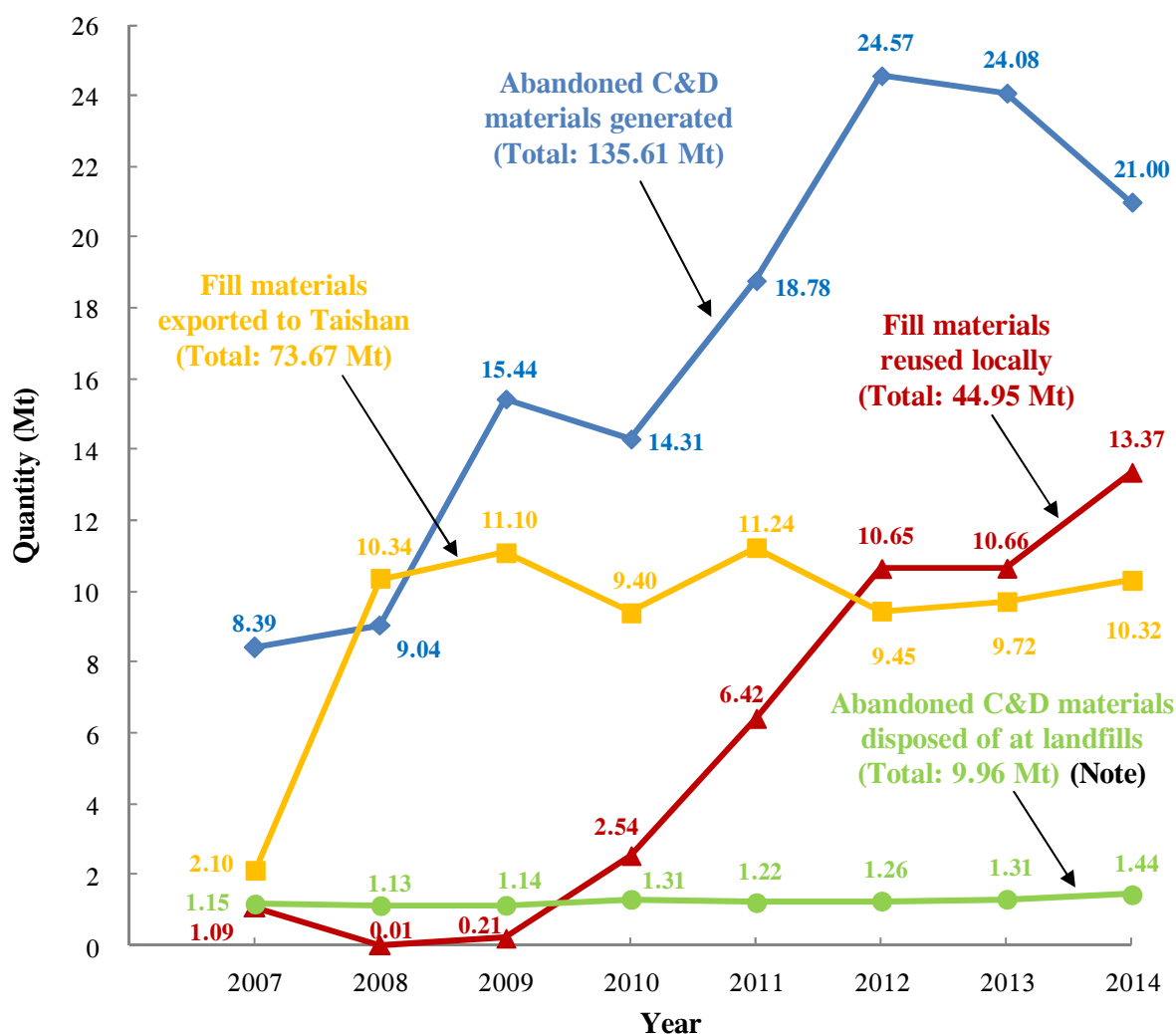
*Source: EPD records*

*Remarks: According to the EPD, the data are published on the Construction Industry Council website. The Council was established in 2007 under the Construction Industry Council Ordinance (Cap. 587). The Council consists of a chairman and 24 members representing various sectors of the industry (including not more than 3 public officers) appointed by the Secretary for Development.*

1.10 Figure 2 shows the quantities of abandoned C&D materials generated, fill materials being reused locally and exported to Taishan, and abandoned C&D materials being disposed of at landfills from 2007 to 2014.

Figure 2

**Generation and disposal of abandoned C&D materials  
(2007 to 2014)**



Source: CEDD and EPD records

Note: The quantities also included waste concrete (totalling 1.68 Mt, or 17% of the total 9.96 Mt from 2007 to 2014) generated from concrete batching plants, and cement plaster/mortar plants not being set up inside construction sites. Such waste concrete was not subject to charges (see para. 1.6(b)(ii)).

Remarks: In a year, the sum of quantities of fill materials being reused locally, fill materials being exported to Taishan and abandoned C&D materials being disposed of at landfills may not equal to that of abandoned C&D materials generated because some fill materials might be stockpiled at (or taken out from) public fill banks during the year. Fill materials being reused locally might be taken from public fill banks or from other works sites directly. Appendix A shows the changes of quantities of fill materials stockpiled at public fill banks from 2007 to 2014.

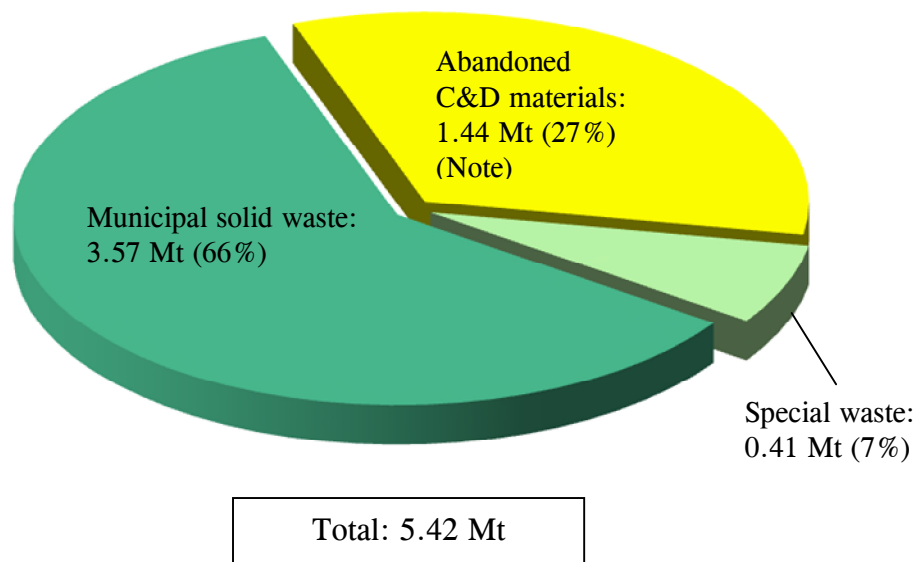
## Introduction

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1.11 As shown in Figure 2, the quantity of abandoned C&D materials had increased by 150% from 8.39 Mt in 2007 to 21 Mt in 2014. Moreover, although the quantity of abandoned C&D materials being disposed of at landfills expressed as a percentage of the total quantity of the materials generated had decreased from 14% ( $1.15 \div 8.39 \times 100\%$ ) in 2007 to 7% ( $1.44 \div 21 \times 100\%$ ) in 2014, it accounted for 27% of the total waste (of 5.42 Mt) having been disposed of at landfills in 2014. Details are shown in Figure 3.

**Figure 3**

**Waste disposal at landfills  
(2014)**



*Source: EPD records*

*Note: See Note to Figure 2 in paragraph 1.10.*

1.12 In December 2014, the EPD estimated that the SENT, NENT and WENT Landfills would reach their original design capacities by 2015, 2016-17 and 2018-19 respectively. In addition to abandoned C&D materials, the three landfills also accept municipal solid waste and special waste for disposal, except that from January 2016, SENT Landfill only receives abandoned C&D materials. Municipal solid waste is generated from homes, schools, public buildings, shops, restaurants, offices, hotels, factories and other businesses, whereas special waste comprises dredged mud, dewatered sludge from sewage treatment plants, livestock waste, clinical waste and chemical waste. In October 2016, the EPD informed the Audit Commission (Audit) that:

- (a) the estimated serviceable life of the landfills would depend on the actual population growth, the level of economic and major construction activities, the effectiveness of waste reduction initiatives and the timely provision of other waste treatment facilities;
- (b) with the funding approval of the Finance Committee (FC) of the Legislative Council (LegCo) in December 2014 for the SENT Landfill extension and the NENT Landfill extension, the EPD estimated that the landfills could cope with the territory-wide disposal need up to late 2020s; and
- (c) for the proposed extension works to WENT Landfill (subject to the FC's funding approval), its estimated serviceable life after implementing the extension works would be available upon completion of the relevant consultancy study.

### ***Government objectives and actions to achieve the objectives***

1.13 The Government's objectives on management of abandoned C&D materials are to:

- (a) minimise the generation of abandoned C&D materials;
- (b) maximise the reuse of fill materials; and
- (c) minimise the disposal of abandoned C&D materials at landfills.

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1.14 In August 2002, for the purpose of minimising the generation of abandoned C&D materials and maximising the reuse of fill materials, Environment, Transport and Works Bureau Technical Circular No. 33/2002 was issued which promulgated that, for public works projects that were expected to generate more than 50,000 cubic metres (m<sup>3</sup>) of abandoned C&D materials or required importing fill materials in excess of 50,000 m<sup>3</sup>, works departments should draw up a C&D Material Management Plan at the early design stage for compliance by works contractors in carrying out the works.

1.15 Since January 2006, after implementation of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation, charges have been imposed on disposal of abandoned C&D materials (see para. 1.6). In 2014-15, the government revenue arising from such charges amounted to \$511 million.

### ***Responsible government bureaux and departments***

1.16 The Environment Bureau (ENB — Note 5) and the EPD are responsible for, inter alia, formulating and implementing waste management policies and strategies, enforcing environmental legislation, and providing disposal facilities for abandoned C&D materials. The EPD is headed by the Permanent Secretary for the Environment who also assumes the office of the Director of Environmental Protection. The Environmental Compliance Division, the Environmental Infrastructure Division and the Waste Management Policy Division of the EPD are responsible for management of abandoned C&D materials. Appendix B shows an extract of the organisation chart of the EPD.

1.17 Under the policy directives of the ENB/EPD, the Fill Management Division of the CEDD is responsible for management of public fill banks, fill material transfer facilities and abandoned C&D material sorting facilities. Appendix C shows an extract of the organisation chart of the CEDD.

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**Note 5:** *In 2001, the then Environment and Food Bureau was responsible for policy issues on environmental matters. In July 2002, the then Environment, Transport and Works Bureau was formed to take over the environment portfolio from the Environment and Food Bureau. In April 2005, the Environment Branch of the then Environment, Transport and Works Bureau, which was responsible for environmental policy issues, merged with the EPD. In July 2007, the ENB was formed to oversee the formulation and implementation of policies on environmental protection and energy.*

1.18 In 2016-17, the estimated recurrent expenditure of the EPD's waste management programme was \$2,589 million, which covered the costs of managing municipal solid waste, abandoned C&D materials and special waste. In the same year, the CEDD's estimated expenditure on managing abandoned C&D materials totalled \$1,178 million.

### **Audit review**

1.19 In 1997 and 2002, Audit completed two reviews to examine government actions on management of abandoned C&D materials. The review results were included in the following reports:

- (a) Chapter 8 of the Director of Audit's Report No. 28 of February 1997 entitled Beneficial use of construction waste for reclamation; and
- (b) Chapter 9 of the Director of Audit's Report No. 38 of March 2002 entitled Management of construction and demolition materials.

The Public Accounts Committee of LegCo conducted public hearings to examine the findings included in the above two reports.

1.20 As shown in Appendix A, of the total 135.61 Mt of abandoned C&D materials generated from 2007 to 2014, 125.65 Mt (93%) were fill materials, of which 44.95 Mt (36%) were reused in local works projects and 73.67 Mt (59%) were exported to Taishan. Fill materials that were not reused locally were transported to the public fill banks for stockpiling pending future reuse within or outside Hong Kong. Given the limited storage capacity of public fill banks (as of end 2014, 16.9 Mt (76%) of the total capacity of 22.3 Mt was used), locally generated fill materials must be either reused by local works projects or exported outside Hong Kong.

## **Introduction**

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1.21 Of the total 135.61 Mt of abandoned C&D materials generated from 2007 to 2014, 9.96 Mt (7%) were disposed of at landfills. They accounted for 25% of the 40.55 Mt of waste being disposed of at landfills during the period. Given that increases in the quantity of abandoned C&D materials being disposed of at landfills would have significant impacts on the serviceable lives of the landfills, it is important that effective measures are taken to reduce the generation of abandoned C&D materials and their disposal at landfills.

1.22 Against the above background, in April 2016, Audit commenced a review to examine the Government's efforts in managing abandoned C&D materials. The review focused on the following areas:

- (a) Construction Waste Disposal Charging Scheme (PART 2);
- (b) measures to increase reuse of fill materials (PART 3);
- (c) measures to prevent and detect illegal dumping (PART 4); and
- (d) way forward (PART 5).

Audit has identified areas where improvements can be made by the Government in the above areas, and has made recommendations to address the issues.

## **Acknowledgement**

1.23 Audit would like to acknowledge with gratitude the full cooperation of the staff of the ENB, the Financial Services and the Treasury Bureau (FSTB), the CEDD and the EPD during the course of the audit review.

## **PART 2: CONSTRUCTION WASTE DISPOSAL CHARGING SCHEME**

2.1 This PART examines the implementation of the Construction Waste Disposal Charging Scheme from January 2006 for the purpose of reducing disposal of abandoned C&D materials, particularly at landfills.

### **The charging scheme**

2.2 In May 1995, the Waste Disposal (Charges for Disposal of Waste) Regulation (Cap. 354K) under the Waste Disposal Ordinance was enacted under which abandoned C&D materials, and commercial and industrial waste being disposed of at landfills would be charged at a rate of \$43 per tonne. However, owing to objections of the trade against the landfill charging scheme, the Government announced in June 1995 that the scheme would be suspended until the Government reaching an agreement with the trade.

2.3 In May 2002 and April 2003, the then Environment and Food Bureau (see Note 5 to para. 1.16) informed the LegCo Panel on Environmental Affairs (EA Panel) that, after consultations with the stakeholders, the Government would propose introducing a charging scheme for disposal of abandoned C&D materials (hereinafter referred to as the charging scheme) at public fill banks, fill material transfer facilities, sorting facilities, landfills and OITFs.

2.4 In April 2003, the then Environment, Transport and Works Bureau (ETWB — see Note 5 to para. 1.16) informed the EA Panel that the proposed differential charges under the charging scheme would have the following structure:

- (a) \$27 per tonne for abandoned C&D materials containing entirely fill materials being disposed of at public fill banks and fill material transfer facilities;



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- (b) \$100 per tonne for abandoned C&D materials containing more than 50% of fill materials by weight being disposed of at sorting facilities; and
- (c) \$125 per tonne for abandoned C&D materials containing not more than 50% of fill materials by weight being disposed of at landfills and those containing any proportion of fill materials being disposed of at OITFs.

2.5 In January 2005, the Waste Disposal (Charges for Disposal of Construction Waste) Regulation was enacted, which set out details of the charging scheme, including the charge rates stated in paragraph 2.4. According to the EPD, at that time, the charge rates were set in accordance with the user-pay principle and full recovery of the capital and recurrent costs. The charging scheme was implemented in January 2006.

2.6 According to information provided by the then ETWB to the EA Panel in April and October 2003, the objectives of introducing the charging scheme were to provide economic incentives to producers of abandoned C&D materials to:

- (a) reduce generation of abandoned C&D materials; and
- (b) encourage them to practise sorting of abandoned C&D materials to increase reuse of fill materials, reduce disposal of the materials and conserve the valuable landfill space.

2.7 After the implementation of the charging scheme, the percentage of the quantity of abandoned C&D materials being disposed of at landfills against the total quantity generated had decreased from 17% in 2005 to 14% in 2006 and 2007, and further to 7% in 2009. These statistics showed that the charging scheme was very effective in the initial years of its implementation in reducing the quantity of abandoned C&D materials disposed of at landfills. Details are shown in Table 2.

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**Table 2**

**Quantities of abandoned C&D materials  
generated and disposed of at landfills  
(2005 to 2014)**

<b>Abandoned C&amp;D materials (Mt)</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Total quantity generated (a)	14.16	10.91	8.39	9.04	15.44	14.31	18.78	24.57	24.08	21.00
Total quantity disposed of at landfills (b) (Note)	2.39	1.51	1.15	1.13	1.14	1.31	1.22	1.26	1.31	1.44
Percentage (c) = (b) ÷ (a) × 100%	17%	14%	14%	13%	7%	9%	6%	5%	5%	7%

*Source: EPD records*

*Note: See Note to Figure 2 in paragraph 1.10. Also, the quantities of abandoned C&D materials being disposed of at landfills included those of non-inert construction waste sorted from sorting facilities (see para. 1.4(c)).*

### ***Significant under-recovery of cost***

2.8 In April and November 2003, during deliberation of the charging scheme, the then ETWB informed the EA Panel that the levels of charges under the charging scheme were based on the user-pay principle, and full recovery of the capital and recurrent costs of the facilities deployed for disposal of abandoned C&D materials.

2.9 Furthermore, as promulgated in Financial Circular No. 6/2006 on Fees and Charges:

- (a) charge rates should be set at a level aiming at the attainment of full-cost recovery; and

## Construction Waste Disposal Charging Scheme

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- (b) Directors of Bureaux and Controlling Officers should ensure that the charge-rate structure and levels are conducive to achieving the full-cost recovery target when preparing proposals for charge-rate reviews.

2.10 However, Audit examination revealed that the charge rates under the charging scheme had not been revised during the period January 2006 to August 2016. Owing to increasing costs of operating government waste disposal facilities, the cost recovery rates had decreased significantly in the past ten years. In 2014-15, only 44%, 33% and 63% of the costs of disposal services at public fill banks, sorting facilities and landfills were respectively recovered through related charges. From 2006-07 to 2014-15, the estimated unrecovered cost totalled \$3,811 million (\$2,941 million + \$664 million + \$206 million). Details are shown in Appendices D to F.

2.11 Audit considers it unsatisfactory that the charge rates under the charging scheme had not been revised from January 2006 to August 2016, resulting in significant under-recovery of costs of providing disposal services for abandoned C&D materials.

2.12 In Audit's view, the significant under-recovery of costs of providing disposal service for abandoned C&D materials at government waste disposal facilities through charges is at variance with:

- (a) the Government's statement made to LegCo in 2003 that the charges under the charging scheme were based on the user-pay principle, and full recovery of the capital and recurrent costs of the facilities (see para. 2.8); and
- (b) Financial Circular No. 6/2006 which promulgated that charge rates should be set at a level aiming at the attainment of full-cost recovery (see para. 2.9(a)).

2.13 In October 2016, the EPD informed Audit that:

- (a) the reasons for not proposing to revise the charge rates in the past years included the award of a new contract for transporting fill materials to Taishan on the Mainland, because this would affect the total operation cost, and the overall freeze of government fees and charges from mid-July 2008 to end of March 2010; and
- (b) although the effectiveness of the charging scheme had somewhat diminished due to lack of revisions of the charge rates, the charging scheme was still an effective tool in reducing the quantities of abandoned C&D materials being disposed of at landfills, as reflected by the low percentage of the quantity of abandoned C&D materials being disposed of at landfills against the total quantity generated (see Table 2 in para. 2.7).

2.14 The lack of revisions to the charge rates in the past years to recover the costs incurred had reduced the effectiveness of the charging scheme on providing economic incentives for producers of abandoned C&D materials to reduce generation of such materials and practise waste sorting (see para. 2.6).

2.15 In Audit's view, the EPD, in collaboration with the CEDD, needs to take measures to ensure that, where applicable, fees and charges are revised in a timely manner, having regard to the user-pay and full-cost recovery principles, the resulting environmental implications, and impact on the trade and other relevant stakeholders.

### ***Recent developments***

2.16 In December 2015, the EPD informed the EA Panel that:

- (a) having regard to the established fees and charges policy and the user-pay principle, it would propose the following increases in the charge rates under the charging scheme:

## Construction Waste Disposal Charging Scheme

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- (i) fill-material charge from \$27 per tonne to \$71 per tonne (a 163% increase);
  - (ii) sorting charge from \$100 per tonne to \$175 per tonne (a 75% increase); and
  - (iii) landfill charge from \$125 per tonne to \$200 per tonne (a 60% increase); and
- (b) it would further review the charge rates under the charging scheme taking into account the development of the municipal solid waste charging scheme.

2.17 In May 2016, the ENB published in Government Gazette the charge-rate revisions to take effect from April 2017. According to the ENB, after implementation of the increases in the charge rates and based on the forecasted costs for 2017-18, the fill-material charge and the landfill charge would attain full-cost recovery and the sorting charge would attain a cost recovery rate of 66%. The sorting charge was set at a level to maintain the current difference of \$25 lower than the landfill charge for the purpose of promoting the use of sorting facilities.

### *Annual review of the costs and charge rates not conducted*

2.18 According to Financial and Accounting Regulations (Note 6), Controlling Officers are responsible for ensuring that the fees and charges relating to services for which they are responsible are regularly reviewed and updated. Moreover, Financial Circular No. 6/2006 on Fees and Charges stipulated that Director of Bureaux and Controlling Officers should:

- (a) generally review fees and charges and, where necessary, revise them on an annual basis; and

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**Note 6:** *The Regulations are promulgated by the Financial Secretary under the Public Finance Ordinance (Cap. 2) for the safety, economy and advantage of public moneys and government property.*

- (b) prepare fee proposals and submit them sufficiently early to the FSTB with a view to reviewing the fees on time. The fee proposals should be supported by costing statements duly prepared and vetted in accordance with the Costing Manual published by the Director of Accounting Services.

2.19 In mid-July 2008, the Chief Executive of the Hong Kong Special Administrative Region announced that the Government would freeze fees and charges affecting the general public's daily lives (Note 7). Furthermore, the Financial Secretary announced in February 2009 that the freeze would be extended to 31 March 2010, and he reminded government bureaux and departments that they should continue conducting reviews of all fees and charges in accordance with Financial Circular No. 6/2006 during the freeze period.

2.20 In this connection, Audit noted that, from 2004 to 2015, the FSTB had requested the EPD and the CEDD on the following occasions to provide it with the review results of the charge rates under the charging scheme and fee proposals with supporting costing statements:

- (a) in August 2004, the FSTB requested the EPD and the CEDD to conduct a review of the charge rates after the first year of implementation of the charging scheme so as to ascertain the actual cost recovery rate and to facilitate fee reviews in future;
- (b) between May 2006 and July 2008, the FSTB had sent repeated requests and reminders to the EPD and the CEDD on the review results on the charge rates;
- (c) between August 2008 and March 2010 (the freeze period for fees and charges — see para. 2.19), the FSTB had issued repeated reminders to the CEDD and the EPD for carrying out reviews of the charge rates;

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**Note 7:** *These fees and charges included three broad groups of government fees and charges, namely those collected for services for personal use, services related to occupational registration and examination, and services related to business activities.*

## Construction Waste Disposal Charging Scheme

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- (d) in October 2008, the EPD informed the FSTB that the estimated cost of handling fill materials was about \$75 per tonne, and it would review the charge rate for handling fill materials in 2010 after the award of a new contract for delivering fill materials to Taishan on the Mainland (see para. 1.7). The FSTB responded that as the estimated cost of \$75 per tonne was nearly three times the charge rate of \$27 per tonne for fill materials, the ENB/EPD should conduct the review immediately;
- (e) in March and October 2009, the EPD forwarded to the FSTB the fee proposals and costing statements for the landfill operation. The EPD advised that the landfill charge would affect the general public's daily lives and accordingly proposed to freeze the charge rate at its prevailing level. The EPD also advised the FSTB that, given the differential pricing strategy under the charging scheme, the three disposal charges should be reviewed as a package;
- (f) in February 2010, the EPD and the CEDD informed the FSTB that the review of the fill-material charge would have to take into account various factors including the exploration of a secondary receptor site for surplus fills on the Mainland other than Taishan, the availability of which would affect the overall cost of the delivery scheme;
- (g) between April 2010 (i.e. after the fee freeze period) and October 2014, the FSTB had again sent repeated requests and reminders to the CEDD and the EPD on the review results on the charge rates;
- (h) in end October 2014, the EPD provided the FSTB with information on the full costs of the operations at government facilities for receiving abandoned C&D materials (see para. 1.4); and
- (i) in October 2015, the EPD provided the FSTB with the fee proposals together with costing statements, the required supporting schedules and details of calculation of the operations at government facilities for receiving abandoned C&D materials.

2.21 Audit considers it unsatisfactory that, despite the FSTB's repeated requests since May 2006, the EPD and the CEDD had not provided the FSTB with information on the full cost of the operations at government facilities for receiving abandoned C&D materials until October 2014 (see para. 2.20(b) to (h)). The lack of annual review of the charge rates from 2007 to October 2014 was at variance with Financial Circular No. 6/2006 which stipulated that Controlling Officers should review charge rates on an annual basis (see para. 2.18(a)).

2.22 In this connection, Audit notes that under Financial Circular No. 6/2016, which supersedes Financial Circular No. 6/2006, for reviews of fees and charges, Controlling Officers are required to submit duly prepared and vetted costing statements in accordance with the Costing Manual issued by the Director of Accounting Services on an annual basis. In Audit's view, the EPD, in collaboration with the CEDD, needs to conduct annual reviews of fees and charges against the costs of the disposal services for abandoned C&D materials and submit the review results to the FSTB in a timely manner according to requirements stipulated in Financial Circular No. 6/2016.

2.23 Furthermore, upon the enactment of the charging scheme in January 2005, the then ETWB informed LegCo that the Government would review the charging scheme six months after its implementation and at regular intervals afterwards, and it would submit detailed review reports to the LegCo Secretariat in due course.

2.24 In March 2007, the EPD submitted a progress report on implementing the charging scheme to the EA Panel. The progress report covered the methodology adopted for accepting waste loads at sorting facilities and the fee collection mechanism. However, the progress report did not cover the charge rates under the charging scheme.

2.25 Audit noted that, despite the significant under-recovery of costs of the disposal services for abandoned C&D materials from 2006 to 2014, the EPD had not informed LegCo of the review results of the charge rates. Audit considers that the EPD needs to make improvement in this area.



### *Inadequate enforcement actions under the charging scheme*

2.26 Under Section 9 of Waste Disposal (Charges for Disposal of Construction Waste) Regulation, a main contractor (Note 8) who undertakes construction works under a contract having a value of \$1 million or above shall, within 21 days after being awarded the contract, make an application to the EPD to establish a billing account solely in respect of that contract. Contractors are not allowed to dispose of C&D materials at government facilities without establishing a billing account. Any person failing to comply with the 21-day requirement without reasonable excuse may commit an offence, and may be liable to a maximum fine of \$50,000 and, in the case of a continuing offence, to a further daily fine of \$1,000.

2.27 According to the EPD's prosecution procedures:

- (a) for an application exceeding the 21-day application requirement, the responsible EPD officer needs to consider taking prosecution actions under Section 9 of Waste Disposal (Charges for Disposal of Construction Waste) Regulation. He needs to seek endorsement from a Principal Environmental Protection Officer in charge of the case for taking or not taking prosecution actions on the case;
- (b) for a case having sufficient evidence for taking prosecution actions, the officer would forward the case to EPD Central Prosecution Unit (CPU) for taking prosecution actions; and
- (c) in order to meet the six-month time limit (under section 26 of the Magistrates Ordinance (Cap. 227)) for taking prosecution actions, cases warranting prosecution actions should be forwarded to the CPU at least three months before expiry of the six-month statutory time limit (counting from the time of receiving an application).

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**Note 8:** *Under the Regulation, only the main contractor (not any subcontractor) of a contract may establish a billing account for disposal of C&D materials for that contract.*

## Construction Waste Disposal Charging Scheme

2.28 From December 2005 (commencement of receiving applications) to December 2015, the EPD had received a total of 19,453 applications from main contractors for establishing billing accounts for works contracts with a value of \$1 million or above. During the ten-year period, 2,724 (14%) of the 19,453 applications did not meet the 21-day requirement and the EPD had taken prosecution actions in only 338 cases (12% of the 2,724 cases). Of these 338 cases, as of July 2016, 333 cases had been convicted, with fines ranging from \$800 to \$20,000, and 5 cases had been acquitted.

2.29 Contractors who do not timely apply for establishing billing accounts for disposal of abandoned C&D materials at government facilities may resort to illegal dumping of such materials and evading payment of charges. Audit noted that the EPD had not issued specific guidelines on factors for consideration in taking prosecution actions against persons not complying with the 21-day statutory requirement. With a view to ensuring that prosecution actions are taken on a consistent and justifiable basis, the EPD needs to issue specific guidelines on this issue.

2.30 Furthermore, Audit examination revealed that, of the 2,724 cases not meeting the 21-day application requirement, prosecution actions were taken against 338 cases (12%). Details of the remaining 2,386 cases (88%) are shown in Table 3:

**Table 3**  
**Non-compliance cases**  
**(December 2005 to December 2015)**

Number of days after contract award	Number of days exceeding 21-day requirement	Cases	
		Number	Percentage
22 to 71 days	1 to 50 days	1,784	75%
72 to 121 days	51 to 100 days	271	11%
122 to 2,127 days (5.8 years)	101 to 2,106 days	331	14%
Total		2,386	100%

*Source: EPD records*

Applicants of these 2,386 cases on average took 78 days to make applications after award of the pertinent works contracts.

## Construction Waste Disposal Charging Scheme

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2.31 Audit examination of ten cases revealed that there was room for improvement in taking enforcement actions under the charging scheme (see paras. 2.32 to 2.35).

2.32 ***Long time taken to take prosecution action.*** Audit noted that in one case, the contractor (Contractor A) submitted an account opening application in December 2007 to the EPD which was 87 days after award of the related contract. In March 2008, the EPD asked Contractor A to explain for the late application. In May 2008, the EPD interviewed Contractor A. In June 2008, the case was forwarded to the CPU for taking prosecution action, which was just three days before the expiry of the six-month statutory time limit (see para. 2.27(c)). In the event, there was insufficient time to prepare the summons application and, as a result, prosecution action was not taken in the case. According to the EPD, this was an isolated case since the commencement of receiving applications for establishing billing accounts in December 2005.

2.33 In Audit's view, the EPD needs to take measures to ensure that prosecution actions are taken in a timely manner in compliance with the six-month statutory time limit.

2.34 ***Proper endorsement not obtained for not taking prosecution actions.*** Audit noted that in another case, the contractor (Contractor B) submitted an account opening application in June 2011 to the EPD which was 1,280 days after award of the related contract in December 2007. The EPD decided not to take prosecution action in this case. However, the decision not to take prosecution action was endorsed by the responsible Senior Environmental Protection Officer instead of the responsible Principal Environmental Protection Officer, contrary to the requirement stipulated in the EPD's prosecution procedures (see para. 2.27(a)).

2.35 In Audit's view, the EPD needs to remind its staff of the need to obtain endorsement from appropriate EPD officers for not taking prosecution actions for non-compliance with the 21-day statutory requirement.

## **Audit recommendations**

2.36 Audit has *recommended* that, in managing the charging scheme, the Director of Environmental Protection, in collaboration with the Director of Civil Engineering and Development, should:

- (a) take measures to ensure that, where applicable and taking into account relevant factors, fees and charges are revised in a timely manner;
- (b) take measures to ensure that annual reviews of fees and charges are conducted and the review results are forwarded to the FSTB in a timely manner in accordance with Financial Circular No. 6/2016; and
- (c) conduct periodic reviews of the charging scheme and, where appropriate, keep LegCo informed of the review results.

2.37 Audit has also *recommended* that the Director of Environmental Protection, in relation to enforcement actions under the charging scheme, should:

- (a) issue specific guidelines on factors for consideration in taking prosecution actions against persons not complying with the 21-day statutory requirement on applying for establishing a billing account for disposal of abandoned C&D materials;
- (b) take measures to ensure that prosecution actions are taken in a timely manner in compliance with the six-month statutory time limit; and
- (c) remind EPD staff of the need to obtain endorsement from appropriate EPD officers for not taking prosecution actions against cases of non-compliance with the 21-day statutory requirement.

### **Response from the Government**

2.38 The Director of Environmental Protection and the Director of Civil Engineering and Development agree with the audit recommendations in paragraph 2.36. The Director of Environmental Protection has said that, having regard to the cost recovery principle and user-pay principle, and the fact that there is an increasing quantity of abandoned C&D materials being disposed of at landfills in tandem with the rising level of construction works, the charge rates of the charging scheme need to be adjusted.

2.39 The Director of Environmental Protection agrees with the audit recommendations in paragraph 2.37.

## **PART 3: MEASURES TO INCREASE REUSE OF FILL MATERIALS**

3.1 This PART examines measures taken by the Government to increase the reuse of fill materials by local works projects.

### **Handling of fill materials**

3.2 Fill materials sorted from abandoned C&D materials were either reused in local works projects or exported to Taishan. During the eight years from 2007 to 2014, of the total 135.61 Mt of abandoned C&D materials generated (see Appendix A), 125.65 Mt (93%) were fill materials for reuse and 9.96 Mt (7%) were mixed abandoned C&D materials for disposal at landfills. Of the 125.65 Mt of fill materials, 44.95 Mt (36%) were reused locally and 73.67 Mt (59%) were exported to Taishan, and the remaining 7.03 Mt (5%) of fill materials were stockpiled at the two public fill banks.

### ***Many vehicle loads of abandoned C&D materials disposed of at sorting facilities not meeting the inert-content requirement***

3.3 Under the Waste Disposal (Designated Waste Disposal Facility) Regulation, abandoned C&D materials meeting the inert-content requirement (see para. 1.4(c)) may be disposed of at two sorting facilities (at a lower charge rate than that at landfills — see para. 1.6) located in Tuen Mun and Tseung Kwan O managed by the CEDD. According to the CEDD, abandoned C&D materials of a low inert content are not accepted for disposal at the sorting facilities as this arrangement would result in:

- (a) higher operation costs due to deployment of additional labour and plant resources for separating the non-inert construction waste from mixed construction waste;
- (b) increased wear and tear of the mechanical sorting plants and reduced efficiency of the sorting operations; and
- (c) low recovery of fill materials for reuse.

## Measures to increase reuse of fill materials

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3.4 At the sorting facilities, abandoned C&D materials would be processed to screen out fill materials as far as practicable which would be delivered to public fill banks for reuse whereas the residue (i.e. non-inert construction waste) would be delivered to landfills for disposal. Vibratory and rotary screens, magnetic separators, density separators and handpicking were adopted in the sorting processes. Abandoned C&D materials disposed of at the two sorting facilities are charged at the rate of \$100 per tonne.

3.5 In December 2013, the CEDD engaged a contractor (Contractor C) through open tender for providing sorting services at the two sorting facilities for a three-year period (Note 9). The sorting equipment and facilities were procured and installed at government expenses. The estimated contract cost was \$146.89 million and the estimated quantity of abandoned C&D materials processed at the facilities was 1.31 Mt (or an average \$112 per tonne of abandoned C&D materials processed).

3.6 When a vehicle loaded with abandoned C&D materials arrived at a sorting facility, the total gross weight of the vehicle (comprising the weight of both the vehicle and the load) would be obtained from a weighbridge, and the weight of the abandoned C&D materials would be obtained by netting off the vehicle weight from the total gross weight. The criteria adopted for accepting loads of abandoned C&D materials at different disposal facilities (hereinafter referred to as the screening methodology) were published in the gazette under the Waste Disposal (Designated Waste Disposal Facility) Regulation. According to the screening methodology gazetted in 2005 and adopted by the EPD for landfill operations and the CEDD for operations at sorting facilities and public fill banks:

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**Note 9:** *Three contracts were awarded through open tender for provision of similar sorting services from November 2005 to December 2013.*

- (a) for a vehicle having a demountable skip (Note 10), if the weight ratio (net weight of waste divided by the permitted gross vehicle weight of the vehicle) was equal to or less than 0.25 (suggesting that the inert content of the waste did not meet the inert-content requirement), the load of abandoned C&D materials should not be accepted for disposal at sorting facilities and should be disposed of at landfills; and
- (b) for a vehicle not having a demountable skip, the relevant weight ratio was 0.20.

3.7 In June 2008, the EPD took actions to enhance the screening methodology. Under the enhanced methodology, a vehicle loaded with abandoned C&D materials consisting entirely of bamboos, plywood or timber would not be accepted for disposal at the sorting facilities. In December 2010, the EPD further enhanced the screening methodology by using laser sensors to measure the height of the waste load of a vehicle arriving at a sorting facility. Information on the height of a waste load provides additional information for estimating the volume and density of the waste load. Based on the measurements of laser sensors, the weight of the waste load and the permitted gross weight of a vehicle arriving at a sorting facility, a computer would carry out computations and generate information on whether the waste load should be accepted for disposal at the sorting facility.

3.8 Table 4 shows that, on an annual basis, over 90% of vehicle loads of abandoned C&D materials had been accepted for disposal at the sorting facilities from 2006 to 2015.

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**Note 10:** *For sizes of skips range from 4 to 7 metres in length, 2 to 3 metres in width and 1.5 to 3 metres in height and their volumes range from 12 m<sup>3</sup> to 63 m<sup>3</sup>.*



## Measures to increase reuse of fill materials

**Table 4**  
**Vehicle loads accepted and  
not accepted for disposal at sorting facilities  
(2006 to 2015)**

Year	Vehicle loads				
	Total	Accepted		Not accepted	
	(No.)	(No.)	(Percentage)	(No.)	(Percentage)
2006	171,685	168,265	98 %	3,420	2 %
2007	108,950	106,690	98 %	2,260	2 %
2008	96,501	94,285	98 %	2,216	2 %
2009	99,924	97,579	98 %	2,345	2 %
2010 (Note)	103,061	100,005	97 %	3,056	3 %
2011	72,925	68,522	94 %	4,403	6 %
2012	80,299	75,720	94 %	4,579	6 %
2013	98,102	92,196	94 %	5,906	6 %
2014	111,290	105,384	95 %	5,906	5 %
2015	128,139	122,099	95 %	6,040	5 %

*Source: CEDD records*

*Note: In December 2010, the EPD further revised the screening methodology for accepting waste loads at waste disposal facilities (see para. 3.7).*

3.9 Audit noted that, although abandoned C&D materials being disposed of at the two sorting facilities needed to meet the inert-content requirement (i.e. containing more than 50% of fill materials by weight), the quantities of fill materials sorted from abandoned C&D materials at the two sorting facilities were significantly lower than 50% of those of the total abandoned C&D materials from 2006 to 2015. Details are shown in Table 5.

Table 5

**Fill materials recovered from abandoned C&D materials at sorting facilities  
(2006 to 2015)**

Year	Total quantity handled	Quantity of non-inert waste sorted		Quantity of fill materials recovered	
	('000 tonne)	('000 tonne)	(Percentage)	('000 tonne)	(Percentage)
2006	1,389	960	69 %	429	31 %
2007	920	677	74 %	243	26 %
2008	761	600	79 %	161	21 %
2009	761	609	80 %	152	20 %
2010 (Note)	789	680	86 %	109	14 %
2011	410	237	58 %	173	42 %
2012	439	247	56 %	192	44 %
2013	505	303	60 %	202	40 %
2014	578	413	71 %	165	29 %
2015	683	468	69 %	215	31 %
Overall	7,235	5,194	72 %	2,041	28 %

Source: CEDD records

Note: See Note to Table 4.

3.10 As shown in Table 5, the percentages of fill materials being recovered from abandoned C&D materials were much lower than the inert-content requirement (i.e. containing more than 50 % of fill materials by weight).

3.11 Furthermore, between 2006 and 2014, the EPD and the CEDD had carried out 19 surveys to ascertain the extent of compliance with the inert-content requirement by vehicle loads of abandoned C&D materials accepted for disposal at the sorting facilities. About 140 to 260 vehicle loads were sampled in each survey. In each of the surveys, each selected vehicle load of abandoned C&D materials was sorted into fill materials and non-inert construction waste to determine whether the vehicle load met the inert-content requirement. Table 6 shows the percentages of sampled vehicle loads complying with the inert-content requirement in the 19 surveys conducted between 2006 and 2014.

## Measures to increase reuse of fill materials

**Table 6**

**Percentages of sampled vehicle loads  
meeting the inert-content requirement at the sorting facilities  
(2006 to 2014)**

Date of survey	Percentage of number of vehicle loads	
	Meeting inert-content requirement	Not meeting inert-content requirement
Jun 2006	61 %	39 %
Sep 2006	79 %	21 %
Nov 2006	76 %	24 %
Jan 2007	69 %	31 %
May 2007	65 %	35 %
Jul 2007	58 %	42 %
Sep 2007	50 %	50 %
Nov 2007	54 %	46 %
Apr 2008	52 %	48 %
Aug 2008	60 %	40 %
Jan 2009	52 %	48 %
Sep 2009	44 %	56 %
May 2011 (Note)	82 %	18 %
Nov 2011	78 %	22 %
Jun 2012	72 %	28 %
Nov 2012	69 %	31 %
Apr 2013	68 %	32 %
Oct 2013	65 %	35 %
Nov 2014	48 %	52 %
Overall	63 %	37 %

*Source: CEDD and EPD records*

*Note: See Note to Table 4.*

*Remarks: According to the CEDD, the skip volumes and waste mix were different among the sampled vehicles.*

3.12 In September and October 2016, the CEDD and the EPD informed Audit that:

### *CEDD*

- (a) a certain portion of inert content of the abandoned C&D materials inevitably could not be recovered during the sorting process due to contamination (e.g. sanitary ware and steel being bound to concrete) and had to be disposed of at landfills. As a result, the quantity of fill materials sorted from abandoned C&D materials would be lower than that of the inert content of the materials accepted for disposal at sorting facilities; and

### *EPD*

- (b) as regards the survey results shown in Table 6, after the adoption of the revised screening methodology in December 2010, the average compliance rate of the inert-content requirement was about 70%. In this connection, the EPD considered that the current arrangement was effective and the arrangement had been well received and accepted by the trade.

3.13 As shown in Tables 5 and 6, after adoption of the revised screening methodology in December 2010, the percentage of fill materials being recovered from abandoned C&D materials had increased from 14% in 2010 to 42% in 2011 and further to 44% in 2012. Similarly, the percentage of sampled vehicle loads meeting the inert-content requirement had increased from 44% in September 2009 to 82% in May 2011 and 78% in November 2011. These statistics show that the revised screening methodology adopted in December 2010 was effective in the initial years of adoption in screening out waste loads not meeting the inert-content requirement from being accepted for disposal at sorting facilities.

3.14 However, Audit noted that the percentage of fill materials being recovered from abandoned C&D materials had decreased from 44% in 2012 to 31% in 2015, and the percentage of sampled vehicle loads meeting the inert-content requirement had decreased from 82% in May 2011 to 48% in November 2014. The significant decreases in the percentages show that the effectiveness of the revised screening methodology has diminished, which is a cause for concern.

## **Measures to increase reuse of fill materials**

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3.15 According to the surveys conducted from 2006 to 2014, on average 37% of the total number of sampled vehicle loads of abandoned C&D materials accepted for disposal at the sorting facilities in fact did not meet the inert-content requirement. Notwithstanding that the acceptance of vehicle loads of abandoned C&D materials containing high proportion of non-inert substances at the sorting facilities may help retrieve fill materials from the materials that would otherwise be disposed of at landfills, this practice would:

- (a) undermine the effectiveness of the differential pricing strategy under the charging scheme; and
- (b) reduce the total charge collected under the charging scheme, as the charge of disposing of a tonne of abandoned C&D material at sorting facilities was \$25 lower than that for disposing of the materials at landfills.

3.16 In Audit's view, the EPD, in collaboration with the CEDD, needs to conduct a review of the screening methodology adopted for accepting vehicle loads of abandoned C&D materials at sorting facilities with a view to complying as far as possible with the inert-content requirement.

### ***Inconsistent published statistics***

3.17 Furthermore, Audit noted that the quantities of fill materials being disposed of at public fill banks between 2007 and 2014 as reflected in the CEDD's Controlling Officer's Reports were different from those of the EPD as published in its annual reports of "Monitoring of Solid Waste in Hong Kong". Details are shown in Table 7.

## Measures to increase reuse of fill materials

**Table 7**  
**Fill materials disposed of at public fill banks**  
**(2007 to 2014)**

Quantity (Mt)	2007	2008	2009	2010	2011	2012	2013	2014	Overall
According to CEDD records (a)	6.50	7.90	14.00	10.50	11.40	13.10	12.90	12.30	88.60
According to EPD records (b)	6.51	6.96 (Note)	6.93 (Note)	10.46	11.37	12.83	12.93	12.56	80.55
Difference (c)=(a) – (b)	(0.01)	0.94	7.07	0.04	0.03	0.27	(0.03)	(0.26)	8.05
Percentage (c) ÷ (a) × 100%	(0.2%)	11.9%	50.5%	0.4%	0.3%	2.1%	(0.2%)	(2.1%)	9.1%

*Source: Audit analysis of CEDD and EPD records*

*Note: According to the CEDD and the EPD, the EPD's statistics for 2008 and 2009 respectively had not accounted for 0.93 Mt and 7.16 Mt of fill materials having been delivered to Taishan. The related quantities were accounted for in other years.*

3.18 In September and October 2016, the CEDD, the EPD and the FSTB informed Audit that:

### ***CEDD***

- (a) the verification process of the year-end fill quantities could only be completed in February of the following year after the completion of necessary topographical surveys of the stockpiled fill materials at the two public fill banks, and the record reconciliation process of the actual quantity of fill materials being reused among public works projects. In view of the time schedule for compiling the statistics, the year-end statistics shown in the CEDD Controlling Officer's Reports were based on the provisional year-end statistics which were considered sufficiently accurate (with differences in a range of 0.2% to 2.1%);

## Measures to increase reuse of fill materials

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### *EPD*

- (b) the data of a year as shown in the EPD's report of "Monitoring of Solid Waste in Hong Kong" were based on the actual data from January to December of a year provided by the CEDD. Owing to the different timing in publishing the CEDD's Controlling Officer's Report and the EPD's report, there was inevitably a need for the CEDD to use provisional statistics and the EPD to use the actual statistics;

### *FSTB*

- (c) while the cut-off date for Controlling Officers to submit to the FSTB the draft Estimates would normally fall in November/December, Controlling Officers were allowed to update the actual statistical data (covering the whole calendar year) in Controlling Officer's Reports by early January. The CEDD should endeavour to update the actual statistical data for December as far as practicable before the deadline in early January; and
- (d) in the event that it was still not possible for the CEDD to provide the actual statistics by early January, it might consider adding a remark like "provisional actual subject to adjustment" against the pertinent data. This practice was being adopted by some government departments.

3.19 Audit considers that different quantities of fill materials being disposed of at public fill banks published by the CEDD and the EPD may cause confusions to the public and undermine reliability of published data. Therefore, the CEDD needs to take measures to make improvement in this area.

### *Low demand for Grade 200 recycled rock fill*

3.20 From November 2006 to November 2013, the CEDD had awarded three contracts (Contracts D to F) through open tender for providing management services at the two public fill banks located in Tuen Mun and Tseung Kwan O, with Contract D covering a 37-month period from November 2006 to December 2009, Contract E covering a 50-month period from December 2009 to January 2014, and

Contract F covering a 40-month period from January 2014 to April 2017. Under Contracts D to F, the contractors also needed to provide crushing facilities (with a capacity to process 800 tonnes of fill materials a day) at Tseung Kwan O Fill Bank to crush fill materials into Grade 200 recycled rock fill materials of the size of 200 millimetres in diameter or smaller for use by public works projects requiring such recycled rock fill materials.

3.21 Upon receiving requests from government works departments (or their contractors) for Grade 200 recycled rock fill materials, a fill-bank contractor would carry out the crushing process at the Tseung Kwan O Fill Bank and provide the requested quantities free of charge. Under Contract F covering the period January 2014 to April 2017, Contractor F would be paid \$5.12 for each tonne of fill materials dispatched from the public fill banks, and he would be paid \$19.05 for each tonne of Grade 200 recycled rock fill materials produced and loaded onto the vehicle of the collector.

3.22 Audit noted that the quantities of Grade 200 rock fill materials produced by the crushing facilities were about 50,000 tonnes in 2012, 20,000 tonnes in 2013, 50,000 tonnes in 2014 and 40,000 tonnes in 2015 (totalling 160,000 tonnes), which were significantly lower than the maximum annual capacity of the crushing facility of 196,800 tonnes (800 tonnes  $\times$  246 working days in a year). The annual demand for Grade 200 recycled rock fill materials were 60,000 tonnes in 2012, 120,000 tonnes in 2013, 20,000 tonnes in 2014 and 60,000 tonnes in 2015 (totalling 260,000 tonnes). The high demand for 120,000 tonnes in 2013 was met from the 20,000 tonnes produced in the year and 100,000 tonnes of stock kept at the site. In September and October 2016, the CEDD informed Audit that:

- (a) the production quantities of Grade 200 recycled rock fill materials relied very much on the quantity of large-size rock pieces being disposed of at public fill banks, and the supply of rock pieces was unsteady. The need for Grade 200 recycled rock fill materials was dependent on the market demand and the nature of construction projects being implemented at the time;
- (b) the feeding chamber and horsepower of the crushing plant needed to be sufficiently large to handle rock pieces of different sizes and hardness, and the crushing plant so chosen was commonly available in the market; and



## Measures to increase reuse of fill materials

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- (c) the CEDD needed to ensure that the crushing plant had reasonable production capacity so as to meet the demand for Grade 200 recycled rock fill materials. Site records showed that on some occasions the capacity of the crushing plant could barely be sufficient to meet the urgent requests.

3.23 Audit considers that the CEDD needs to conduct a review to ascertain the reasons for the low demand for Grade 200 recycled rock fill materials by public works projects, and take necessary measures to meet the need of the users. The CEDD also needs to consider allowing private works projects to apply to collect at the public fill banks Grade 200 recycled rock fill materials for use on a cost-recovery basis. These two measures would help increase the quantities of fill materials used by both public and private works projects.

### *Need to encourage public organisations undertaking infrastructure projects to maximise reuse of fill materials*

3.24 Under ETWB Technical Circular No. 33/2002 on “Management of construction and demolition material including rock” issued in August 2002, for a public works project that would generate more than 50,000 m<sup>3</sup> of abandoned C&D materials or that would require importing fill materials in excess of 50,000 m<sup>3</sup>:

- (a) a C&D Material Management Plan should be drawn up at the early design stage to make estimates of the total quantity of abandoned C&D materials generated and reused by the project, and the quantity of imported fill materials;
- (b) the Management Plan should be vetted by a departmental vetting committee (chaired by a directorate officer) prior to the upgrading of the project to Category A in the Public Works Programme;
- (c) based on information included in the Management Plan, the works contractor should prepare a Waste Management Plan with estimates of the total quantity of abandoned C&D materials generated and reused by the project, and the quantity of imported fill materials; and

- (d) the Public Fill Committee, chaired by the Director of Civil Engineering and Development, should monitor the implementation of the C&D Material Management Plan and the Waste Management Plan of related projects on a half-year basis.

In April 2015, the contents of ETWB Technical Circular No. 33/2002 were incorporated into the CEDD's Project Administration Handbook.

3.25 Furthermore, under Works Bureau Technical Circular No. 4/98 on "Use of public fill in reclamation and earth filling projects" issued in March 1998, for a public works project that might need imported fill materials (such as natural sand) of 300,000 m<sup>3</sup> or more, the project proponent should:

- (a) at the early planning stage, examine and consider measures to maximise the use of fill materials; and
- (b) seek endorsement of the Public Fill Committee (see para. 3.24(d)) on the quantity of imported fill materials before inviting tenders for the works contracts.

3.26 The measures promulgated in ETWB Technical Circular No. 33/2002 and Works Bureau Technical Circular No. 4/98 would help reduce the generation of abandoned C&D materials and increase reuse of fill materials generated by public works projects. In Audit's view, with a view to fully reaping the benefits of these measures, the EPD and the CEDD need to take measures to encourage public organisations undertaking infrastructure projects, such as airport, railway and housing projects, to implement measures on reducing the generation of abandoned C&D materials and increasing the reuse of fill materials generated by the projects.

## **Audit recommendations**

**3.27**     Audit has *recommended* that the Director of Environmental Protection, in collaboration with the Director of Civil Engineering and Development, should:

- (a)     conduct a review of the screening methodology adopted for accepting vehicle loads of abandoned C&D materials at sorting facilities with a view to complying with the inert-content requirement as far as possible; and
- (b)     take measures to encourage public organisations undertaking infrastructure projects, such as airport, railway and housing projects, to implement measures on reducing the generation of abandoned C&D materials and increasing the reuse of fill materials generated by the projects.

**3.28**     Audit has *recommended* that the Director of Civil Engineering and Development should:

- (a)     clearly state in the Controlling Officer's Report that the quantity of fill materials being disposed of at public fill banks is provisional subject to adjustment; and
- (b)     in collaboration with the Director of Environmental Protection:
  - (i)     conduct a review to ascertain the reasons for the low demand for Grade 200 recycled rock fill materials by public works projects, and take necessary measures to meet the need of the users; and
  - (ii)    consider allowing private works projects to apply to collect at the public fill bank Grade 200 recycled rock fill materials for use on a cost-recovery basis.

## **Response from the Government**

3.29 The Director of Environmental Protection agrees with the audit recommendations in paragraph 3.27. He has said that, regarding the effectiveness of the screening methodology adopted at sorting facilities, the EPD will monitor the situation to see whether there is a need to make any adjustments in the future.

3.30 The Director of Civil Engineering and Development agrees with the audit recommendations in paragraphs 3.27 and 3.28. As regards the audit recommendation in paragraph 3.27(b), he has said that the CEDD has asked the relevant public organisations, including the Airport Authority, the MTR Corporation Limited and the Urban Renewal Authority to implement measures on reducing the generation of abandoned C&D materials and increasing the reuse of fill materials generated by the projects. Representatives of these public organisations have attended meetings of the Public Fill Committee on a need basis to provide updated information on generation of abandoned C&D materials and demand for fill materials by their projects.

## **PART 4: MEASURES TO PREVENT AND DETECT ILLEGAL DUMPING**

4.1 This PART examines measures taken by the Government to prevent and detect illegal dumping of C&D materials on government land, focusing on the trip-ticket system and a trial scheme on detecting illegal dumping of abandoned C&D materials.

### **Background**

4.2 Under the following ordinances, a person may commit an offence if he dumps waste on government land without the Government's prior approval:

- (a) section 16A of the Waste Disposal Ordinance administered by the EPD, under which a person committing an offence of illegal waste disposal for the first time may be fined up to \$200,000 and imprisoned for up to six months, and for the subsequent times may be fined up to \$500,000 and imprisoned for up to six months. In addition, an offender is liable to a fine of \$10,000 for each day during which it is proved to the satisfaction of the court that the offence has continued;
- (b) sections 4 and 9A of the Public Cleansing and Prevention of Nuisances Regulation (Cap. 132BK) of the Public Health and Municipal Services Ordinance (Cap. 132) administered by the Food and Environmental Hygiene Department (FEHD), under which a person committing an offence of illegal waste disposal may be fined up to \$25,000 and imprisoned for up to six months; and

- (c) section 3 of the Fixed Penalty (Public Cleanliness Offences) Ordinance (Cap. 570) administered by seven government departments (Note 11), under which a person committing an offence related to illegal dumping of waste may be fined a fixed penalty of \$1,500. (The title of the Ordinance was amended to “Fixed Penalty (Public Cleanliness and Obstruction) Ordinance” with effect from September 2016.)

4.3 In 2001, during deliberation of the Fixed Penalty (Public Cleanliness Offences) Bill, the Government informed LegCo that if the volume of illegally disposed waste was larger than 0.2 m<sup>3</sup> (roughly the size of a fruit carton box), the offender would be prosecuted by summons (such as under section 16A of the Waste Disposal Ordinance or sections 4 and 9A of the Public Cleansing and Prevention of Nuisances Regulation — see para. 4.2(a) and (b)) instead of a fixed penalty notice.

4.4 Since 2008, the EPD has co-ordinated annual inter-departmental meetings with nine other government departments (Note 12) involved in dealing with illegal dumping of C&D materials and obtained related statistics from them. Figure 4 shows the number of prosecutions involving illegal dumping of C&D materials on government land by summons issued by the EPD under section 16A of the Waste Disposal Ordinance, by summons issued by the FEHD under sections 4 and 9A of the Public Cleansing and Prevention of Nuisances Regulation, and by fixed penalty notices issued by the EPD and the FEHD under section 3 of the Fixed Penalty (Public Cleanliness Offences) Ordinance from 2005 to 2015.

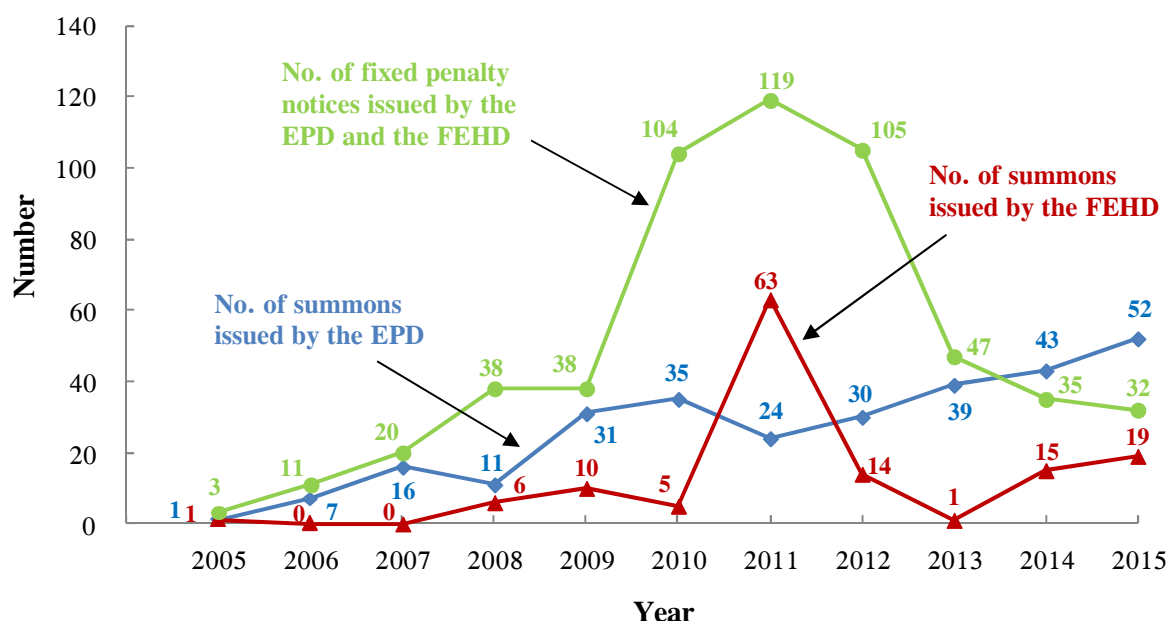
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**Note 11:** *The seven government departments are the Agriculture, Fisheries and Conservation Department, the EPD, the FEHD, the Hong Kong Police Force, the Housing Department, the Leisure and Cultural Services Department and the Marine Department.*

**Note 12:** *The nine government departments are the Agriculture, Fisheries and Conservation Department, the Buildings Department, the CEDD, the Drainage Services Department, the FEHD, the Highways Department, the Home Affairs Department, the Lands Department and the Planning Department.*

Figure 4

### Number of prosecution actions taken against illegal dumping of C&D materials on government land (2005 to 2015)



Source: EPD records

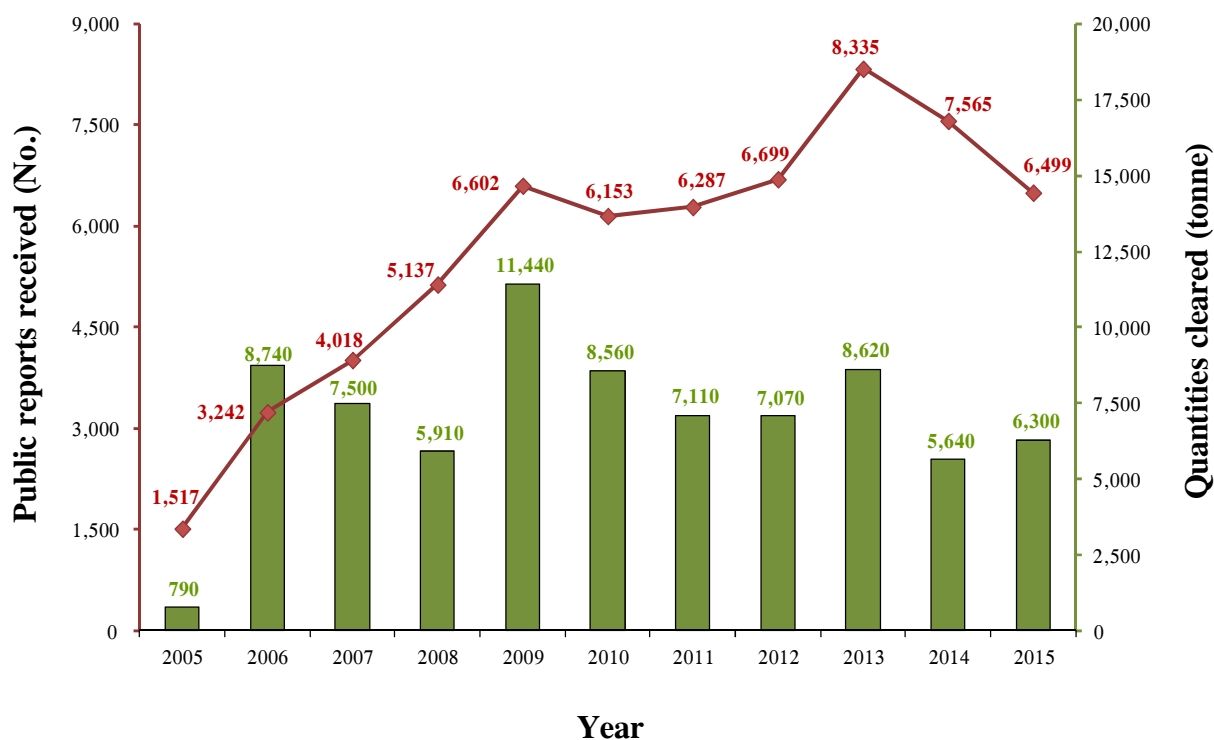
4.5 From 2013 to 2015, of the total 134 (39 + 43 + 52) prosecutions taken under section 16A of the Waste Disposal Ordinance by the EPD, as of July 2016, 132 (99%) cases had been convicted, with fines ranging from \$1,000 to \$25,000, and summons issued for 2 (1%) cases had been withdrawn.

4.6 Moreover, during the same period, of the total 35 (1 + 15 + 19) prosecutions taken under sections 4 and 9A of the Public Cleansing and Prevention of Nuisances Regulation by the FEHD, as of July 2016, 32 (91%) cases had been convicted, with fines ranging from \$1,500 to \$5,000, and 3 (9%) cases were in progress.

4.7 Subsequent to the implementation of the Construction Waste Disposal Charging Scheme in January 2006 (see para. 1.15), there have been significant increases in the number of public reports on illegal dumping of C&D materials and in the quantities of such materials found and cleared by government departments. Details are shown in Figure 5.

Figure 5

**Public reports received and illegally dumped C&D materials  
cleared by government departments  
(2005 to 2015)**



Legend: ◆ Public reports received (Note)  
■ Illegally dumped C&D materials found and cleared

Source: EPD records

Note: According to the EPD, an illegal dumping incident may attract more than one public report. However, the EPD did not have statistics on such duplicated reports.

4.8 The Highways Department (HyD) and the Lands Department (LandsD) are the major government departments responsible for clearing illegally dumped C&D materials on government land. In 2015, of the total 6,300 tonnes of illegally dumped C&D materials cleared by government departments, 5,380 (85%) tonnes and 886 (14%) tonnes were respectively cleared by the HyD and the LandsD. According to the HyD, illegally dumped C&D materials cleared by its contractors in 2015 were mainly disposed of at public fill banks (2,769 tonnes or 51%) and sorting facilities (2,512 tonnes or 47%), with a minor portion being disposed of at landfills (99 tonnes or 2%).



### Trip-ticket system

4.9 The Government has implemented a trip-ticket system for disposal of abandoned C&D materials for public works projects. According to Development Bureau Technical Circular (Works) No. 6/2010 on Trip Ticket System for Disposal of C&D Materials issued in 2010, the key features of the system for a public works project include:

- (a) **Site control.** A public works contractor would prepare a site organisational chart showing the manpower resources and duties of each staff for implementation of the system, and appoint experienced persons to oversee each site exit. Video recording system would be installed at each site exit to monitor vehicles entering and leaving the site. Subject to approval of the project department, a contractor may adopt alternative methods for site control instead of that specified in the trip-ticket system;
- (b) **Delivery control.** A driver of a vehicle loaded with C&D materials departing from a construction site of a public works project needs to obtain a trip ticket from the contractor. In the case where the abandoned C&D materials would be delivered to a government waste disposal facility (such as a public fill bank), a disposal ticket issued by the EPD would serve as the trip ticket for the delivery. Before the departure of the vehicle, the site supervisory staff would check the quantity of abandoned C&D materials (in terms of quarterly-loaded, halved-loaded or fully-loaded) stated in the disposal records compiled by the contractor against the estimated volume of abandoned C&D materials loaded onto the vehicle; and
- (c) **Disposal record control.** Upon arriving at a designated waste disposal facility as specified in the trip ticket, the abandoned C&D materials would be weighed and the weight would be registered in the EPD's transaction record, and the trip ticket would be stamped. The site supervisory staff would check the load weight of abandoned C&D materials registered in the transaction record, which would be available on EPD website, against that stated in the disposal records compiled by the contractor, and take follow-up actions if discrepancies are found.

- 4.10 The objectives of the trip-ticket system are to prevent and detect:
- (a) unauthorised loading of any substance onto vehicles carrying abandoned C&D materials of public works projects en route to designated disposal destinations; and
  - (b) illegal dumping of abandoned C&D materials en route to designated disposal destinations.

### ***Need to expand trip-ticket system to works projects undertaken by public organisations***

4.11 Non-public works projects are not required to adopt the trip-ticket system. Under the charging scheme, the EPD would issue C&D material disposal tickets for both public and non-public works projects to record the account numbers of the projects for charging purposes. When a vehicle loaded with abandoned C&D materials arrives at a government waste disposal facility, the driver would provide a disposal ticket (without information on weight of the C&D materials) to the staff of the disposal facility. Based on the account information stated in the disposal ticket, the cost of the disposal (according to the weight of the abandoned C&D materials) would be charged to the related account and the disposal ticket would be stamped. According to the EPD, this system would generate records on the movement of abandoned C&D materials between the place of generation and the place of disposal.

4.12 Audit noted that the trip-ticket system for public works projects required the keeping of disposal records at project works sites (for checking against the actual quantities of C&D materials being disposed of at government waste disposal facilities). The disposal records would help to prevent and detect unauthorised loading of any substance onto vehicles carrying abandoned C&D materials of public works projects, and illegal dumping of abandoned C&D materials en route to designated disposal destinations (see para. 4.10). Audit considers that the EPD needs to, in collaboration with relevant government policy bureaux and departments, promote the adoption of this system in relevant works projects undertaken by public organisations.

### Audit recommendation

4.13 Audit has *recommended* that, in taking actions to prevent and detect illegal dumping of C&D materials, the Director of Environmental Protection, in collaboration with relevant government bureaux and departments, should take measures to promote the adoption of the trip-ticket system in relevant works projects undertaken by public organisations.

### Response from the Government

4.14 The Director of Environmental Protection agrees with the audit recommendation.

### Trial scheme on detecting illegal dumping of abandoned C&D materials

4.15 Since 2008, the EPD had coordinated with related government departments to draw up a list of black spots on illegal dumping of abandoned C&D materials (hereinafter referred to as the black-spot list). In December 2009, the EPD installed two closed circuit television (CCTV) surveillance camera systems at two locations (Locations A and B, which were serious black spots on the same road at that time) to monitor and collect evidence on illegal dumping of C&D materials. In March 2014, the EPD installed an additional surveillance camera system at another location (Location C) along the same road of Locations A and B. Subsequently, the illegally dumped C&D materials found on the pertinent road had decreased from 1,038 m<sup>3</sup> in 2009 to 39 m<sup>3</sup> in 2010 and further to 2 m<sup>3</sup> in 2015. The total capital and installation cost of the three CCTV camera systems was \$1.55 million and the maintenance cost was \$0.79 million in 2015. The installation and maintenance of the camera systems were undertaken by the Electrical and Mechanical Services Trading Fund (EMSTF — Note 13).

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**Note 13:** *The EMSTF was set up in August 1996 under the Trading Funds Ordinance (Cap. 430) to manage and account for the operation of certain services of the Electrical and Mechanical Services Department. The services provided by the EMSTF include operation and maintenance of electrical, mechanical, electronic and building services systems and equipment.*

## Measures to prevent and detect illegal dumping

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4.16 As of August 2015, based on information of the EPD and that provided by nine other government departments (see para. 4.4), the EPD compiled a black-spot list comprising 41 locations. In the same month, as an initiative launched under the Keep Clean Hong Kong 2015 Campaign (Note 14), the EPD commenced a trial scheme to install surveillance camera systems at 12 of the 41 black-spot locations, as follows:

- (a) at a location (Location D) where the EPD purchased and installed a system at a total cost of \$21,600 by a contractor (engaged by quotation); and
- (b) at 11 locations (Locations E to O) where the EPD hired services from a supplier (appointed by quotation) for supply and maintenance of systems for five to seven months up to February 2016 at a total cost of \$1,164,000. The systems, which were owned and operated by the service supplier, were dismantled upon expiry of the trial scheme in February 2016 in accordance with the service contract.

4.17 According to the EPD, the trial surveillance camera system was launched to test the performance and effectiveness of simple and low-cost cameras for comparison with CCTV systems at different environmental settings (such as lighting conditions, shooting angles and distances) for identifying cost-effective arrangements for detecting illegal dumping activities.

4.18 During the trial-scheme period from August 2015 to February 2016, the 12 camera systems captured images of 998 cases involving illegal dumping of waste by vehicles, of which 170 (17%) related to C&D materials. The progress of enforcement actions taken on the 170 cases as of July 2016 was as follows:

- (a) 46 (27%) cases: prosecution actions had been taken;
- (b) 2 (1%) cases: investigations were in progress;

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**Note 14:** *The Campaign was launched by the Government in August 2015 for the purposes of fortifying public awareness and promoting concerted community efforts to improve environmental hygiene.*

## **Measures to prevent and detect illegal dumping**

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- (c) 80 (47%) cases: prosecution actions were not taken due to unclear images of vehicle registration marks having been captured by the cameras (see paras. 4.20 and 4.21);
- (d) 42 (25%) cases: despite vehicle registration marks had been clearly captured by the systems, prosecution actions were not taken for the following reasons:
  - (i) 14 cases: vehicle owners could not be contacted (see paras. 4.22 to 4.25);
  - (ii) 19 cases: case details were not provided by vehicle owners or drivers (see paras. 4.26 to 4.29);
  - (iii) 5 cases: there was a long lapse of time and inadequate evidence (see para. 4.30); and
  - (iv) 4 cases: responsible drivers claimed that the waste dumping was carried out under the instruction of persons who had hired the delivery service (see para. 4.31).

4.19 Of the 46 cases where prosecution actions had been taken (see para. 4.18(a)), as of July 2016, 11 cases had been issued with fixed penalty notices (each with a fine of \$1,500) and 35 cases being prosecuted by summons had been convicted, with fines ranging from \$2,000 to \$15,000.

### ***Unclear vehicle registration marks captured by cameras***

4.20 For the 80 cases occurring at 8 locations where prosecution actions were not taken due to images of registration marks of the related vehicles captured by the cameras were unclear (see para. 4.18(c)), according to the EPD, the reasons for the problem included:

- (a) poor lighting condition at the locations which adversely affected the clarity of the images taken;

- (b) limitation due to quality of the cameras installed (e.g. low image resolution); and
- (c) the registration marks of the vehicles involved being out of the shooting range of the cameras.

4.21 Audit noted that the images of the vehicle registration marks of the vehicles involved in all the 24 illegal waste dumping cases (1 case involving C&D materials) captured by the camera systems at a location, and in 20 of the 22 illegal waste dumping cases (2 cases involving C&D materials) at another location, were unclear, adversely affecting the prosecution actions. In Audit's view, the EPD needs to take measures with a view to ensuring that surveillance camera systems installed for collecting evidence for prosecution purposes are capable of capturing clear images of registration marks of vehicles involved in illegal dumping of waste.

### ***Vehicle owners could not be contacted for taking prosecution actions***

4.22 For the 14 cases where the images of the vehicle registration marks of the related vehicles had been clearly captured by the camera systems but the vehicle owners could not be contacted for taking prosecution actions (see para. 4.18(d)(i)), the EPD had sent letters by registered mail to the vehicle owners according to addresses provided by the Transport Department (TD) requesting them to provide related information. However, all the letters sent in respect of these 14 cases were returned unclaimed. According to the EPD, the unclaimed letters might be attributed to the named persons not residing at the addresses, intentionally not claiming the letters or not being in Hong Kong during the period. In 6 of the 14 cases, the EPD requested the Immigration Department (ImmD) to provide the addresses of the persons involved for further investigation. In the event, addresses of 5 of the 6 cases provided by the ImmD were the same as the addresses provided by the TD. For the remaining case where the address provided by the ImmD was different from that provided by the TD, the EPD could not take further action because by the time the new information was received, the six-month time limit for taking prosecution actions under the Magistrates Ordinance was nearly expired. In Audit's view, the EPD needs to take measures with a view to ensuring that prosecution actions relating to illegal dumping of waste are taken within six months (from the time of committing the offence) according to the Magistrates Ordinance.

## Measures to prevent and detect illegal dumping

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4.23 Audit noted that the EPD had only sought assistance from the ImmD in 6 of the 14 cases where letters sent to vehicle owners according to addresses provided by the TD were returned unclaimed. In Audit's view, the EPD needs to issue guidelines on procedures for handling cases of illegal dumping of waste.

4.24 Audit also noted that, in handling speeding and red-light jumping cases with images captured by surveillance cameras where the vehicle owners could not be contacted according to addresses provided by the TD, the Hong Kong Police Force (Police) would seek to obtain the addresses of the vehicle owners from the ImmD, the Water Supplies Department, the Correctional Services Department, the Hospital Authority, utilities companies and insurance companies of the registered vehicles. In Audit's view, the EPD needs to strengthen efforts on contacting the vehicle owners involved in illegal waste dumping cases with reference to the good practices of the Police.

4.25 Moreover, under the Road Traffic Ordinance (Cap. 374), a vehicle owner is required to notify the TD within 72 hours of his change of address (Note 15). In Audit's view, for cases where letters sent to vehicle owners using addresses provided by the TD are returned unclaimed, the EPD needs to forward these cases to the TD for follow-up actions, such as to investigate if the vehicle owners had committed an offence under the Road Traffic Ordinance for not timely notifying the TD of changes of addresses.

### *Details not provided by vehicle owners or drivers*

4.26 For the 19 cases where case details were not provided by the vehicle owners or the drivers (see para. 4.18(d)(ii)), the EPD did not take further actions.

4.27 Audit noted that in four cases, a camera system captured images of illegal dumping of C&D materials, which involved three vehicles registered under the same owner. The vehicle owner agreed to attend an interview but repeatedly postponed the interview. The EPD subsequently served a notice under section 23B of the

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**Note 15:** *According to the Road Traffic Ordinance, any person without reasonable excuse fails to notify the TD within 72 hours of his change of address commits an offence and is liable to a fine of \$2,000.*

Waste Disposal Ordinance (Note 16) on the vehicle owner and required him to provide the driver information. The vehicle owner attended an interview with the EPD but said that he could not recognise the drivers involved in the four cases as shown in the video recording. According to the EPD, as there was insufficient evidence to establish an offence having been committed by the vehicle owner, no further prosecution action could be taken and the cases were closed.

4.28 In another case, a camera system captured images of a case relating to illegal dumping of C&D materials. The responsible driver identified by the vehicle owner refused to provide further information or attend an interview when contacted by the EPD. According to the EPD, as there was insufficient evidence to establish an offence having been committed by the driver, no further prosecution action could be taken and the case was closed.

4.29 In Audit's view, the EPD needs to seek legal advice on ways and means to take prosecution actions in illegal waste dumping cases if the vehicle owners and/or responsible drivers involved do not provide details of the cases.

### *Long lapse of time and inadequate evidence*

4.30 Audit noted that in three cases, the responsible drivers claimed that the waste dumping was based on the advice of staff at the FEHD's refuse collection points (3 of the 5 cases in para. 4.18(d)(iii)). However, the FEHD informed the EPD that it could not identify the staff claimed by the drivers. According to the FEHD, it was only informed of the other two cases four months after their occurrence and the quality of the images provided by the EPD was not good enough for identifying the staff involved. In Audit's view, the EPD needs to notify the FEHD of related incidents for taking follow-up actions on a timely basis.

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**Note 16:** *Under section 23B of the Waste Disposal Ordinance, the EPD may serve a notice on a person and require him to provide information. A person who fails without reasonable excuse to comply with the requirement or make any statement which he knows to be incorrect in a material respect commits an offence and is liable to a fine of \$100,000.*



### ***Responsible drivers claiming that the waste dumping was carried out under instruction***

4.31 A camera system captured images of four cases relating to illegal dumping of C&D materials (see para. 4.18(d)(iv)), which involved the same vehicle. At an interview, the vehicle owner, who was also the responsible driver, claimed that she only provided delivery services to her clients. She also provided the EPD with the contact number of the same client in the four cases. The EPD made several attempts to contact the said client but in vain. According to the EPD, as there was insufficient evidence in ascertaining the identity of the offender, no further prosecution action could be taken and the cases were closed. In Audit's view, the EPD needs to seek legal advice on the ways and means to take prosecution actions in illegal waste dumping cases where responsible drivers involved claim that they only act according to instructions of persons who have hired the delivery services.

### ***Prosecution actions not taken on illegal dumping of waste by hand delivery or by cart***

4.32 From August to October 2015 (Note 17), the camera systems installed at 12 locations under the trial scheme (see para. 4.16) had captured images of a total of 128 cases involving illegal dumping of C&D materials (Note 18), comprising 37 (29%) cases involving dumping by vehicles and 91 (71%) cases by hand delivery or by cart. According to the EPD, owing to difficulties in identifying the persons involved in illegal dumping of waste by hand delivery or by cart, the EPD did not take prosecution actions for the 91 cases. In Audit's view, the EPD, in collaboration with relevant government departments, needs to strengthen actions to detect and prevent illegal dumping of waste on government land, such as enhancing patrolling inspections at black spots of illegal dumping of waste by hand delivery or by cart.

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**Note 17:** *In November 2015, the EPD ceased to keep records of cases of the illegal dumping activities captured by surveillance camera systems where no vehicle was involved.*

**Note 18:** *During the period, the camera systems also captured images of a total of 978 cases involving illegal dumping of other waste, comprising 166 (17%) of cases involving dumping by vehicles and 812 (83%) cases by hand delivery or by cart.*

## **Audit recommendations**

4.33      **Audit has *recommended* that, in managing surveillance camera systems to detect illegal dumping of C&D materials in future, the Director of Environmental Protection should:**

- (a)      take measures with a view to ensuring that surveillance camera systems installed for collecting evidence for prosecution purposes are capable of capturing clear images of registration marks of vehicles involved in illegal dumping of waste;**
- (b)      take measures with a view to ensuring that prosecution actions relating to illegal dumping of waste are taken within the six-month time limit;**
- (c)      issue guidelines on procedures for handling cases of illegal dumping of waste with images captured by surveillance camera systems;**
- (d)      strengthen efforts on contacting the vehicle owners involved in illegal waste dumping cases with reference to the good practices of the Police in handling speeding and red-light jumping cases;**
- (e)      forward cases where letters sent to vehicle owners using addresses provided by the TD are returned unclaimed to the TD for follow-up actions for any offence related to not timely notifying the TD of changes of addresses;**
- (f)      seek legal advice on ways and means to take prosecution actions against the responsible persons involved in illegal waste dumping cases who do not provide case details;**
- (g)      for cases where the responsible drivers claim that the waste dumping is based on the advice of site staff of the FEHD or its contractors, notify the FEHD of the incidents for taking follow-up actions on a timely basis; and**

## **Measures to prevent and detect illegal dumping**

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- (h) **in collaboration with relevant government departments, strengthen actions to detect and prevent illegal dumping of waste on government land, including that by hand delivery and by cart.**

## **Response from the Government**

4.34 The Director of Environmental Protection agrees with the audit recommendations. He has said that the EPD will:

- (a) for paragraph 4.33(a), enhance the technical specifications of surveillance camera systems to facilitate collection of evidence for prosecution purposes and procure better quality equipment in future, subject to resources availability and value for money considerations;
- (b) for paragraph 4.33(b), remind all frontline staff of the six-month time limit for taking prosecution actions relating to illegal dumping of waste;
- (c) for paragraph 4.33(c), follow up the issuance of guidelines on procedures in handling cases of illegal dumping of waste in the review of the trial scheme on surveillance camera systems;
- (d) for paragraph 4.33(d), make checking with the ImmD as a standard practice in contacting the vehicle owners involved;
- (e) for paragraph 4.33(e), include a procedure in the enforcement guidelines with a view to ensuring that cases where letters sent to vehicle owners using addresses provided by the TD being returned unclaimed are forwarded to the TD for follow-up actions. Cases identified in the trial scheme have been forwarded to the TD for follow-up actions;
- (f) for paragraph 4.33(f), follow up with the Department of Justice in relation to ways and means in taking prosecution actions against the responsible persons involved in illegal waste dumping cases;

## **Measures to prevent and detect illegal dumping**

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- (g) for paragraph 4.33(g), timely notify the FEHD for checking and taking follow-up actions with contractors or their employees for cases where the responsible drivers claim that the waste dumping is based on the advice of site staff or contractors; and
- (h) for paragraph 4.33(h), strengthen actions to detect and prevent illegal dumping of waste. Follow-up actions will be subject to the priorities of the government departments concerned.

4.35 The Commissioner for Transport has said that, regarding paragraph 4.33(e), the TD welcomes the recommendation for the EPD to forward cases (where the address records of vehicle owners are suspected to be incorrect) to the TD for follow-up actions, and such a practice has been adopted by some government departments using address records of the TD.

## **PART 5: WAY FORWARD**

5.1 This PART examines the major problems on management of abandoned C&D materials and the way forward.

### **The problems**

5.2 Abandoned C&D materials generated had increased by 150% from 2007 to 2014. During the eight-year period, 93% of the abandoned C&D materials generated were fill materials for reuse and 7% were mixed C&D materials having been disposed of at landfills. Of the 125.65 Mt of fill materials generated during the period, 36% were reused in local works projects and 59% were exported to the Mainland. Therefore, the reuse of the vast quantities of fill materials generated from C&D activities in the future is dependent on the quantities of fill materials utilised by local works projects and the continuance of exporting surplus fill materials outside Hong Kong.

5.3 Furthermore, disposal of abandoned C&D materials accounted for 27% of the total waste being disposed of at the three landfills in 2014. However, according to the EPD, SENT Landfill and NENT Landfill could only cope with the territory-wide disposal need up to late 2020s.

### **Way forward**

#### ***Need to reduce disposal of abandoned C&D materials at landfills***

5.4 Given the scarcity of landfill space, Audit considers that the EPD needs to liaise with related government departments and other stakeholders to strengthen actions to reduce disposal of abandoned C&D materials at landfills.

5.5 In this connection, Audit noted that the charge rates of the charging scheme would be revised in April 2017 which would provide additional economic incentives to producers of abandoned C&D materials to reduce generation of such materials and practise waste sorting to reduce disposal of abandoned C&D materials at landfills.

***Need to formulate long-term plan for exporting surplus fill materials***

5.6 In view of the fact that local works projects could not fully absorb fill materials generated for reuse, in 2004 after discussions, the then ETWB signed an agreement with the related Mainland authority under which surplus fill materials of Hong Kong could be transported for use by works projects on the Mainland. In January 2006, a reclamation project in Taishan was designated as the project for receiving surplus fill materials from Hong Kong. From 2007 to 2014, a total of 73.67 Mt of fill materials had been transported from Hong Kong for reuse by the Taishan project, representing 59% of the total 125.65 (44.95 + 73.67 + 16.9 – 9.87 — see Appendix A) Mt of fill materials generated during the period. Accordingly, Taishan had been an important destination for receiving locally generated fill materials in recent years.

5.7 Audit noted that the quantity of fill materials for export to Taishan was subject to agreement between the ENB and the related Mainland authority on a yearly basis. For 2016, it was agreed that Taishan would receive 13 Mt of fill materials from Hong Kong. There is a risk that the Taishan project may not be able to absorb all surplus fill materials generated in Hong Kong in a given year and in the long term. In Audit's view, for long-term planning purposes, the ENB, in collaboration with the CEDD, needs to explore destinations other than Taishan for receiving surplus fill materials generated in Hong Kong.

5.8 In addition, given the high delivery cost involved in exporting fill materials outside Hong Kong, the EPD, in collaboration with the CEDD, also needs to further strengthen measures to encourage local reuse of fill materials generated in Hong Kong.

***Need to formulate plan for installing surveillance camera systems to prevent and detect illegal dumping of C&D materials***

5.9 Audit noted that the trial scheme commencing in August 2015 on installing surveillance camera systems to prevent and detect illegal dumping of C&D materials was completed in February 2016 (see paras. 4.16 to 4.18). According to the EPD, it commenced a review in February 2016 to examine, among other things, the technical and legal constraints encountered in the trial scheme, with a view to drawing up measures to tackle the problems identified. In Audit's view, the EPD needs to complete the review of the trial scheme on a timely basis and,

## Way forward

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based on the review results, formulate strategies and implementation plans for installing surveillance camera systems to prevent and detect illegal dumping of C&D materials.

## Audit recommendations

5.10      **Audit has *recommended* that the Secretary for the Environment should, in collaboration with the Director of Civil Engineering and Development, explore destinations other than Taishan for receiving surplus fill materials generated in Hong Kong.**

5.11      **Audit has *recommended* that the Director of Environmental Protection should:**

- (a)      **in collaboration with the Director of Civil Engineering and Development, further strengthen measures to encourage local reuse of fill materials generated in Hong Kong; and**
- (b)      **complete the review of the trial scheme on installing surveillance camera systems on a timely basis and, based on the review results, formulate strategies and implementation plans for installing the systems to prevent and detect illegal dumping of C&D materials.**

## Response from the Government

5.12      The Secretary for the Environment agrees with the audit recommendation in paragraph 5.10.

5.13      The Director of Environmental Protection agrees with the audit recommendations in paragraph 5.11.

5.14      The Director of Civil Engineering and Development agrees with the audit recommendations in paragraphs 5.10 and 5.11(a).

**Changes of quantities of fill materials  
stockpiled at public fill banks  
(2007 to 2014)**

Quantity (Mt)	2007	2008	2009	2010	2011	2012	2013	2014	Overall
<b>Fill materials stockpiled at year beginning</b>	9.87	13.92	11.48	14.47	15.53	15.43	18.64	21.03	9.87
<b>Add:</b> Abandoned C&D materials generated	8.39	9.04	15.44	14.31	18.78	24.57	24.08	21.00	135.61
<b>Less:</b> Fill materials reused locally (Note)	(1.09)	(0.01)	(0.21)	(2.54)	(6.42)	(10.65)	(10.66)	(13.37)	(44.95)
Fill materials exported to Taishan	(2.10)	(10.34)	(11.10)	(9.40)	(11.24)	(9.45)	(9.72)	(10.32)	(73.67)
Abandoned C&D materials disposed of at landfills	(1.15)	(1.13)	(1.14)	(1.31)	(1.22)	(1.26)	(1.31)	(1.44)	(9.96)
<b>Fill materials stockpiled at year end</b>	13.92	11.48	14.47	15.53	15.43	18.64	21.03	16.90	16.90
<b>Total storage capacity of public fill banks</b>	22.9	19.2	19.2	19.2	19.2	21.9	22.3	22.3	

*Source: CEDD and EPD records*

*Note: The data for fill materials reused locally comprised the following two components:*

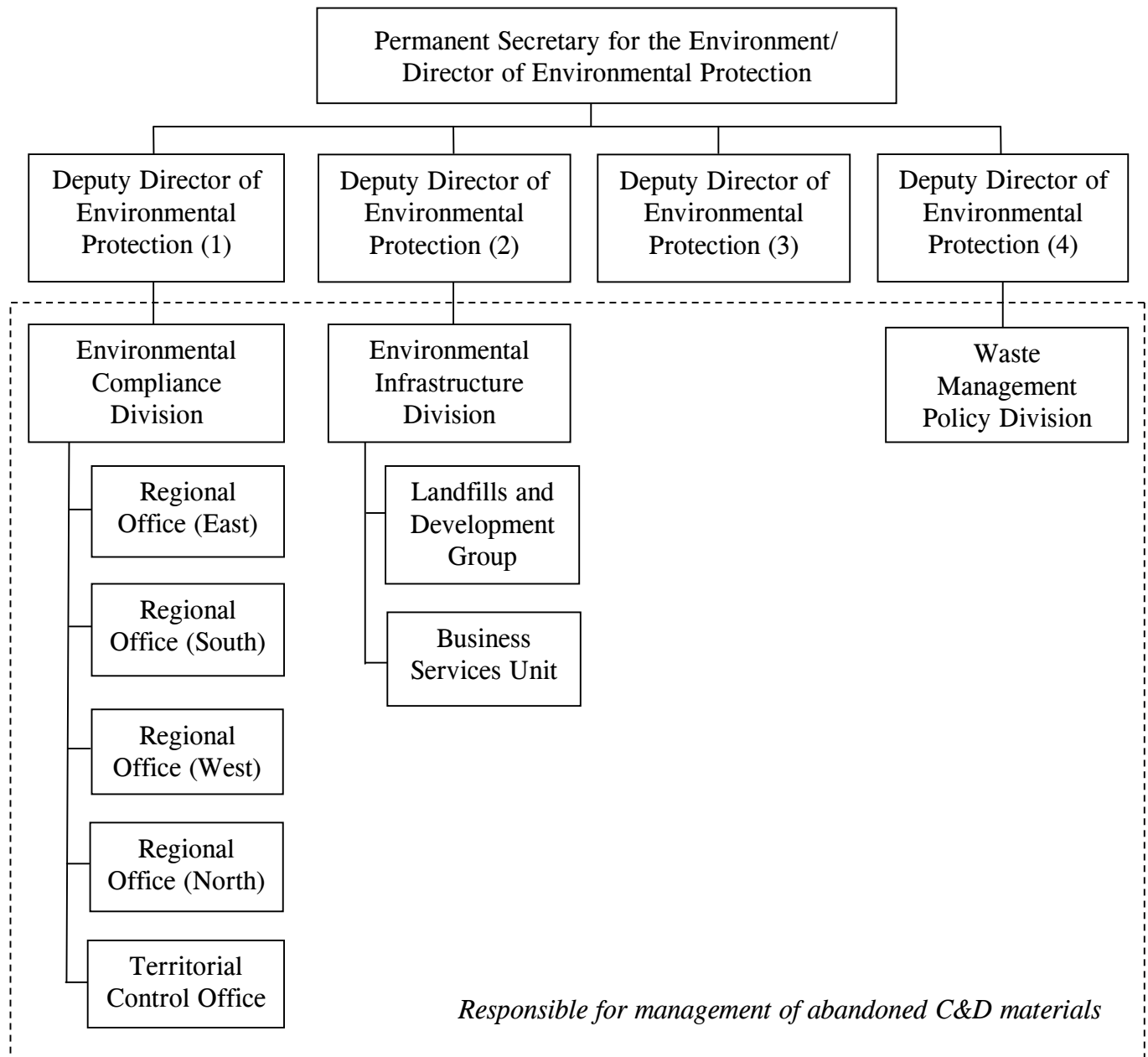
- (a) *Fill materials reused directly (i.e. fill materials directly delivered from a works site to another works site for reuse without delivering them to public fill banks); and*
- (b) *Fill materials taken from public fill banks.*

*Details are as follows:*

Quantity (Mt)	2007	2008	2009	2010	2011	2012	2013	2014	Total
(a) Fill materials reused directly	0.72	0.01	0.21	2.54	6.19	10.48	9.84	7.01	37.00
(b) Fill materials taken from public fill banks	0.37	—	—	—	0.23	0.17	0.82	6.36	7.95
Total	1.09	0.01	0.21	2.54	6.42	10.65	10.66	13.37	44.95

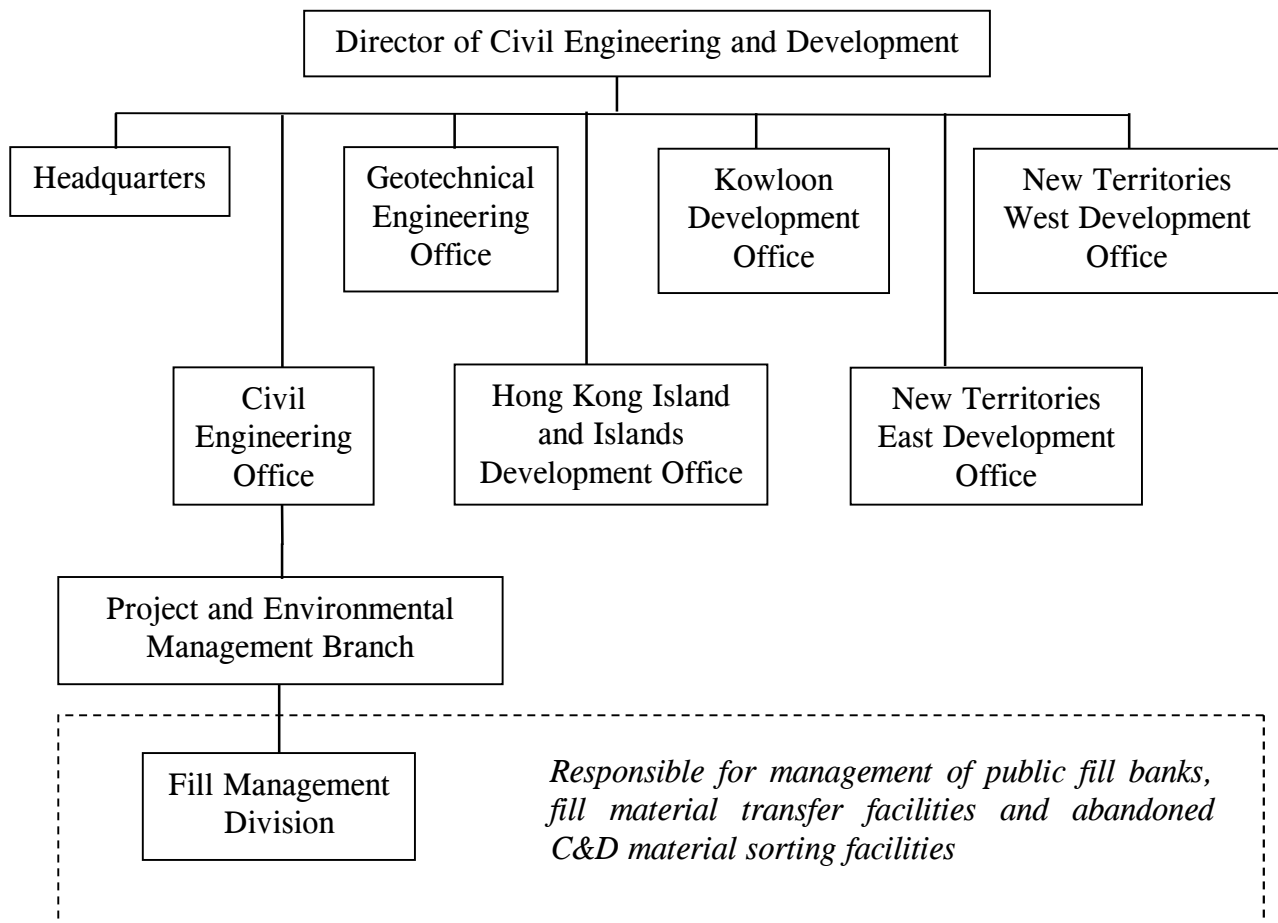


**Environmental Protection Department:  
Organisation chart (extract)  
(31 July 2016)**



Source: EPD records

**Civil Engineering and Development Department:  
Organisation chart (extract)  
(31 July 2016)**



Source: CEDD records

**Cost recovery of fill-material charge  
(2006-07 to 2014-15)**

Financial year	Quantity received (Note 1) (a) (Mt)	Quantity subjected to charge (Note 2) (b) (Mt)	Cost per tonne (Note 3) (c)	Charge rate per tonne (d)	Cost recovery rate (e) = (d) ÷ (c) × 100% (Percentage)	Estimated cost under-recovered (f) = (b) × [(c) – (d)] (Million)
2006-07	6.06	1.07	\$43	\$27	63 %	\$17.12
2007-08	6.27	3.38	\$63		43 %	\$121.68
2008-09	6.80	4.84	\$61		44 %	\$164.56
2009-10	6.77	5.84	\$64 (Note 4)		42 %	\$216.08
2010-11	10.35	8.91	\$66		41 %	\$347.49
2011-12	11.20	11.37	\$66		41 %	\$443.43
2012-13	12.64	13.45	\$58		47 %	\$416.95
2013-14	12.73	13.35	\$85		32 %	\$774.30
2014-15	12.39	12.56	\$62		44 %	\$439.60
Total						\$2,941.21

*Source: Audit analysis of CEDD and EPD records*

*Note 1: These refer to quantities of fill materials being received at public fill banks in calendar years. For simplicity, these quantities were taken as those being received in financial years in this table. These quantities only included fill materials being directly disposed of at public fill banks but excluded that being sorted from sorting facilities, because charges had been levied on abandoned C&D materials being disposed of at the sorting facilities.*

*Note 2: According to the EPD, the variances between the data in columns (a) and (b) were due to:*

- (a) some types of fill materials were exempted from the charges (e.g. fill materials generated from works projects where the related works contracts had been awarded on a date which was earlier than 1 December 2005); and*
- (b) the charge for fill materials delivered by an approved vessel to a public fill bank was based on the maximum allowable loading of the vessel instead of the actual weight of the fill materials delivered. Therefore, for a vessel not carrying a full load of fill materials, the quantity of fill materials subject to charge would be greater than the actual quantity of the materials being delivered to public fill banks.*

*Note 3: These costs were based on the costing statements prepared by the CEDD.*

*Note 4: According to the CEDD, costing statement for 2009-10 was not prepared. The average of the costs of 2008-09 and 2010-11 was taken as the estimated cost of 2009-10.*

**Cost recovery of sorting charge  
(2006-07 to 2014-15)**

Financial year	Quantity received (Note 1)  (a) (Mt)	Quantity subjected to charge (Note 2)  (b) (Mt)	Cost per tonne (Note 3)  (c)	Charge rate per tonne  (d)	Cost recovery rate  (e) = (d) ÷ (c) × 100% (Percentage)	Estimated cost under-recovered  (f) = (b) × [(c)-(d)] (Million)
2006-07	1.46	0.28	\$140	\$100	71 %	\$11.20
2007-08	0.89	0.46	\$180		56 %	\$36.80
2008-09	0.76	0.59	\$200		50 %	\$59.00
2009-10	0.75	0.63	\$248 (Note 4)		40 %	\$93.24
2010-11	0.76	0.69	\$296		34 %	\$135.24
2011-12	0.42	0.41	\$229		44 %	\$52.89
2012-13	0.44	0.44	\$242		41 %	\$62.48
2013-14	0.50	0.50	\$295		34 %	\$97.50
2014-15	0.58	0.58	\$299		33 %	\$115.42
Total						\$663.77

*Source: Audit analysis of CEDD and EPD records*

*Note 1: These refer to quantities of abandoned C&D materials being received at sorting facilities in calendar years. For simplicity, these quantities were taken as those being received in financial years in this table.*

*Note 2: See Note 2(a) to Appendix D.*

*Note 3: See Note 3 to Appendix D.*

*Note 4: See Note 4 to Appendix D.*

**Cost recovery of landfill charge  
(2006-07 to 2014-15)**

Financial year	Quantity received (Note 1) (a) (Mt)	Quantity subjected to charge (Note 2) (b) (Mt)	Cost per tonne (Note 3) (c)	Charge rate per tonne (d)	Cost recovery rate (e) = (d) ÷ (c) × 100% (Percentage)	Estimated cost under-recovered (f) = (b) × [(c)-(d)] (Million)
2006-07	0.55	0.09	\$135	\$125	93 %	\$0.90
2007-08	0.48	0.18	\$142		88 %	\$3.06
2008-09	0.53	0.28	\$145		86 %	\$5.60
2009-10	0.53	0.34	\$154		81 %	\$9.86
2010-11	0.63	0.40	\$147		85 %	\$8.80
2011-12	0.98	0.75	\$168		74 %	\$32.25
2012-13	1.01	0.75	\$179		70 %	\$40.50
2013-14	1.01	0.75	\$191		65 %	\$49.50
2014-15	1.03	0.75	\$199		63 %	\$55.50
Total						\$205.97

*Source: Audit analysis of EPD records*

*Note 1: These refer to quantities of abandoned C&D materials being received at landfills in calendar years. For simplicity, these quantities were taken as those being received in financial years in this Table. These quantities only included abandoned C&D materials being directly disposed of at landfills but excluded that being sorted from sorting facilities, because charges had been levied on abandoned C&D materials being disposed of at the sorting facilities.*

*Note 2: See Note 2(a) to Appendix D. Moreover, some waste concrete being disposed of at landfills was not subject to charge (see Note to Figure 2 in para. 1.10) and its quantities were excluded from the calculation.*

*Note 3: These costs were based on the costing statements prepared by the EPD.*

## Acronyms and abbreviations

Audit	Audit Commission
C&D	Construction and demolition
CCTV	Closed circuit television
CEDD	Civil Engineering and Development Department
CPU	Central Prosecution Unit
EA Panel	Panel on Environmental Affairs
EMSTF	Electrical and Mechanical Services Trading Fund
ENB	Environment Bureau
EPD	Environmental Protection Department
ETWB	Environment, Transport and Works Bureau
FC	Finance Committee
FEHD	Food and Environmental Hygiene Department
FSTB	Financial Services and the Treasury Bureau
ha	hectare
HyD	Highways Department
ImmD	Immigration Department
LandsD	Lands Department
LegCo	Legislative Council
m <sup>3</sup>	cubic metre
Mt	million tonnes
NENT	Northeast New Territories
OITFs	Outlying Islands Transfer Facilities
Police	Hong Kong Police Force
SENT	Southeast New Territories
TD	Transport Department
WENT	West New Territories

# **CHAPTER 5**

## **Hospital Authority**

### **Hospital Authority's drug management**

**Audit Commission  
Hong Kong  
28 October 2016**

*This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.*

Report No. 67 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

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# HOSPITAL AUTHORITY'S DRUG MANAGEMENT

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# **HOSPITAL AUTHORITY'S DRUG MANAGEMENT**

## **Executive Summary**

1. The Hospital Authority (HA) manages public hospital services in Hong Kong, which are heavily subsidised by the Government. In 2015-16, the HA's total expenditure was \$59 billion, mostly funded by subvention from the Government of \$52 billion. The provision of drug treatments to patients in accordance with their clinical needs is an integral part of the services of public hospitals and clinics. In 2015-16, the costs of drugs used by HA patients totalled \$5,710 million, representing about 10% of HA expenditure. The Audit Commission (Audit) has recently conducted a review of the HA's drug management.

### **Management of the HA Drug Formulary**

2. Each year, the HA dispenses a huge quantity of drugs to patients. Drugs supplied must comply with the HA's standards of product quality, safety and efficacy. Since 2005, the HA has implemented the HA Drug Formulary (HADF) to standardise drug policy and drug utilisation in all public hospitals and clinics, thereby ensuring equitable access by patients to cost-effective drugs of proven safety and efficacy. As at April 2016, the HADF consisted of 1,295 drugs, involving 2,708 drug items. (A drug may be available in different dosage forms, such as in tablet or syrup form of different dosages. Each form is known as a drug item.) The 1,295 drugs comprised 1,218 general or special drugs provided to patients at standard fees and charges, and 77 self-financed drugs that had to be purchased by patients at their own expense. Self-financed drugs are drugs that are of significant or marginal clinical benefits but very costly, drugs that only show preliminary medical evidence on their clinical benefits, safety or efficacy, or lifestyle drugs (such as anti-obesity drugs). Under the HADF mechanism, the HA's Drug Advisory Committee is responsible for evaluating applications for listing new drugs on the HADF, with principal considerations being safety, efficacy and cost-effectiveness. To suit its specific needs, each hospital may select drugs from the HADF to draw up its own formulary, which describes the scope of drugs used in the hospital. A hospital may acquire a new drug not listed on the HADF (non-HADF drug) in emergency/life-threatening situations or specific circumstances.

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If it is intended to include the new drug in the HADF, the concerned hospital should follow the normal procedure and submit an application to the Drug Advisory Committee (paras. 1.8, 2.2, 2.4, 2.5, 2.7, 2.8 and 4.3).

3. *Need to better manage the use of non-HADF drugs.* According to the HA, while HADF drugs were intended for corporate-wide use benefiting the entire local population, non-HADF drugs were to cater for the clinical needs of individual patients in exceptional situations. In 2015-16, the expenditure on non-HADF drugs totalled \$249 million, representing 4.4% of the total drug expenditure of the HA. In 2015-16, 362 non-HADF drug items were used by public hospitals and clinics, up 25% from 290 items in 2013-14. The 362 items comprised 95 items which had been registered in Hong Kong and 267 unregistered ones. Audit noted the following issues: (a) the 362 drug items were not listed on the HADF and may not be made available to patients attending different public hospitals and clinics having the relevant clinical needs; (b) the 95 non-HADF registered drug items involved 73 drugs. For 45 drugs, applications for listing on the HADF had not been made (see para. 5 below). For the other 28 drugs, the Drug Advisory Committee had rejected their applications for listing on the HADF for reasons including insufficient evidence on clinical benefits, efficacy, safety or cost-effectiveness; (c) as the Drug Advisory Committee does not accept applications for listing unregistered drugs on the HADF, the clinical benefits, efficacy, safety and cost-effectiveness of the 267 non-HADF unregistered drug items had not been evaluated by the Committee; and (d) the HA had not provided clear written guidelines for managing the use of non-HADF drugs. Audit visits to hospitals revealed different practices in the approval procedures for the prescription of non-HADF drugs by doctors (paras. 2.10 to 2.19).

4. *Need to issue guidelines on charging of non-HADF drugs.* The HA has not laid down any policy or guideline on the charging of non-HADF drugs. Audit visits to hospitals revealed differences in charging practices. In 2015-16, a total of 171,200 prescriptions were issued on the 362 non-HADF drug items. For 5,966 (3.5%) prescriptions, in addition to paying standard fees and charges, the patients were charged for the drugs at cost. For the remaining 165,234 (96.5%) prescriptions, the drugs were covered by standard fees and charges (e.g. included in the standard fee of \$45 for general outpatient services) (paras. 2.3 and 2.20 to 2.23).

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5. *Need to encourage and facilitate applications for new drug listing.* The HA's practice is that applications for new drug listing on the HADF should be initiated by HA clinicians. During 2013-14 to 2015-16, a total of 51 drugs were added to the HADF. Audit noted that only a few HA hospitals and clinics, mainly the leading hospitals, had regularly applied for new drug listing. During the audit visit to a medium-sized hospital, Audit was informed that the hospital had never applied for new drug listing. Audit also noted that no applications for listing on the HADF had been made for 45 non-HADF registered drugs used by public hospitals and clinics in 2015-16 (see para. 3(b) above), although some were in regular demand (paras. 2.30 to 2.33).

### Procurement of drugs

6. *Room for establishing more bulk contracts to achieve better economies of scale.* The HA Head Office is responsible for establishing bulk contracts for drug items to save procurement costs and achieve economies of scale, including supply contracts established by tender (normally with a three-year term and for drug items with an average annual purchase amount exceeding \$500,000). For drug items not covered by bulk contracts, hospitals purchase them directly from suppliers. In 2015-16, of the 2,491 drug items purchased by the HA, 1,472 (59%) were purchased using bulk contracts and 1,019 (41%) were purchased directly by hospitals. Audit analysis of the 1,019 drug items revealed room for procuring 193 drug items (involving \$328 million in aggregate) through bulk supply contracts by tender to achieve better value for money (paras. 3.3, 3.4, 3.7, 3.8 and 3.10).

7. *Room for better managing the risk of supply interruption.* The HA procures drugs from many suppliers, including Supplier A which accounted for 37% of the amount of procurement in 2015-16. During 2013-14 to 2015-16, the number of complaints about late delivery of drugs by Supplier A increased by 183% from 65 to 184. According to its internal procedure, the HA may convene a Performance Review Group meeting to review a drug supplier's performance in detail for necessary follow-up. However, no such meeting had been held in respect of Supplier A. Audit also noted room for enhancing multi-source procurement of drug items. In 2012, the HA set a guideline that drug items used for the treatment of chronic diseases by more than 100,000 patients annually should be procured from multiple sources. As at July 2016, 13 drug items met the criteria. However, multi-source procurement had been adopted for only 7 of the 13 drug items.

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Moreover, although some commonly-used drug items did not meet the current criteria for multi-source procurement, including 34 drug items each used by more than 50,000 patients, the HA should consider the need to implement multi-source procurement for them (paras. 3.14 to 3.20).

### Dispensing and handling of drugs

8. *Need to assess the extent of drug wastage.* Each year, the HA dispenses a huge quantity of drugs to patients. HA records showed that, in general, the average period of time covered by a prescription (average prescription length) had been increasing. For example, during 2011-12 to 2015-16, the average prescription length for specialist out-patients increased by 7.8 days (10.2%), from 76.4 to 84.2 days. Overseas experience indicated that prescribing large quantities of drugs for a long period of time could lead to drugs being unused and wasted. Audit noted that the HA had not taken steps to assess the extent of drug wastage among patients for taking appropriate measures to tackle the problem (paras. 4.3 to 4.6).

9. *Need to improve the handling of dangerous drugs.* Dangerous drugs are drugs or substances specified in the Dangerous Drugs Ordinance (Cap. 134). The Ordinance sets out the rules for controlling the manufacture, supply, possession and administration of dangerous drugs. The number of incidents of missing dangerous drugs in the HA increased from 3 in 2011-12 to 10 in 2015-16, totalling 32 incidents for the 5 years. For each incident, the responsible hospital conducted investigations. However, the direct causes in 27 (84%) incidents could not be identified. Of the 27 incidents, 4 incidents occurred in the same hospital, suggesting that effective improvement measures had not been taken after each incident. Pursuant to the Dangerous Drugs Ordinance, the hospital shall forthwith notify the Department of Health of an incident of missing dangerous drugs. However, of the 32 incidents, Audit found that 5 (16%) had not been reported after a lapse of 425 to 1,494 days since the drugs were found missing. For 5 of the remaining 27 incidents, more than 14 days had been taken to report the incidents (paras. 4.10 and 4.13 to 4.16).



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### Monitoring the quality of drugs

10. *Scope for improving sample testing of drugs.* The HA has commissioned local laboratories to conduct microbiological testing and chemical testing on drugs procured by it. Drugs in general are tested under a sampling programme. During 2013-14 to 2015-16, the amount of drugs procured by the HA increased by 15.4%, from \$5,421 million to \$6,256 million. However, excluding drugs related to safety alerts or drug quality complaints (tests on them were ad hoc and the number of tests might fluctuate from year to year), the total number of drugs selected for testing decreased by 6.1%, from 773 to 726. The HA had not laid down the drug testing strategy and detailed sampling methodology to justify the scale of drug testing. For testing performed in 2014-15, 41% of the laboratories' reports on testing results were not submitted to the HA within the required time. Late reporting of testing results will cause delay in taking necessary action to mitigate the risk of sub-standard drug items (paras. 5.3 to 5.6).

11. *Scope for improving investigation of complaints about drug quality.* The Chief Pharmacist's Office of the HA is responsible for reviewing and following up drug quality complaints received from frontline hospitals and clinics. It will request suppliers to investigate the issue and propose improvement measures where necessary. Audit analysis of 240 complaint cases in 2015-16 revealed that in 24 cases, the HA took more than 6 months to complete the investigations. Audit noted that many suppliers had failed to provide investigation reports to the HA within the required time frame of one month, which could be a factor causing the long time taken to complete some investigations by the HA. The HA needs to ensure that investigations of drug quality complaints are completed as soon as possible, with a view to taking timely remedial action where necessary (paras. 5.14 to 5.16).

### Administering financial assistance programmes for purchasing self-financed drugs

12. *Expanding coverage of drugs.* The HA is responsible for administering two financial assistance programmes (funded by the Samaritan Fund and the Community Care Fund respectively) to provide subsidies to needy patients for purchasing self-financed drugs covered by the programmes. As at April 2016, of the 77 self-financed drugs listed on the HADF (see para. 2 above), 30 were covered by the programmes (referred to as self-financed drugs with safety net) and 47 were not (referred to as self-financed drugs without safety net). Audit noted that many

## Executive Summary

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patients needed self-financed drugs without safety net for treatment (e.g. a total of 589,000 items were prescribed to HA out-patients in 2014-15). From time to time, there have been requests from patients and patient groups for expanding the coverage of the safety net to benefit more patients (e.g. drugs for treatment of certain cancers). The HA should continue its efforts to prioritise new drugs to be included under the scope of the safety net (paras. 6.3, 6.4 and 6.7 to 6.9).

13. ***Enhancing post-approval checks.*** The subsidies under the financial assistance programmes are provided only for needy patients. To prevent and detect fraud and abuse and to take appropriate action against suspect who commits deception related offence, the HA conducts sample checks on approved financial assistance cases. During 2010-11 to 2015-16, of the 1,369 cases with checks completed, under-reporting of income and/or assets had been found in 591 (43%) cases, involving overpayments of \$5.4 million in subsidies. Audit examination revealed inadequacies in the conduct of checking (e.g. limited scope of checking), which might have affected the checking results (paras. 6.13 to 6.22).

### Audit recommendations

14. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Chief Executive, HA should:**

#### ***Management of the HADF***

- (a) **review what measures need to be implemented to ensure that patients attending different public hospitals and clinics have equitable access to non-HADF drugs when they have the relevant clinical needs (para. 2.28(a));**
- (b) **consider drawing up a detailed manual for managing the use of non-HADF drugs and ensure compliance (para. 2.28(c));**
- (c) **issue comprehensive guidelines on the charging of non-HADF drugs covering different situations and ensure compliance (para. 2.28(d));**

## **Executive Summary**

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- (d) encourage and facilitate more HA hospitals and clinics to apply for new drug listing on the HADF (para. 2.35(b));

### ***Procurement of drugs***

- (e) set up an effective mechanism for regularly analysing hospitals' demand for drug items not covered by bulk contracts to determine whether bulk contracts should be used to achieve the best value for money (para. 3.12(c));
- (f) closely monitor the performance of drug suppliers in complying with delivery schedules and take effective follow-up action on delivery complaints received from hospitals (para. 3.25(a));
- (g) assess the risk and impact of supply disruption for commonly-used drug items to determine whether multi-source procurement should be implemented for them (para. 3.25(c) and (d));

### ***Dispensing and handling of drugs***

- (h) regularly assess the extent of drug wastage among patients of the HA, and take appropriate measures to tackle the problem (para. 4.8);
- (i) conduct a comprehensive review of the handling and custody of dangerous drugs where necessary, issue guidelines on the investigation of incidents of missing dangerous drugs and ensure that such incidents are forthwith reported to the Department of Health (para. 4.17(a), (c) and (d));

### ***Monitoring the quality of drugs***

- (j) formulate a strategy for sample testing of drugs and lay down clearly the sampling methodology for implementing the strategy (para. 5.7(a) and (b));

## **Executive Summary**

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- (k) ensure that contractors submit reports on drug testing according to the time frame set out in the contracts (para. 5.7(c));
- (l) ensure that investigations of complaints about drug quality are completed as soon as possible (para. 5.17);

### ***Administering financial assistance programmes for purchasing self-financed drugs***

- (m) continue to include appropriate new self-financed drugs under the scope of the safety net (para. 6.10); and
- (n) explore expanding the scope of post-approval checks on financial assistance cases and take improvement measures on the long time taken to follow up some significant cases of under-reporting of income and/or assets (para. 6.23(b) and (d)).

## **Response from the Hospital Authority**

15. The Chief Executive, HA has said that the HA agrees with the audit recommendations.

## PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

1.2 In Hong Kong, services at public hospitals and clinics are heavily subsidised by the Government. It is the Government's public healthcare policy to ensure that no one is prevented from obtaining adequate medical treatment because of the lack of means.

### *Hospital Authority*

1.3 The Hospital Authority (HA) is a statutory body established under the Hospital Authority Ordinance (Cap. 113). The HA Board consists of 28 members, comprising 24 non-official members (including the Chairman), three public officers (i.e. Permanent Secretary for Food and Health (Health), Director of Health and Deputy Secretary for Financial Services and the Treasury (Treasury)) and one principal officer (i.e. the HA Chief Executive). Since December 1990, the HA has been managing public hospital services in Hong Kong (Note 1). In 2015-16, the expenditure of the HA totalled \$59 billion, mostly funded by subvention from the Government of \$52 billion. The Food and Health Bureau, which is responsible for formulating overall health policies for Hong Kong, subvents the HA to provide the services.

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**Note 1:** *The HA's functions include:*

- (a) *managing and controlling public hospitals;*
- (b) *advising the Government of the needs of the public for hospital services and of the resources required to meet those needs;*
- (c) *managing and developing the public hospital system; and*
- (d) *recommending to the Government appropriate policies on fees for the use of hospital services by the public.*

## Introduction

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1.4 As at June 2016, the HA managed 41 public hospitals and institutions (collectively referred to as “hospitals” hereinafter). The hospitals were organised into seven clusters, serving different catchment areas over the territory:

- (a) ***Hong Kong.*** The 2 clusters were Hong Kong East (7 hospitals) and Hong Kong West (7 hospitals);
- (b) ***Kowloon.*** The 3 clusters were Kowloon East (3 hospitals), Kowloon Central (5 hospitals) and Kowloon West (8 hospitals); and
- (c) ***New Territories.*** The 2 clusters were New Territories East (7 hospitals) and New Territories West (4 hospitals).

Operating in the clusters were also 73 general out-patient clinics providing community-based primary care services, and 47 specialist clinics providing specialist consultation, treatment and investigation services. A total of about 71,000 HA staff were working at the HA headquarters (HA Head Office) and the seven clusters.

### ***HA Drug Formulary***

1.5 The provision of drug treatments to patients in accordance with their clinical needs is an essential part of patient care. This is also an integral part of the services of public hospitals and clinics.

1.6 The World Health Organisation has been actively promoting the concept of “essential medicine”. It recommends that health authorities around the world establish their own mechanisms for systematic selection of drugs to promote availability, accessibility, affordability, quality and rational use of medicines. The HA embarked on the development of the HA Drug Formulary (HADF) in 2003, based on the guiding principle that public resources should be used to maximise the effects of healthcare and provide equitable access for all patients.

1.7 Since July 2005, the HA has implemented the HADF in all public hospitals and clinics. The objectives are to standardise drug policy and drug utilisation in all public hospitals and clinics, thereby ensuring equitable access by patients to cost-effective drugs of proven safety and efficacy. As at April 2016, 1,295 drugs were listed on the HADF.

### ***Drug procurement***

1.8 Drugs supplied to the HA must comply with its quality requirements, in particular:

- (a) drugs supplied to the HA should meet product registration requirements according to the laws of Hong Kong (Note 2);
- (b) the manufacturing sites of drug manufacturers should meet the Good Manufacturing Practices (Note 3) requirements; and
- (c) complete product specific information (Note 4) should be provided to the HA for evaluation of product quality, safety and efficacy for HA operation.

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**Note 2:** *In Hong Kong, it is a legal requirement that drugs must be registered by specified persons (e.g. licensed manufacturer or licensed wholesale dealer) with the Pharmacy and Poisons Board established under the Pharmacy and Poisons Ordinance (Cap. 138). As at 31 December 2015, there were 19,489 drug items registered in Hong Kong.*

**Note 3:** *The Good Manufacturing Practices is a system of manufacturing practices for ensuring that pharmaceutical products are consistently produced and controlled according to quality standards appropriate to their intended use as required by the product specifications.*

**Note 4:** *The required product specific information includes product master formula, finished product specifications and stability data, and bioequivalence data for generic drugs demonstrating comparable efficacy as the proprietary drugs.*

## **Introduction**

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1.9 The Chief Pharmacist's Office of the HA oversees pharmaceutical service deliveries in the HA including drug procurement. In collaboration with the pharmaceutical supplies team of the Procurement and Materials Management Section, bulk contracts are established for the procurement of drugs, and safety and quality of drugs as well as the performance of drug suppliers are monitored. In 2015-16, the relevant staff cost of the Chief Pharmacist's Office in overall drug management was about \$55 million, and that for the pharmaceutical supplies team was about \$8.8 million. The total amount of drugs procured in 2015-16 was \$6,256 million. Appendix A shows the specific offices and sections of the HA Head Office which are involved in drug management (including drug quality management and procurement). PART 2 and Appendix B provide an overview of the HA's drug management.

### ***Drug consumption***

1.10 Pharmacies of HA hospitals and clinics provide pharmaceutical care services, including dispensing of drugs. As at 31 March 2016, there were 2,208 staff working in the hospital and clinic pharmacies. The related staff cost in 2015-16 was \$1,193 million. In 2015-16, the costs of drugs used by HA patients totalled \$5,710 million, around 10% of the total expenditure of the HA.

### **Audit review**

1.11 In January 2016, the Audit Commission (Audit) commenced a review of the HA's drug management. In the review, Audit has examined the work performed by the HA Head Office and visited four of the 41 HA hospitals. The four hospitals comprised Hospital A located in Hong Kong, Hospitals B and C located in Kowloon and Hospital D located in the New Territories, involving four of the seven hospital clusters. The review has focused on the following areas:

- (a) management of the HADF (PART 2);
- (b) procurement of drugs (PART 3);
- (c) dispensing and handling of drugs (PART 4);



- (d) monitoring the quality of drugs (PART 5); and
- (e) administering financial assistance programmes for purchasing self-financed drugs (PART 6).

Audit has found room for improvement in the above areas and has made a number of recommendations to address the issues.

### **General response from the Hospital Authority**

1.12 The Chief Executive, HA has said that the HA agrees with the audit recommendations. He has also said that the HA expresses sincere gratitude for Audit's efforts and positive recommendations for enhancing the drug management in the HA.

### **Acknowledgement**

1.13 Audit would like to acknowledge with gratitude the assistance and full cooperation of the staff of the HA during the course of the audit review.

## **PART 2: MANAGEMENT OF THE HOSPITAL AUTHORITY DRUG FORMULARY**

2.1 This PART examines the management of the HADF. Audit has found room for improvement in the following areas:

- (a) managing the use of drugs not listed on the HADF (paras. 2.10 to 2.29);
- (b) listing new drugs (paras. 2.30 to 2.36); and
- (c) deleting obsolete drugs (paras. 2.37 to 2.40).

### ***HADF***

2.2 The HADF was first implemented in 2005, then consisting of 1,370 drugs. Over the years, new drugs have been listed and obsolete drugs deleted from the HADF. As at April 2016, the HADF consisted of 1,295 drugs grouped into four categories (Note 5). Table 1 shows the nature and the HA's charging policy for each drug category.

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**Note 5:** *A drug may be available in different dosage forms (e.g. in tablet or syrup form of different dosages). Each form is known as a "drug item". As at April 2016, the HADF consisted of 1,295 drugs. In terms of drug items, it consisted of 2,708 drug items.*

**Table 1**

**Drugs listed on the HADF  
(April 2016)**

<b>Category</b>	<b>Nature and charging policy</b>	<b>No. of drugs</b>
General drugs	<ul style="list-style-type: none"> <li>• available for general use as indicated by patients with relevant clinical indications</li> <li>• provided at standard fees and charges in public hospitals and clinics (see para. 2.3)</li> </ul>	879
Special drugs	<ul style="list-style-type: none"> <li>• used under specific clinical conditions with specific specialist authorisation</li> <li>• provided at standard fees and charges in public hospitals and clinics (see para. 2.3)</li> </ul>	339
Self-financed drugs with safety net (Note)	<ul style="list-style-type: none"> <li>• not covered by the standard fees and charges in public hospitals and clinics</li> <li>• patients who require these drugs have to purchase them at their own expense</li> <li>• a safety net is provided through two Government funds (see para. 6.3) to subsidise the drug expenses of needy patients</li> </ul>	30
Self-financed drugs without safety net (Note)	<ul style="list-style-type: none"> <li>• not covered by the standard fees and charges in public hospitals and clinics</li> <li>• patients who require these drugs have to purchase them at their own expense</li> <li>• no safety net is provided</li> </ul>	47
<b>Total</b>		<b>1,295</b>

*Source: HA records*

*Note: According to the HA, self-financed drugs include: (a) drugs that are of significant clinical benefits but extremely expensive for the HA to provide as part of its standard services; (b) drugs with preliminary medical evidence only; (c) drugs with marginal benefits over available alternatives but at significant higher costs; and (d) lifestyle drugs (e.g. anti-obesity drugs). As at April 2016, of the 77 self-financed drugs (i.e. 30 plus 47), 37 were drugs for treatment of certain cancers.*

### *Drug charges*

2.3 HA standard services rendered in the context of public services are covered by fixed package rates (e.g. included in the standard attendance fee of \$45 for general outpatient services for eligible persons — Note 6). The package rates are set on a highly subsidised basis for eligible persons and on a full cost recovery basis for non-eligible persons. General drugs and special drugs on the HADF are covered by the fixed package rates, except that eligible persons attending specialist clinics for public services are also charged \$10 for each drug item (up to 16 weeks) on the prescription. Self-financed drugs purchased from public hospitals and clinics (Note 7) are charged at the HA's purchase cost. For other self-financed drugs, patients need to purchase them from the market.

### *Objectives of implementing the HADF*

2.4 The objectives of implementing the HADF are to standardise drug policy and drug utilisation in all public hospitals and clinics, thereby ensuring equitable access by patients to cost-effective drugs of proven safety and efficacy.

### *Governance of the HADF*

2.5 *Drug Management Committee.* The Drug Management Committee, which reports to the HA's Directors' Meeting, is responsible for overall drug management in the HA, including the management of the HADF (Note 8). It is supported by the following 2 functional committees and 21 panels (see Appendix B):

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**Note 6:** *Eligible persons include holders of Hong Kong Identity Card, and children who are Hong Kong residents and under 11 years of age.*

**Note 7:** *The HA supplies some self-financed drugs at cost for purchase by patients, including those with safety net, supplied for operational reasons (e.g. used by inpatients and day patients) or not easily accessible in community pharmacies.*

**Note 8:** *The Drug Management Committee is chaired by the Director (Cluster Services) of the HA. Committee members include Chairmen of functional committees, HA staff and academics from local universities.*

## Management of the Hospital Authority Drug Formulary

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- (a) ***Drug Advisory Committee.*** The Committee is responsible for evaluating applications for listing new drugs/indications on the HADF (Note 9). The principal considerations for listing new drugs include safety, efficacy and cost-effectiveness. For drugs evaluated with positive recommendations, the Committee will also decide on the category of the drugs for listing as general drugs, special drugs or self-financed drugs on the HADF. The Committee meets once every three months;
- (b) ***Drug Formulary Committee.*** The Committee is responsible for conducting biennial comprehensive review of the existing drug list and prescribing indications in the HADF (Note 10). It may propose changes such as repositioning of drugs across categories, relaxation of prescribing indications for special drugs and deletion of drugs; and
- (c) ***Expert Panels.*** Expert Panels provide specialist advice on selection of drugs and furnish professional views for review of existing drugs in related speciality areas (see (a) and (b) above). As at May 2016, there were 21 Expert Panels dealing with different specialty areas (e.g. dermatology, oncology and surgery) (Note 11).

Headed by the Chief Pharmacist who reports to the Director (Cluster Services), the Chief Pharmacist's Office at the HA Head Office provides professional and secretariat support for the Drug Management Committee and its functional committees and panels.

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**Note 9:** *The Drug Advisory Committee is chaired by a senior management executive of the HA. Committee members include members from Expert Panels, HA staff and academics from local universities.*

**Note 10:** *The Drug Formulary Committee is chaired by one of the chairmen of the cluster Drug and Therapeutics Committees (see para. 2.6). Committee members include the remaining chairmen of the cluster Drug and Therapeutics Committees and HA staff.*

**Note 11:** *Expert Panels are convened by the Chairman of the Drug Formulary Committee and the Chief Pharmacist of the HA. Panel members include specialist representatives of HA clusters.*

## Management of the Hospital Authority Drug Formulary

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2.6 ***Drug and Therapeutics Committees (DTCs).*** For each of the seven clusters (see para. 1.4), a Drug and Therapeutics Committee (cluster DTC) is established. DTCs are also established in some hospitals (hospital DTCs). The cluster and hospital DTCs (Note 12) play an essential supportive role in the management of the HADF, including:

- (a) implementing policies/guidelines of the Drug Management Committee;
- (b) endorsing cluster/hospital applications for new drug listing before submission to the Drug Advisory Committee; and
- (c) managing hospital formulary (see para. 2.7) and regularly reviewing the need for non-HADF drugs (see para. 2.8).

2.7 ***Hospital formulary.*** New drugs are listed on the HADF after evaluation by the Drug Advisory Committee as cost-effective drugs of proven safety and efficacy. Under the HADF mechanism, to suit its specific needs, each hospital may select drugs from the HADF to draw up its own formulary, which describes the scope of drugs used in the hospital.

2.8 ***Non-HADF drugs.*** A hospital may, at its discretion, acquire a new drug not listed on the HADF that is required in emergency/life-threatening situations or specific circumstances through urgent request. Examples of these situations are as follows:

- (a) drugs that await the Drug Advisory Committee's evaluation but are required for urgent use;
- (b) drugs that are required for urgent use but for which an application is yet to be submitted for the Drug Advisory Committee's evaluation; and
- (c) drugs that are required for one-off use in urgent situations.

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**Note 12:** *A cluster DTC is chaired by the Chief Executive or his/her delegate of the cluster, while a hospital DTC is chaired by the Chief Executive or his/her delegate of the hospital. Members of the cluster and hospital DTCs are HA staff.*

If it is intended to include the new drug in the HADF, the concerned cluster/hospital should follow the normal procedure and submit an application to the Drug Advisory Committee.

**2.9      *Unregistered drugs.*** The Drug Advisory Committee does not accept applications for listing drugs which are not registered in Hong Kong (see Note 2 to para. 1.8(a)) on the HADF. If an unregistered drug is required for use on certain named patients (i.e. names of patients must be provided), the concerned clinician must obtain prior endorsement from the respective Cluster/Hospital DTC via the Chief of Service of related specialties. The clinician should inform the concerned patients on the use of unregistered products and that adverse effects of drug use would be monitored and reported. Upon enquiry, the Department of Health informed Audit in September 2016 that:

- (a) according to the Pharmacy and Poisons Regulations (Cap. 138A), all pharmaceutical products had to be registered with the Pharmacy and Poisons Board before they could be sold, offered for sale or distributed or possessed for the purposes of sale, distribution or other use in Hong Kong. However, the above requirement did not apply in the case of possession or use where the pharmaceutical product was possessed or was to be used for the purpose of treatment of a particular patient by a registered medical practitioner;
- (b) importation of pharmaceutical products into Hong Kong, whether they were registered or unregistered, had to be accompanied by import licences issued by the Department of Health; and
- (c) for importation of an unregistered pharmaceutical product, supporting documents, such as letter of a registered doctor stating the drug's name, required quantity and patient's information, certificate of analysis of the drug issued by the manufacturer, product information, proof of registration of the drug in overseas, etc., were required for consideration by the Department. If the unregistered drug was used by the HA, additional documents (i.e. endorsement by hospital management on the use of the unregistered drug, and acknowledgement from hospital pharmacy on the use of unregistered drug) were required.

### **Managing the use of drugs not listed on the Hospital Authority Drug Formulary**

#### ***Increasing use of non-HADF drugs in public hospitals and clinics***

2.10 As mentioned in paragraph 2.4, one of the objectives of implementing the HADF is to standardise drug utilisation in all public hospitals and clinics. This ensures that patients attending different public hospitals and clinics have equitable access to cost-effective drugs of proven safety and efficacy as listed on the HADF. However, Audit analysis of HA records revealed that, in the past three years (2013-14 to 2015-16), there had been an increasing use of non-HADF drugs by public hospitals and clinics (see Table 2). Compared to 2013-14, the expenditure on non-HADF drugs increased by 180% to \$249 million and represented 4.4% of the total drug expenditure of the HA. Upon enquiry, the HA informed Audit in September 2016 that:

- (a) the increase in use of non-HADF drugs was due to the advancement in technologies with more new drugs coming into the market and these were usually very expensive. The efficacy, safety and cost-effectiveness of these drugs varied. These drugs might not be registered drugs or might not fulfil the criteria for incorporation into the HADF. However, their use on individual basis based on clinical needs was still justifiable; and
- (b) HADF drugs were intended for corporate-wide use benefiting the entire local population while non-HADF drugs were to cater for the clinical needs of individual patients in exceptional situations. The inclusion of non-HADF drugs in the HA drug policy was to bridge the gap between the population and individual needs and to manage urgent situations to ensure patients were provided with appropriate clinical care. The use of non-HADF drugs was an integral part of medical care, accounting for 0.3% of the total number of drug items dispensed in the HA in 2015-16.



**Table 2**

**Non-HADF drug items used by public hospitals and clinics  
(2013-14 to 2015-16)**

	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>Increase from 2013-14 to 2015-16</b>
<b><i>No. of non-HADF drug items used</i></b>				
Registered drug items	71	86	95	24 (34%)
Unregistered drug items	219	260	267	48 (22%)
Overall	290	346	362	72 (25%)
<b><i>HA expenditure on non-HADF drug items used (\$ million)</i></b>				
Registered drug items	45	103	180	135 (300%)
Unregistered drug items	44	57	69	25 (57%)
Overall	89	160	249	160 (180%)
Total HA drug expenditure (\$ million)	4,941	5,328	5,710	
Expenditure on non-HADF drug items as a percentage of total drug expenditure	1.8%	3.0%	4.4%	

*Source: Audit analysis of HA records*

***Need to ensure that non-HADF drugs are accessible to patients with relevant clinical needs***

2.11 Under the HADF mechanism, non-HADF drugs are used in emergency/life-threatening situations or specific circumstances through urgent request, and where appropriate, actions should be taken to list them on the HADF (see para. 2.8). For drugs listed on the HADF, patients with the same clinical needs could have access to the drugs in all public hospitals and clinics, and would be subject to the same charging policy for the drugs as determined by the category in which they are listed (see Table 1 in para. 2.2). Audit analysis of the 362 non-HADF drug items used in 2015-16 revealed that:

## Management of the Hospital Authority Drug Formulary

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- (a) for 57 (16%) registered drug items (involving 45 drugs), applications for new drug listing on the HADF had not been made (see para. 2.33);
- (b) for 38 (10%) registered drug items (involving 28 drugs), applications for new drug listing on the HADF had not been successful (see para. 2.12); and
- (c) for the remaining 267 (74%) items (involving 222 drugs), they were unregistered drugs and no applications for listing them on the HADF would be accepted by the Drug Advisory Committee (see para. 2.17).

The HA needs to implement measures to ensure that individual patients attending different public hospitals and clinics have equitable access to non-HADF drugs when they have the relevant clinical needs.

### ***Some non-HADF drugs used by public hospitals and clinics had failed new drug evaluation by Drug Advisory Committee***

2.12 The 95 non-HADF registered drug items used in 2015-16 (see Table 2) involved 73 drugs (see para. 2.11(a) and (b)). For 28 of these 73 drugs, applications for listing on the HADF had been made during the seven-year period January 2009 to January 2016 one to four times. However, all the 28 drugs had failed the Drug Advisory Committee's new drug evaluation, including 12 drugs which had failed more than one time (see Table 3).

**Table 3**

**28 non-HADF drugs had failed  
new drug evaluation by Drug Advisory Committee  
(January 2009 to January 2016)**

<b>No. of times applications had been submitted and rejected</b>	<b>No. of drugs</b>
1	16
2	7
3	4
4	1
Total	28

*Source: Audit analysis of HA records*

2.13 Audit noted that the Drug Advisory Committee had stated the following reasons for rejecting the applications:

- (a) for 10 drugs, alternative drugs were available on the HADF with comparable benefits;
- (b) for 13 drugs, there was insufficient evidence to demonstrate the clinical benefits, efficacy or safety of the drugs; and
- (c) for 17 drugs, there was insufficient justification of the treatment cost in relation to the benefits.

2.14 Upon enquiry, the HA informed Audit in September 2016 that the Drug Advisory Committee approved HADF drugs that were intended for corporate-wide use for the benefit of the general patient population (see para. 2.10(b)). However, drugs rejected by the Drug Advisory Committee might be necessary for the clinical benefits of individual patients. The number of patients using non-HADF drugs was very small. For example, for the 10 drugs mentioned in paragraph 2.13(a), the number of patients involved ranged from 9 to 198.

2.15 In the visits to the four hospitals (see para. 1.11) during May and June 2016, Audit noted different practices for approving the prescription of non-HADF drugs by doctors. For three hospitals, the relevant doctors had to obtain written approval (e.g. from the Chief of Service) for using a non-HADF drug. For the remaining hospital, its guidelines only specified that written approval was required for acquiring a new drug for one-off use in urgent situation.

2.16 In Audit's view, the continual use of the 28 non-HADF drugs that had failed the Drug Advisory Committee's new drug evaluation should be reviewed regularly because, according to the Committee's comments, comparable drugs on the HADF could have been used instead (see para. 2.13(a)), or there was insufficient evidence on their clinical benefits, efficacy, safety or cost-effectiveness (see para. 2.13(b) and (c)).

### ***Prior endorsement for the use of some non-HADF unregistered drugs not sought or documented***

2.17 The non-HADF drug items used in 2015-16 included 267 unregistered drug items (see Table 2 in para. 2.10). The Drug Advisory Committee does not accept applications for listing unregistered drugs on the HADF. As a result, unlike drugs listed on the HADF, the clinical benefits, efficacy, safety and cost-effectiveness of these drugs had not been evaluated by the Committee. Upon enquiry, the HA informed Audit in May and September 2016 that:

- (a) the use of unregistered drugs was allowed for certain individual patients who demonstrated a clinical need. They were normally used on a named-patient basis (see para. 2.9) when no registered drugs could provide an alternative to the treatment. The use of unregistered drugs would need to bring about clinical benefits to specific patients;
- (b) the prescribing doctor was required to obtain prior endorsement from the respective Cluster/Hospital DTC via the Chief of Service (see para. 2.9); and
- (c) approval of the Department of Health would be obtained on a case-by-case basis for importing the unregistered drugs from places outside Hong Kong.

2.18 For 13 unregistered drug items (about 5% of the 267 unregistered drug items used in 2015-16), Audit examined the 44 prescriptions issued in 2015-16 on them (involving eight hospitals) and noted the following issues:

- (a) ***Prior endorsement not sought.*** In 19 (43%) cases, the requirement of seeking prior endorsement for using unregistered drugs (see para. 2.17(b)) had not been met, as follows:
  - (i) ***Endorsement not sought.*** In 16 (36%) cases, there were no records of endorsement for using the unregistered drugs; and
  - (ii) ***Only covering endorsement sought.*** In 3 (7%) cases, endorsement for using the unregistered drugs was sought only after the drugs had been prescribed; and
- (b) ***Prior endorsement sought.*** In the remaining 25 (57%) cases, prior endorsement for using the unregistered drugs had been sought.

Moreover, the HA could not provide Audit with records of approval by the Department of Health (see para. 2.17(c)) for 30 (68%) of the 44 cases.

2.19 Audit notes that while the HA has issued a detailed HADF Management Manual to give an account of the governance structure and elucidate the principles and operational procedures for managing the HADF (Note 13), there is no similar detailed manual for non-HADF drugs (registered or unregistered drugs). In Audit's view, such manual is useful for managing the use of non-HADF drugs properly.

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**Note 13:** *The HADF Management Manual contains a section on handling of non-HADF drugs by local hospitals (see para. 2.8).*

### *Patients prescribed with non-HADF drugs in public hospitals and clinics might be charged differently*

2.20 The HA's drug charging policies/guidelines are summarised as follows:

#### *Immediate life-threatening emergency situations*

- (a) the HA has issued a guideline on the charging principle for use of drugs in all immediate life-threatening emergency situations. The guideline states that a drug given under immediate life-threatening emergency situation deemed necessary by the clinician should not be charged outside the standard fees and charges. The guideline applies to all drugs; and

#### *Other situations*

- (b) for cases other than immediate life-threatening emergency situations, the HA's drug charging policies/guidelines are as follows:
  - (i) ***Drugs listed on the HADF.*** As mentioned in paragraph 2.3, general drugs and special drugs are provided to patients at standard fees and charges, and self-financed drugs (with or without safety net) provided to patients are charged at cost; and
  - (ii) ***Non-HADF drugs.*** The HA has not laid down a policy or guidelines on the charging of non-HADF drugs.

2.21 In 2015-16, 362 non-HADF drug items were used by HA hospitals and clinics (see Table 2 in para. 2.10), involving a total of 171,200 prescriptions. For 5,966 (3.5%) prescriptions, in addition to paying standard fees and charges (i.e. fixed package rates — see para. 2.3), the patients were charged for the drugs at cost (i.e. similar to self-financed drugs). For the remaining 165,234 (96.5%) prescriptions, the drugs were covered by standard fees and charges (i.e. similar to general drugs and special drugs). Table 4 shows the details.

**Table 4**  
**Charging of non-HADF drugs**  
**(2015-16)**

<b>Drug item</b>	<b>No. of prescriptions</b>		
	<b>Issued</b>	<b>With non-HADF drugs charged at cost</b>	<b>With non-HADF drugs covered by standard fees and charges</b>
95 non-HADF registered drug items	47,378 (100%)	4,364 (9.2%)	43,014 (90.8%)
267 non-HADF unregistered drug items	123,822 (100%)	1,602 (1.3%)	122,220 (98.7%)
362 non-HADF drug items	171,200 (100%)	5,966 (3.5%)	165,234 (96.5%)

*Source: HA records*

2.22 Upon enquiry, the HA informed Audit in September 2016 that doctors could propose and recommend whether or not non-HADF drugs were to be charged at cost. The application would be decided and approved by the local DTC depending on the necessity for use.

2.23 As mentioned in paragraph 2.15, in the visits to the four hospitals, Audit noted different practices for approving the prescription of non-HADF drugs. Regarding charging of the drugs, Audit also noted different practices. For two hospitals, the application form for seeking approval for prescribing non-HADF drugs required the relevant doctors to propose whether or not to charge the patient for the drugs in a similar way as self-financed drugs. For the other two hospitals, the application form did not require the relevant doctors to make such proposal.

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2.24 In the absence of any policy or guideline on the charging of non-HADF drugs for cases other than immediate life-threatening emergency situations, patients with the same clinical conditions, in the same hospital or in different hospitals, may or may not be required to pay for the cost of a non-HADF drug.

### *Different versions of hospital formularies*

2.25 Drugs listed on the HADF are grouped under four categories with different charging policies (see para. 2.2). In the visits to the four hospitals, at Audit's request, the hospitals provided a copy of their hospital formularies for audit examination. Audit noted that, for Hospitals B, C and D, the categories of some drug items in the formularies provided to Audit were different from those specified in the HADF. Examples are as follows:

- (a) *“Special drugs” misclassified as “general drugs”*. 3 drug items specified as “special drugs” in the HADF were misclassified as “general drugs” in Hospital C formulary;
- (b) *“Self-financed drugs without safety net” misclassified as “special drugs”*. 6 drug items specified as “self-financed drugs without safety net” in the HADF were misclassified as “special drugs” in Hospital B formulary; and
- (c) *Items of non-HADF drugs misclassified as “general drugs”*. In Hospital C formulary, 5 non-HADF drug items were misclassified as “general drugs”.

2.26 Upon enquiry, the HA informed Audit in September 2016 of the following:

- (a) *Hospital formularies for communication purpose*. The hospital formularies provided to Audit were used by the hospitals for internal communication. They showed hospital clinical staff which drugs were enlisted in the hospitals for service provision. Hospitals prepared such formularies manually, thus leading to the observed variances; and



- (b) ***Hospital formularies for operation purpose.*** The hospital formularies used for daily operation (e.g. for dispensing drugs and charging patients) were incorporated in the local computer system, which was linked up to the central computer system of the HA. Both systems were synchronised without any discrepancies.

2.27 The hospital formulary describes the scope of drugs used in a hospital (see para. 2.7). The HA needs to ensure that the categories of drugs are correctly shown on the hospital formulary for communication purpose.

### **Audit recommendations**

2.28 **Audit has *recommended* that the Chief Executive, HA should:**

- (a) **review what measures need to be implemented to ensure that patients attending different public hospitals and clinics have equitable access to non-HADF drugs when they have the relevant clinical needs;**
- (b) **regularly review the need for the continued use of non-HADF drugs which had failed the Drug Advisory Committee's new drug evaluation;**
- (c) **consider drawing up a detailed manual for managing the use of non-HADF drugs, and ensure compliance with the relevant provisions including the approval procedure for prescribing non-HADF drugs;**
- (d) **issue comprehensive guidelines on the charging of non-HADF drugs covering different situations, and ensure compliance with the guidelines; and**
- (e) **ensure that the drug classifications in hospital formularies for communication uses by clinical staff tally with those specified in the HADF.**

### Response from the Hospital Authority

2.29 The Chief Executive, HA has said that the HA agrees with the audit recommendations. He has also said that the HA will:

- (a) share information among hospitals to facilitate cross referencing in the use of non-HADF drugs;
- (b) set up a mechanism to monitor and analyse the use of non-HADF drugs, and evaluate the need for continual use;
- (c) formulate a guideline on the use of non-HADF drugs to align their application, approval, documentation and monitoring. The existing section on non-HADF drugs in the HADF Management Manual will be expanded into a new chapter in the next revised version;
- (d) explicitly define the charging principles through expanding the existing guideline on the use of immediate life-threatening emergency drugs to cover non-HADF drugs as well, taking into consideration whether it is clinical need or patient's choice; and
- (e) develop a system function for auto-generation of the communication document on hospital drug formulary containing real-time information in a standard format.

### Listing new drugs

2.30 As a publicly-funded healthcare service provider, the HA considers that the coverage of the HADF should be driven by service needs, and applications for new drug listing should be initiated by HA clinicians and submitted to the Drug Advisory Committee for consideration via the cluster/hospital DTC. The Committee does not accept new drug applications submitted by pharmaceutical companies.

### *Few hospitals regularly applied for new drug listing*

2.31 Audit noted that a large number of new drugs were registered in Hong Kong each year (Note 14). While the HA's practice is that applications for new drug listing on the HADF should be initiated by HA clinicians, Audit examination revealed that few HA hospitals and clinics had regularly applied for new drug listing. Those that applied were mainly the leading hospitals. For example, during the visit to Hospital C which was a medium-sized hospital, Audit was informed that the Hospital had never applied for new drug listing. During 2013-14 to 2015-16, a total of 51 drugs were added to the HADF. The applications for listing these 51 drugs came from 12 hospitals (i.e. Hospitals A, B and D to M) (see Table 5 — Note 15). Of the 12 hospitals, 4 submitted applications for 29 (57%) drugs. These 4 hospitals (namely Hospitals A, B, D and E) were leading hospitals.

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**Note 14:** *As at 31 December 2015, there were 19,489 drug items registered in Hong Kong. Between 2013 and 2015, there were on average 850 new drug items registered each year.*

**Note 15:** *The HA had a total of 161 hospitals and clinics (i.e. 41 public hospitals, 73 general out-patient clinics and 47 specialist clinics).*

**Table 5**

**Analysis of 51 new drugs listed on the HADF  
(2013-14 to 2015-16)**

<b>Hospitals which applied for new drug listing</b>	<b>No. of new drugs</b>	
Hospital A	12 (23%)	} 29 (57%)
Hospital D	9 (18%)	
Hospital B	5 (10%)	
Hospital E	3 (6%)	
Hospital F	2 (4%)	
Hospitals G, H, I and J	4 (8%)	
Hospitals K, L and M in collaboration with other hospitals (Note)	16 (31%)	
<b>Total</b>	<b>51 (100%)</b>	

*Source: Audit analysis of HA records*

*Note: The other hospitals comprised Hospitals A, B, D, E, F, G, H and J.*

*Remarks: For the 51 new drugs listed, there were 81 drug items.*

2.32 Upon enquiry, the HA informed Audit in September 2016 that:

- (a) all hospital DTCs could submit new drug applications. Cluster DTCs usually covered the need for new drug applications for their affiliated hospitals/clinics;
- (b) applications for listing new drugs were clinical service driven. New technologies generally targeted advanced and complex clinical cases which were predominantly treated in hospitals with teaching and quaternary services. Hospitals A, D and B provided teaching and quaternary services while Hospital E was a centre for infectious diseases.

Once a new drug application had been submitted, it was not necessary for other DTCs to submit an application for the same drug; and

- (c) new drug applications were initiated by clinicians who were aware of international practices and market availabilities of new drugs relevant to their services. Among the new product registrations every year, the majority were related to new sources or formulations of existing drugs.

In Audit's view, the HA needs to review the adequacy of its mechanism in encouraging and facilitating more HA hospitals and clinics to apply for new drug listing on the HADF.

### ***Applications for new drug listing not made for many non-HADF drugs in regular demand***

2.33 Of the 95 non-HADF registered drug items (involving 73 drugs) used in 2015-16, applications for new drug listing had not been made for 57 items (involving 45 drugs — see para. 2.11(a)). Audit noted that 12 of these 57 drug items, being in regular demand, had been acquired through bulk contracts (standing offer agreements) with drug suppliers over a one-year period (see para. 3.5).

2.34 In Audit's view, for non-HADF drugs intended to be used for an extended duration, the due process for putting up the drugs for listing on the HADF should be followed. The listing of cost-effective drugs of proven safety and efficacy on the HADF helps ensure that patients attending different public hospitals and clinics have equitable access to the drugs (see para. 2.28 for the audit recommendations on non-HADF drugs).

## **Audit recommendations**

2.35 **Audit has recommended that the Chief Executive, HA should:**

- (a) **given that few hospitals had applied for new drug listing, review the adequacy of the HA mechanism for listing new drugs on the HADF, taking account of the numerous new drugs emerging over time, and the benefits for considering their potential inclusion in the HADF in a timely manner; and**

- (b) **take measures to encourage and facilitate more HA hospitals and clinics to apply for new drug listing on the HADF.**

### **Response from the Hospital Authority**

2.36 The Chief Executive, HA has said that he agrees with the audit recommendations. He has also said that the HA will:

- (a) request cluster and hospital DTCs to set a standing agenda item on new drug applications in their meetings; and
- (b) share the link to the Department of Health's webpage on newly registered medicines in Hong Kong.

### **Deleting obsolete drugs**

2.37 The Drug Formulary Committee is responsible for regular review of the existing drug list in the HA (see para. 2.5(b)). For obsolete drugs including those discontinued by manufacturers or no longer used in the HA due to change in practice, the supporting Expert Panels may make recommendations to delete the drugs from the HADF, for consideration by the Drug Formulary Committee and final endorsement by the Drug Management Committee. Between 2013 and 2015, 327 drug items were deleted from the HADF.

2.38 Audit analysis of HA records revealed that 47 drugs currently listed on the HADF had no consumption records during 2013-14 to 2015-16. The HA needs to review whether any of them should be deleted from the HADF.

### **Audit recommendation**

2.39 **Audit has *recommended* that the Chief Executive, HA should review the 47 drugs with no consumption records during 2013-14 to 2015-16 to ascertain the need for deleting any of them from the HADF.**

## **Response from the Hospital Authority**

2.40 The Chief Executive, HA has said that the HA agrees with the audit recommendations. He has also said that:

- (a) the biennial HADF review (see para. 2.5(b)) includes deletion of obsolete drugs. The 47 drugs include 5 drugs which had been missed in the screening for drugs with no consumption by the computer system in the last exercise. The remaining 42 drugs, which include standby drugs (e.g. antidotes) and drugs for prescribing as self-financed drugs for purchase at community pharmacies, are retained for operational need; and
- (b) the HA will review and refine the screening methodology of the computer system to ensure that all potentially obsolete drugs are identified for assessment.

## PART 3: PROCUREMENT OF DRUGS

3.1 This PART examines the HA's procurement of drugs. Audit has found room for improvement in the following areas:

- (a) establishing bulk contracts (paras. 3.7 to 3.13); and
- (b) managing the risk of supply interruption (paras. 3.14 to 3.26).

### *Procurement and Materials Management Manual*

3.2 **Procurement methods.** The HA's Procurement and Materials Management Manual states that the objective of procurement is to obtain the best value-for-money supplies (including drugs) and services through an efficient and speedy system that is seen to be fair and competitive, and is accountable. Table 6 summarises the requirements on procurement methods for achieving this objective.

Table 6

#### **Procurement methods for different purchasing limits**

Value of purchase	Procurement method
\$3,000 or less	No requirements on obtaining quotations
Over \$3,000 to \$50,000	At least 2 quotations should be obtained
Over \$50,000 to \$100,000	At least 2 written quotations should be obtained
Over \$100,000 to \$1,500,000	At least 5 written quotations should be obtained
Over \$1,500,000	Purchase should be conducted by tender

Source: HA records

Remarks: The lowest conforming offer should normally be accepted.

3.3 **Bulk contracts.** According to the HA's Procurement and Materials Management Manual, any particular item/service likely to be acquired repeatedly in quantities should be purchased through an established supply term contract. The HA Head Office is responsible for establishing bulk contracts for supplies and



services. In order to save procurement costs, standardise the purchase of supplies and services, and achieve economies of scale, it is mandatory for HA staff to acquire the supplies or services concerned from such bulk contracts.

### ***Drug procurement practices***

3.4 The HA's drug procurement practices are as follows:

- (a) ***Direct purchases by hospitals.*** Hospitals are given authority to make direct purchases of drug items with a value not exceeding \$1.5 million by quotation if the drug items are not covered by bulk contracts established by the HA Head Office. As a procurement practice for drugs, hospitals would request the HA Head Office to conduct quotation process for direct purchases with a value exceeding \$100,000; and
- (b) ***Purchases under bulk contracts established by HA Head Office.*** For drug items covered by bulk contracts established by the HA Head Office, hospitals issue purchase orders to the contractors to purchase the drug items at prices stated in the contracts.

3.5 ***Two types of bulk contracts.*** The bulk contracts established by the HA Head Office for procuring drug items comprise supply contracts and standing offer agreements. Supply contracts, generally with a value exceeding \$1.5 million, are established by tender (Note 16). Standing offer agreements are established by quotation for drug items with estimated annual purchase amounts exceeding \$100,000. Table 7 summarises the general characteristics of the two types of bulk contracts.

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**Note 16:** *There are four types of tender for procurement of drugs:*

- (a) *single tender (for proprietary drugs protected by patents);*
- (b) *restricted tender (e.g. for particular brands of drug products recommended by expert groups due to clinical reasons);*
- (c) *open (new generic) tender (for drugs with proprietary patents that require clearance); and*
- (d) *open (established generic) tender (for drugs with no known proprietary patents that require clearance).*

**Table 7**

**Bulk contracts for procuring drug items established by the HA Head Office**

<b>Type of contract</b>	<b>Purchase amount</b>	<b>Procedures for establishing the contract and making purchases</b>	<b>Contract period</b>
Supply contract	Over \$1,500,000 in the contract period	<ul style="list-style-type: none"> <li>• HA Head Office prepares tender documents and invites tenders (see Note 16 to para. 3.5) for supplying a drug item, with a commitment to purchase a minimum quantity of the drug item in the contract period</li> <li>• Tender Assessment Panel (Note 1) evaluates tenders and makes recommendations to Main Tender Board (Note 2)</li> <li>• Upon receipt of Main Tender Board's approval of tender acceptance, HA Head Office awards the contract</li> <li>• During the contract period, hospitals issue purchase orders to contractor to purchase a specified quantity of the drug item at the price stated in the contract</li> <li>• The contractor delivers the ordered quantity of the drug item to the hospitals</li> </ul>	Normally 36 months
Standing offer agreement	Estimated annual purchase amount over \$100,000	<ul style="list-style-type: none"> <li>• HA Head Office prepares quotation documents and invites at least 5 quotations for supplying a drug item, without a commitment to purchase any quantity of the drug item in the contract period</li> <li>• HA Head Office evaluates quotations and enters into the standing offer agreement</li> <li>• During the contract period, hospitals issue purchase orders to contractor to purchase a specified quantity of the drug item at the price stated in the contract</li> <li>• The contractor delivers the ordered quantity of the drug item to the hospitals</li> </ul>	Normally 12 months

*Source: HA records*

*Note 1: The Panel is chaired by the Chief Pharmacist of the HA. Its members include staff of the HA Head Office and clusters (e.g. the Chief Supplies Officer and Senior Pharmacists).*

*Note 2: The Main Tender Board is chaired by a member of the HA Board. Its members include two other members of the HA Board and the Chief Executive of the HA (or his nominated representative).*

3.6 Table 8 shows an analysis of the drug items purchased by the HA between 2013-14 and 2015-16.

**Table 8**  
**Drug items purchased by the HA**  
**(2013-14 to 2015-16)**

Procurement method		No. of drug items	Expenditure (\$ million)
<b>2013-14</b>			
Direct purchases by hospitals		1,086 (44 %)	364 (7 %)
Purchases under bulk contracts	Supply contracts	991 (40 %)	4,308 (85 %)
	Standing offer agreements	381 (16 %)	376 (8 %)
	Sub-total	1,372 (56 %)	4,684 (93 %)
Total		2,458 (100 %)	5,048 (100 %)
<b>2014-15</b>			
Direct purchases by hospitals		1,029 (42 %)	360 (7 %)
Purchases under bulk contracts	Supply contracts	1,081 (44 %)	4,653 (87 %)
	Standing offer agreements	357 (14 %)	303 (6 %)
	Sub-total	1,438 (58 %)	4,956 (93 %)
Total		2,467 (100 %)	5,316 (100 %)
<b>2015-16</b>			
Direct purchases by hospitals		1,019 (41 %)	424 (7 %)
Purchases under bulk contracts	Supply contracts	1,153 (46 %)	4,991 (87 %)
	Standing offer agreements	319 (13 %)	325 (6 %)
	Sub-total	1,472 (59 %)	5,316 (93 %)
Total		2,491 (100 %)	5,740 (100 %)

Source: HA records

Remarks: The purchases of drug items shown in the Table were for dispensing to patients directly. In addition, the HA also made purchases of drug items mainly for other purposes (e.g. disinfectants used during operations). In 2015-16, purchases of such drug items totalled \$516 million. The HA was unable to provide the procurement method for each purchase of such drug items.

### Establishing bulk contracts

3.7 The objectives of establishing bulk contracts for procuring drug items include saving procurement costs and achieving economies of scale (see para. 3.3). According to the HA, bulk contracts also bring about uniformity of supply source and committed supply plan. Table 8 shows that purchases under bulk contracts increased from 56% in 2013-14 to 59% in 2015-16. In 2015-16, of the 2,491 drug items purchased by the HA, 1,472 (59%) were purchased using bulk contracts. However, Audit analysis of the remaining 1,019 (41%) drug items purchased directly by hospitals revealed room for establishing more bulk contracts to further save procurement costs and achieve economies of scale. The audit findings are in paragraphs 3.8 to 3.11.

#### ***Bulk contracts not established for 520 drug items with purchase amounts totalling \$406 million***

3.8 According to the HA's current drug procurement practices, bulk contracts (supply contracts and standing offer agreements) are established for procuring some drug items with annual purchase amounts exceeding \$100,000 (see paras. 3.4 and 3.5). Audit noted that:

- (a) supply contracts, generally having a contract period of three years and a contract value exceeding \$1.5 million, were established by tender (see Table 6 in para. 3.2). Given a term of three years, they were intended for drug items with an average annual purchase amount exceeding \$500,000; and
- (b) standing offer agreements (established by quotation) were intended for drug items with purchase amounts exceeding \$100,000 for the contract term of one year.

3.9 Table 9 shows Audit analysis of the 1,019 drug items purchased directly by hospitals using quotation procedure in 2015-16.

Table 9

**Audit analysis of 1,019 drug items  
purchased directly by all hospitals using quotation procedure  
(2015-16)**

Purchase amount (Note)		No. of drug items	Expenditure (\$ million)
\$100,000 or less		499 (49%)	18
Over \$100,000	Over \$100,000 to \$500,000	327 (32%)	78
	Over \$500,000 to \$1,000,000	104 (10%)	73
	Over \$1,000,000 to \$1,500,000	36 (4%)	43
	Over \$1,500,000	53 (5%)	212
	Sub-total	520 (51%)	406
Total		1,019 (100%)	424

Source: Audit analysis of HA records

Note: The purchase amount of each drug item was the combined total for all hospitals.

3.10 As can be seen from Table 9, 520 (51%) drug items had purchase amounts (aggregating all hospitals) exceeding \$100,000, involving expenditure totalling \$406 million. In Audit's view, the HA needs to review the direct purchase method for these 520 drug items to determine whether the demands of individual hospitals could be consolidated for establishing bulk contracts, with a view to saving procurement costs and achieving more economies of scale. The 520 drug items included 193 drug items each with purchase amounts in 2015-16 exceeding \$500,000, involving expenditure totalling \$328 million. The HA in particular needs to assess whether the purchase amounts of these 193 drug items in the coming three years would exceed \$1.5 million thus requiring establishing bulk supply contracts by tender (see para. 3.8(a)).

### *Some direct purchases by hospitals did not follow existing procurement practices*

3.11 As mentioned in paragraph 3.4(a), as a procurement practice for drugs, hospitals would request the HA Head Office to conduct quotation process for direct purchases with a value exceeding \$100,000. However, in the visits to the four hospitals (see para. 1.11), Audit noted cases of repeated direct purchases by hospitals within a short period of time, with total purchase amount exceeding \$100,000 (see Case 1 for an example). The HA needs to review whether additional guidelines on direct purchases by hospitals should be issued.

#### **Case 1**

##### **Repeated direct purchases**

1. In June 2015, Hospital A obtained one written quotation (Note) for the supply of a special drug on the HADF. The price offered by the supplier was \$415 per vial.

2. During June to December 2015, Hospital A made 9 purchases of the drug from the same supplier at the offered price (see para. 1 above):

Purchase date		Purchase date		Purchase date	
1	17.6.2015	4	3.7.2015	7	10.8.2015
2	23.6.2015	5	21.7.2015	8	4.12.2015
3	30.6.2015	6	24.7.2015	9	9.12.2015

The purchase amount for each purchase ranged from \$49,800 to \$99,600, which did not exceed the \$100,000 financial limit for direct purchases by hospitals.

3. The total purchase amount for the 9 purchases was \$597,600.

#### ***Audit comments***

4. The total purchase amount of \$597,600 for the 9 repeated direct purchases (within a period of six months) was 6 times of the \$100,000 financial limit for direct purchases by hospitals.

*Source: Audit analysis of HA records*

*Note: As the drug is brand specific (i.e. the HA would only purchase this item from a specific supplier), only one quotation was obtained.*

## **Audit recommendations**

3.12      **Audit has *recommended* that the Chief Executive, HA should:**

- (a)      **for the 520 drug items purchased directly by hospitals using quotation procedure and with purchase amounts in 2015-16 exceeding \$100,000, review the direct purchase method to determine whether the demands of individual hospitals could be consolidated for establishing bulk contracts;**
- (b)      **in particular, assess whether the purchase amounts of 193 of the 520 drug items (i.e. drug items with purchase amounts in 2015-16 exceeding \$500,000) in the coming three years would exceed \$1.5 million thus requiring establishing bulk supply contracts by tender;**
- (c)      **set up an effective mechanism for regularly analysing hospitals' demands for drug items not covered by bulk contracts to determine whether bulk contracts should be used to achieve the best value for money; and**
- (d)      **review the practice of repeated direct purchases within a short period of time mentioned in paragraph 3.11 and provide hospitals with additional guidelines on direct purchases.**

## **Response from the Hospital Authority**

3.13      The Chief Executive, HA has said that the HA welcomes the audit recommendations. He has also said that:

- (a)      the recommendations are in line with the HA's on-going drug procurement strategies for optimising bulk contract arrangements to ensure supplies continuity and maximise economies of scale. There were progressive annual increases in the number of drug items procured under supply contracts between 2013-14 and 2015-16 (increased from 991 to 1,153 items — see Table 8 in para. 3.6);

## **Procurement of drugs**

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- (b) there is a working list of items planned for gradual inclusion as bulk contracts. The list is prioritised based on annual consumptions and the need for central quotations to support local purchases; and
- (c) the HA will:
  - (i) compare and adjust the 193 items pointed out by Audit against its own list and speed up the bulk contract arrangements for suitable candidates among these items;
  - (ii) review and formalise the direct purchase practice into corresponding guidelines; and
  - (iii) utilise the forthcoming Pharmacy Business Intelligence System to conduct comprehensive analysis of the consumption, procurement patterns and purchase frequency to facilitate bulk contract arrangements and overall monitoring.

## **Managing the risk of supply interruption**

### ***Increasing complaints against a key supplier on late delivery***

3.14 The HA procures drugs from many suppliers, including three key suppliers (Suppliers A, B and C — see Table 10).



Table 10

**Amount of drugs procured from suppliers  
(2013-14 to 2015-16)**

Supplier		Amount of drugs procured (\$ million)		
		2013-14	2014-15	2015-16
Suppliers A, B and C (Note)	Supplier A	1,785 (33%)	2,066 (36%)	2,325 (37%)
	Supplier B	1,525 (28%)	1,483 (25%)	1,561 (25%)
	Supplier C	717 (13%)	866 (15%)	1,036 (17%)
	Sub-total	4,027 (74%)	4,415 (76%)	4,922 (79%)
Other suppliers		1,394 (26%)	1,386 (24%)	1,334 (21%)
Total		5,421 (100%)	5,801 (100%)	6,256 (100%)
Total no. of suppliers		151	158	158

Source: Audit analysis of HA records

Note: Suppliers A, B and C are agents of multiple pharmaceutical manufacturers.

3.15 The Drug Quality Assurance and Enterprise Resource Planning Section of the HA monitors the performance of drug suppliers, including timeliness of delivery of drugs. It may convene a Performance Review Group meeting to review in detail the performance of a drug supplier for necessary follow-up (Note 17).

**Note 17:** *The Performance Review Group is co-chaired by the Chief Supplies Officer and a Senior Pharmacist of the HA. Members of the Group include cluster representatives and other HA staff. The Group may make recommendations as to whether the future tender submission of a drug supplier should be rejected for a specified period, for consideration of the Tender Assessment Panel.*

## Procurement of drugs

3.16 From time to time, the HA Head Office received complaints from hospitals about late delivery of drugs (delivery complaints). Table 11 shows that during 2013-14 to 2015-16, the number of delivery complaints related to Supplier A had increased by 183% from 65 to 184. In contrast, the number of complaints related to other suppliers had decreased. Upon enquiry, the HA informed Audit in September 2016 that Supplier A was a logistic agent representing an increasing number of principal manufacturers over the past few years, therefore the number of drugs supplied by Supplier A had also increased, which partly accounted for the observed increase in delivery complaints.

**Table 11**

**Drug delivery complaints  
(2013-14 to 2015-16)**

Year	No. of complaints				
	Supplier A	Supplier B	Supplier C	Other suppliers	Overall
2013-14	65 (23%)	33 (12%)	15 (5%)	170 (60%)	283 (100%)
2014-15	162 (41%)	34 (9%)	17 (4%)	180 (46%)	393 (100%)
2015-16	184 (57%)	26 (8%)	9 (3%)	104 (32%)	323 (100%)
Overall	411 (41%)	93 (9%)	41 (4%)	454 (46%)	999 (100%)
2015-16 vs 2013-14 (Increase +/ decrease -)	+183%	-21%	-40%	-39%	+14%

*Source: Audit analysis of HA records*

*Remarks: If late delivery of a drug from a supplier resulted in the stock level falling to less than 1.5 months' consumption, the HA would explore replenishing the stock from other sources, with any additional expenditure recovered from the supplier in accordance with the contract terms. There were 21, 27 and 43 such cases in 2013-14, 2014-15 and 2015-16 respectively. Of these cases, 2, 4 and 23 cases respectively involved Supplier A.*

3.17 Despite the increasing number of delivery complaints related to Supplier A, no Performance Review Group meetings (see para. 3.15) had been held during 2013-14 to 2015-16 to review Supplier A's performance for necessary follow-up (Note 18). Upon enquiry, the HA informed Audit in September 2016 that the Performance Review Group was activated when there were persistent unresolved issues. In Audit's view, the HA should closely monitor the performance of drug suppliers in complying with delivery schedules and take effective follow-up action on delivery complaints received from hospitals.

### ***Room for enhancing multi-source procurement***

3.18 In 2012, the HA decided that drug items meeting the following criteria would be procured from multiple sources:

- (a) the drug item was used for the treatment of chronic diseases; and
- (b) the drug item was used by more than 100,000 patients annually.

The objective is to ensure continuity of supply of the drug items in case problems arise with one supplier.

3.19 Audit noted that, as at July 2016, among the drug items used for the treatment of chronic diseases, 13 drug items were used by more than 100,000 patients annually (Note 19), thus meeting the criteria for multi-source procurement. However, the HA had adopted multi-source procurement for only 7 of the 13 drug items. The remaining 6 (46%) drug items were each procured from a single source, including 5 drug items whose sole supplier was Supplier A, which was associated with increasing delivery complaints (see para. 3.16). Upon enquiry, the HA informed Audit in September 2016 that:

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**Note 18:** *Since 2012, only one Performance Review Group meeting had been held to review the performance of a supplier. The supplier was not one of the three key suppliers.*

**Note 19:** *This refers to the usage from April 2014 to March 2015.*

## Procurement of drugs

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- (a) of the 6 drug items, the HA had conducted multi-source tender exercises for 5 drug items but had awarded contract to a single source in each exercise due to risk benefit considerations or no other acceptable source having been identified; and
- (b) for the remaining drug item, the HA would conduct a multi-source tender exercise upon expiry of the current contract.

3.20 Audit also noted that some drug items, while not meeting the current criteria for multi-source procurement, were commonly used. For example, in 2015-16, 34 drug items were each used by more than 50,000 patients. As at July 2016, the 34 drug items were each procured from a single source, including 19 drug items whose sole supplier was Supplier A. The HA needs to assess the risk and impact of supply disruption for such commonly-used drugs to determine whether multi-source procurement should also be implemented for them.

### ***Room for improving drug re-ordering procedure***

3.21 The HA requires that stock of drug items should be maintained at the lowest possible level, balancing the need for maintaining continuity of supply to meet routine and peak demands. To prevent a stock-out situation, hospitals are prompted by the HA's computerised Enterprise Resource Planning System to re-order a drug item when its stock level drops to or below the re-order level (Note 20).

3.22 During the visits to the four hospitals, Audit noted that they had not re-ordered a total of 756 drug items whose stock levels were below the re-order levels. Of these 756 drug items, the stock levels of 182 items were even below the minimum levels. Table 12 shows the details.

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**Note 20:** *The computer system computes the re-order level for each drug item (i.e. six-week consumption) with reference to its average consumption in the preceding eight weeks. It generates management reports daily, showing drug items with balances below their re-order levels and minimum levels (i.e. four-week consumption) to alert HA staff for necessary action.*

Table 12

**756 drug items with stock levels lower than the  
re-order levels but had not been re-ordered  
(23 June 2016)**

Hospital	No. of drug items			
	Above minimum stock level	At minimum stock level	Below minimum stock level	Total
A	39	0	16	55
B	99	5	38	142
C	193	33	22	248
D	181	24	106	311
Total	512 (68%)	62 (8%)	182 (24%)	756 (100%)

244 (32%)

*Source: Audit analysis of HA records*

*Remarks: The stock levels of all the 756 drug items were below the re-order levels.*

3.23 Upon enquiry, the HA informed Audit in September 2016 that pharmacy staff did not solely rely on the re-order levels and minimum levels generated by the computer system to determine when to re-order and what quantity of drug items to be stocked. A basket of factors, including clinical needs, consumption trend and storage capacity, would also be taken into consideration to decide whether re-order is necessary.

3.24 Audit considers that there is room for improving the drug re-ordering procedure. For example, with re-order levels appropriately set to reflect all relevant factors, pharmacy staff can make better use of the HA's computerised Enterprise Resource Planning System to make re-order decisions more efficiently and effectively.

### Audit recommendations

3.25      **Audit has *recommended* that the Chief Executive, HA should:**

- (a)      **closely monitor the performance of drug suppliers in complying with delivery schedules and take effective follow-up action on delivery complaints received from hospitals;**
- (b)      **remind staff of the need to hold Performance Review Group meetings to review any unsatisfactory performance of suppliers in warranted cases;**
- (c)      **for drug items meeting the criteria set by the HA (i.e. for treatment of chronic diseases and used by more than 100,000 patients annually) for multi-source procurement but currently procured from a single source for reasons such as risk benefit considerations, implement multi-source procurement upon expiry of the current contract where appropriate;**
- (d)      **assess the risk and impact of supply disruption for other commonly-used drug items to determine whether multi-source procurement should be implemented for them; and**
- (e)      **take measures to improve the drug re-ordering procedure.**

### Response from the Hospital Authority

3.26      **The Chief Executive, HA has said that the HA agrees with the audit recommendations. He has also said that the HA will:**

- (a)      **utilise the key performance indicators in the forthcoming Pharmacy Business Intelligence System to enhance monitoring of delivery performance;**
- (b)      **conduct regular Performance Review Group meetings to review the performance of manufacturers and suppliers;**

- (c) continue conducting multi-source tender exercises on existing and new drug items meeting the pre-set criteria, and review the current criteria for conducting multi-source tender exercises; and
- (d) review and explore relevant factors to assist decision making in the drug re-ordering procedure.

## **PART 4: DISPENSING AND HANDLING OF DRUGS**

4.1 This PART examines issues related to the dispensing and handling of drugs. Audit has found room for improvement in the following areas:

- (a) dispensing of drugs (paras. 4.2 to 4.9); and
- (b) handling of dangerous drugs (paras. 4.10 to 4.18).

### **Dispensing of drugs**

4.2 Drugs are dispensed to patients through pharmacies of each hospital/clinic (Note 21). As mentioned in paragraph 2.3, eligible persons attending specialist clinics for public services are charged \$10 for each drug item on the prescription, which covers a duration up to 16 weeks. Eligible persons are not separately charged for drug items when attending general outpatient clinics or receiving treatment as inpatients. For non-eligible persons, drugs are charged at cost.

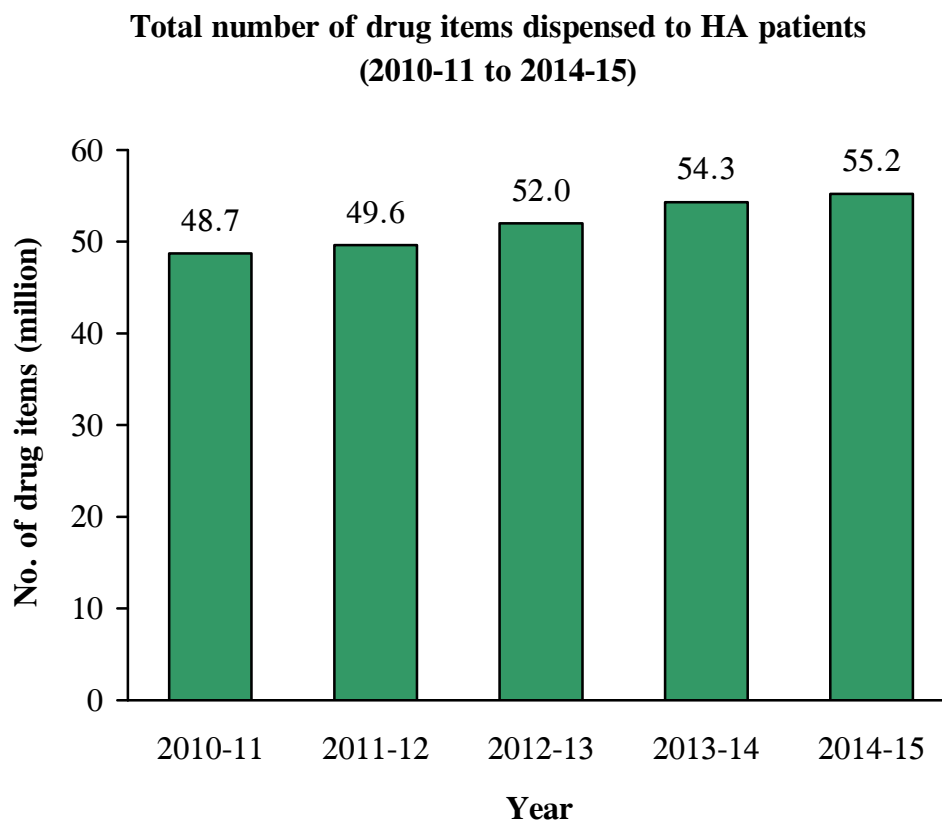
4.3 Each year, the HA dispenses a huge quantity of drugs for use by patients. During 2010-11 to 2014-15, the total number of drug items dispensed to HA patients increased by 13%, from 48.7 million to 55.2 million (see Figure 1).

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**Note 21:** *To ensure efficiency of drug administration, drugs stocks are also kept at wards to meet the needs of individual patients.*



Figure 1



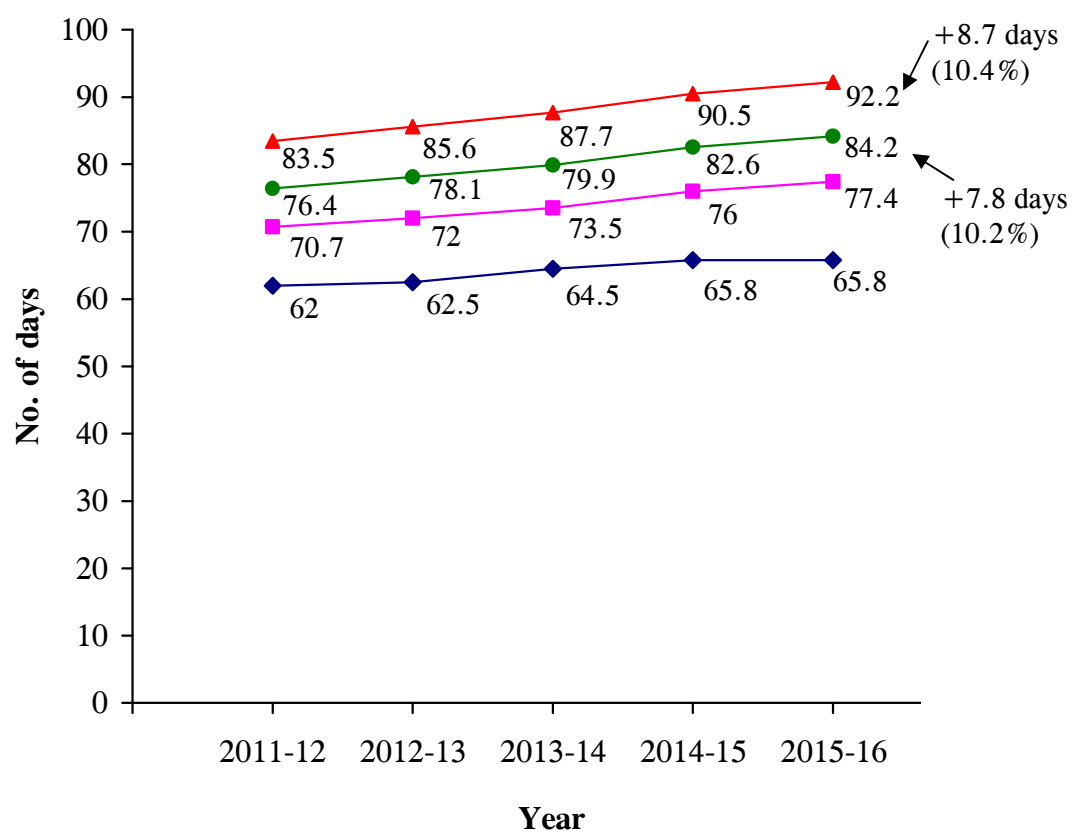
Source: HA records

Remarks: For each prescription, the number of drug items dispensed referred to the number of items on the prescription that was supplied to the patient.

4.4 Drugs are dispensed in accordance with doctors' prescriptions. HA records showed that, in general, the average period of time covered by a prescription (average prescription length) had been increasing. For example, Figure 2 shows the average prescription length for specialist out-patients. Overall, during 2011-12 to 2015-16, the average prescription length increased by 7.8 days (10.2%), from 76.4 to 84.2 days. Among the different age groups, the average prescription length for people aged over 65 showed the greatest increase of 8.7 days (10.4%), from 83.5 to 92.2 days.

Figure 2

Average prescription lengths for HA specialist out-patients  
(2011-12 to 2015-16)



Legend:   
◆ Aged 18 or less   
■ Aged 19 to 65   
▲ Aged over 65   
● All ages

Source: HA records

### *Need to assess the extent of drug wastage*

4.5 In the visits to the four hospitals (see para. 1.11), Audit noted many patients collecting large quantities of drugs from the pharmacies. Overseas experience indicated that prescribing large quantities of drugs for a long period of time could lead to drugs being unused and wasted (Note 22). Locally, there were also concerns about possible drug wastage in the community. According to the results of a research submitted to the HA in 2013 (Note 23), the total drug wastage could be enormous (Note 24).

4.6 Audit noted that the HA had not taken steps (e.g. conducting regular surveys) to assess the extent of drug wastage among patients. In Audit's view, knowing the magnitude of drug wastage would help the HA take appropriate measures to tackle the problem.

4.7 In this connection, Audit noted that the HA had since October 2013 explored the feasibility of providing a new service (i.e. refill dispensing services) with a view to improving service efficiency and drug management. The initial thinking was to set up regional drug centres (e.g. in collaboration with non-governmental organisations) for patients to refill their prescribed drug items. This could enable dispensing the prescribed drugs to patients in smaller quantities by phases and thus might help reduce drug wastage, instead of dispensing a large quantity to patients in one go at hospital pharmacies. The matter was last discussed in June 2016 with no decision made.

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**Note 22:** *For example, in a national study of 2009 in the UK by the Care Quality Commission (the independent regulator of health and adult social care services), it was estimated that among the patients with long term conditions, only half of the patients took their drugs as prescribed.*

**Note 23:** *The research was conducted by the Pharmaceutical Society of Hong Kong. Members of the Society include Hong Kong registered pharmacists.*

**Note 24:** *The research estimated that the drug wastage among some 60,000 elderly living at old aged homes in Hong Kong was about \$5.8 million a year.*

### Audit recommendations

- 4.8      **Audit has *recommended* that the Chief Executive, HA should:**
- (a)      **regularly assess the extent of drug wastage among patients of the HA; and**
  - (b)      **based on the assessment in (a) above, take appropriate measures to tackle the problem of drug wastage.**

### Response from the Hospital Authority

4.9      The Chief Executive, HA has said that the HA welcomes the audit recommendations. He has also said that:

- (a)      the increase in service demand has led to extended prescription durations. The HA is aware of the potential risk of drug wastage arising from changes in patients' clinical conditions, and has been exploring options to minimise potential drug wastage taking into consideration patients' acceptability, practicality, technology and resource requirements; and
- (b)      the HA will pilot the implementation of drug refill services in selected specialist out-patient clinics to break long duration prescriptions into refills and provide drug counselling for targeted patients between refills. These services will help estimate and reduce the extent of drug wastage and improve patient care, and will be rolled out upon positive evaluation of the pilot.

### Handling of dangerous drugs

4.10      Dangerous drugs are drugs or substances specified in Part 1 of the First Schedule of the Dangerous Drugs Ordinance (Cap. 134). The Ordinance sets out the rules for controlling the manufacture, supply, possession and administration of dangerous drugs.

4.11 The Ordinance authorises certain persons (e.g. registered medical practitioners and nursing sisters in charge of a ward) to be in possession of dangerous drugs and to supply the drugs to persons receiving treatment. Pursuant to the Ordinance, dangerous drugs must be kept in a locked receptacle. Whenever a dangerous drug is supplied, a record shall be entered in a register kept for the purpose. All dangerous drugs which are in the possession of any authorised person shall be examined at least once in every month. The Department of Health shall be forthwith notified of any irregularity and non-compliance with the provisions of the Ordinance, including incidents of missing dangerous drugs.

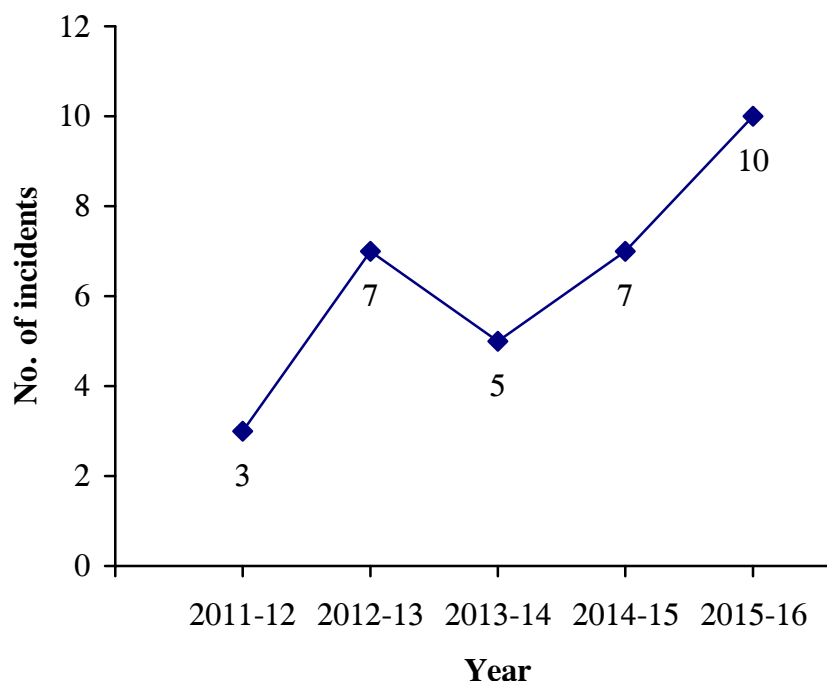
### *Increasing incidents of missing dangerous drugs*

4.12 During 2011-12 to 2015-16, there were 32 incidents of missing dangerous drugs. In December 2012, after one of such incidents was reported by the HA to the Department of Health, the Department of Health issued a letter to the HA, urging the HA to ensure safe custody of dangerous drugs in its hospitals.

4.13 The number of incidents of missing dangerous drugs dropped from 7 incidents in 2012-13 to 5 incidents in 2013-14. However, in 2014-15 the number started to rise again. In 2015-16, there were 10 incidents of missing dangerous drugs, up from 3 incidents in 2011-12 (see Figure 3).

Figure 3

**Incidents of missing dangerous drugs  
(2011-12 to 2015-16)**



*Source:* HA records

*Remarks:* In December 2012, the Department of Health urged the HA to ensure safe custody of dangerous drugs in its hospitals (see para. 4.12).

***Direct causes of many incidents of  
missing dangerous drugs not identified***

4.14 According to the HA, it had guidelines in place on the proper handling, safe custody, record keeping and disposal of dangerous drugs in hospitals. For each incident of missing dangerous drugs, the responsible hospital conducted investigations and analysed the risk factors which might be underlying the incident and direct causes if they were identified. Table 13 shows that, of the 32 incidents between 2011-12 and 2015-16, the direct causes in 27 (84%) incidents could not be identified through the investigations.

**Table 13**

**Results of investigations of 32 incidents of missing dangerous drugs  
(2011-12 to 2015-16)**

Investigation result	No. of incidents
Incidents with direct causes identified:	
Mistakenly discarded by staff	3    (9.4%)
Lost during transmission	2    (6.2%)
Sub-total	5    (15.6%)
Incidents with direct causes not identified	27    (84.4%)
Total	32    (100%)

*Source: Audit analysis of HA records*

4.15 The Dangerous Drugs Ordinance specifies various rules to control the handling of dangerous drugs (see paras. 4.10 and 4.11). The increasing incidents of missing dangerous drugs by the HA is a cause for concern. For each incident, identifying the direct cause is important. It helps locate any staff who should be held accountable for the incident thus reinforcing accountability for the safe custody of dangerous drugs. It also helps determine what effective measures should be taken to prevent recurrence. However, as shown in Table 13, the HA investigation could not identify the direct causes in 27 (84%) incidents. Of these 27 incidents, Audit noted that 4 incidents occurred in the same hospital (see Case 2).

### Case 2

#### Repeated occurrences of missing dangerous drug incidents with direct cause not identified

1. There were 4 incidents of missing dangerous drugs in Hospital A between 2012-13 and 2015-16, as follows:

	Date	Location	Dangerous drug missing
1.	28.4.2012	Ward of the Surgical Department	2 tablets of 1 milligram Ativan (a drug for treating conditions such as anxiety disorder)
2.	18.3.2015	Ward of the Surgical Department	1 ampoule of Pethidine 50 milligrams/millilitre injection (a drug for pain relief)
3.	21.3.2015	Ward of the Department of Obstetrics and Gynaecology	5 ampoules of Diazepam 10 milligrams/2 millilitres injection (a drug for treating conditions such as anxiety disorder)
4.	12.4.2015	Ward of the Surgical Department	1 ampoule of Pethidine 50 milligrams/millilitre injection (a drug for pain relief)

2. All 4 incidents were reported to the police. Hospital A had also conducted investigations of the incidents. Actions taken included repeated counting and verification of physical stock against inventory records, and review of dispensing and transaction records. No direct cause could be identified.

#### *Audit comments*

3. The repeated occurrences of missing dangerous drugs in Hospital A, particularly in the Ward of the Surgical Department, suggested that effective improvement measures had not been taken after each incident. Audit noted that the direct cause of the incidents could not be identified. The investigation reports for the incidents did not state whether the staff responsible for the safe custody of the drugs had been inquired of during the investigation, nor did the report state whether results of the police investigation were available and had been taken into account. In Audit's view, there was scope for improving the conduct and follow-up of the investigation.

Source: Audit analysis of HA records



***Incidents of missing dangerous drugs  
not forthwith reported to the Department of Health***

4.16 The Dangerous Drugs Ordinance stipulates that the medical officer in charge of the hospital shall forthwith notify the Department of Health of any incident of missing dangerous drugs. In May 2016, Audit analysed the time taken for reporting the 32 incidents between 2011-12 and 2015-16. Audit found that 5 incidents (16%) had not been reported, after a lapse of 425 to 1,494 days since the dangerous drugs were found missing. After Audit enquiry, in May 2016, the HA reported the 5 incidents. Overall, Audit found that a long time had been taken to report some incidents to the Department of Health (see Table 14).

**Table 14**

**Time taken for reporting 32 incidents of  
missing dangerous drugs to the Department of Health  
(2011-12 to 2015-16)**

Time taken	No. of incidents
<b><i>Incidents reported before Audit enquiry in May 2016</i></b>	
7 days or less	14 (44%)
8 to 14 days	8 (25%)
15 to 30 days	4 (12%)
64 days	1 (3%)
Sub-total	27 (84%)
<b><i>Incidents not reported before Audit enquiry in May 2016 (Note)</i></b>	
425 days	1 (3%)
1,000 to 1,494 days	4 (13%)
Sub-total	5 (16%)
Total	32 (100%)

Source: Audit analysis of HA records

Note: In May 2016, the HA reported the incidents to the Department of Health after Audit enquiry. In August 2016, the Department of Health issued a letter to the HA, reminding the HA to handle the dangerous drugs in strict compliance with the Dangerous Drugs Ordinance, and to step up security measures and develop protocols to ensure safe custody of dangerous drugs.

### Audit recommendations

- 4.17      **Audit has *recommended* that the Chief Executive, HA should:**
- (a)      **monitor the number of incidents of missing dangerous drugs and conduct a comprehensive review of the handling and custody of dangerous drugs where necessary;**
  - (b)      **regularly remind relevant staff of the importance of ensuring the proper handling and safe custody of dangerous drugs in HA hospitals and clinics;**
  - (c)      **issue guidelines on the investigation of incidents of missing dangerous drugs, and ensure that the staff concerned comply with the guidelines and take effective improvement measures to prevent recurrence; and**
  - (d)      **ensure that incidents of missing dangerous drugs are forthwith reported to the Department of Health.**

### Response from the Hospital Authority

- 4.18      **The Chief Executive, HA has said that the HA agrees with the audit recommendations. He has also said that the HA will:**
- (a)      **enhance staff training and conduct regular audits;**
  - (b)      **enhance reporting of incidents of missing dangerous drugs to facilitate monitoring and notification, and follow-up reporting to the Department of Health; and**
  - (c)      **develop a template to guide investigation of incidents of missing dangerous drugs.**

## PART 5: MONITORING THE QUALITY OF DRUGS

5.1 This PART examines the HA's monitoring of the quality of drugs. Audit has found room for improvement in the following areas:

- (a) sample testing of drugs (paras. 5.3 to 5.8);
- (b) inspection of premises of drug suppliers (paras. 5.9 to 5.13); and
- (c) investigation of complaints about drug quality (paras. 5.14 to 5.18).

### *Quality assurance work*

5.2 The Chief Pharmacist's Office of the HA is responsible for monitoring the quality of drugs procured. The work includes:

- (a) regularly commissioning local laboratories to conduct sample testing of drugs procured by the HA and inspections of premises of HA drug suppliers; and
- (b) regularly investigating complaints about drug quality received from frontline hospitals and clinics (Note 25).

### Sample testing of drugs

#### *Sampling methodology not laid down*

5.3 The HA has commissioned local laboratories to conduct microbiological testing and chemical testing on drugs it procured. Drugs in general are tested under a sampling programme. In addition, drugs related to safety alerts issued by local or

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**Note 25:** *A drug quality complaint is one related to discrepancy in efficacy, appearance, packaging, possible contamination or any other circumstances observed that may jeopardise or cause reasonable doubt on the routine and intended utilisation of a drug item.*

## Monitoring the quality of drugs

overseas authorities (e.g. the U.S. Food and Drug Administration) and drugs related to drug quality complaints are tested as necessary. Table 15 shows that, during 2013-14 to 2015-16, the amount of drugs procured by the HA increased by 15.4%, from \$5,421 million to \$6,256 million. The total number of drugs selected for testing decreased by 3.1%, from 783 to 759. Moreover, excluding drugs related to safety alerts or drug quality complaints (tests on them were ad hoc and the number of tests might fluctuate from year to year), the total number of drugs selected for testing decreased by 6.1%, from 773 to 726.

**Table 15**

**Procurement and sample testing of drugs  
(2013-14 to 2015-16)**

	2013-14	2014-15	2015-16	2015-16 vs 2013-14 (Increase +/ decrease -)
<b><i>Drugs procured by the HA</i></b>				
Amount of drugs procured	\$5,421 million	\$5,801 million	\$6,256 million	+15.4%
<b><i>No. of drugs selected for testing</i></b>				
Drugs in general	773	758	726	-6.1%
Safety alerts related	0	28	31	N/A
Quality complaints related	10	7	2	-80%
Overall	783	793	759	-3.1%

*Source: Audit analysis of HA records*

5.4 According to HA records, during 2013-14 to 2015-16, all selected drugs passed the testing. However, the decreasing scale of drug testing was not commensurate with the increasing scale of HA procurement. Upon enquiry, the HA informed Audit in September 2016 that:

- (a) the HA had a risk-based sample testing strategy which was recommended by an Expert Panel and had taken into account risks associated with individual drug items (e.g. priorities given to drugs used on vulnerable patients) and the level of procurement activities (e.g. priorities given to drugs under supply contracts with high consumption); and
- (b) the HA had a sampling methodology recommended by the Expert Panel to implement the above-mentioned strategy, in terms of the proportion of items selected for testing according to the risk category.

Audit noted that the HA had not laid down the drug testing strategy and detailed sampling methodology to justify the scale of drug testing. The HA also had not documented how the results of inspection visits (see para. 5.9) and complaint investigations (see para. 5.14) had affected the selection of drugs.

### *Late submission of testing reports*

5.5 Testing of drugs was outsourced to local laboratories. According to the contracts, they should submit reports on microbiological testing results within 20 working days, and reports on chemical testing results within 90 calendar days. However, Audit found that for testing performed in 2014-15 (Note 26), 41% of the reports were not submitted within the required time (see Table 16).

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**Note 26:** *Reports on testing performed in 2014-15 were the latest available information at the time of audit review.*

**Table 16**  
**Late submission of some testing reports**  
**(2014-15)**

Type of testing	No. of reports			No. of days of delay	
	Submitted within the required time	Not submitted within the required time	Total	Range	Average
Microbiological testing	318 (78 %)	88 (22 %)	406 (100 %)	1 to 59 working days	18 working days
Chemical testing	148 (38 %)	239 (62 %)	387 (100 %)	1 to 194 calendar days	50 calendar days
Overall	466 (59 %)	327 (41 %)	793 (100 %)		

*Source: Audit analysis of HA records*

5.6 Upon enquiry, the HA informed Audit in September 2016 that there were circumstances that required extra time for testing, such as acquiring chemical reference standards and procurement of specific apparatus or equipment. In Audit's view, late reporting of testing results will cause delay in taking necessary action to mitigate the risk of sub-standard drug items.

## **Audit recommendations**

5.7 **Audit has recommended that the Chief Executive, HA should:**

- (a) **formulate a strategy for sample testing of drugs, taking account of relevant factors such as coverage and results of other quality assurance work, level of HA procurement activities, risk associated with individual drug items and resources available;**

- (b) **lay down clearly the sampling methodology for implementing the drug testing strategy in (a) above; and**
- (c) **ensure that contractors submit reports on drug testing according to the time frame set out in the contracts.**

### **Response from the Hospital Authority**

5.8 The Chief Executive, HA has said that the HA agrees with the audit recommendations. He has also said that the HA will:

- (a) formalise its strategy and methodology to become part of the standard operating procedure for sample testing of drugs; and
- (b) review the contract requirements to ensure feasible and timely submission of test reports, and build in multiple time frames to address cases meeting different levels of requirements.

### **Inspection of premises of drug suppliers**

5.9 In 2012, to enhance monitoring of the quality of drugs, the HA started to commission a local laboratory to inspect the premises of selected drug suppliers. Conditions of the premises, as well as supplier practices in production and quality control, are inspected. According to the HA:

- (a) as a drug purchaser for public healthcare services and in its due diligence, the HA inspects premises to review compliance with improvement measures in response to drug product quality complaints; and
- (b) the HA has an established risk-based inspection programme taking severity and frequency of complaints as the prioritisation criteria. Currently, two inspections are conducted annually on average.

## Monitoring the quality of drugs

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5.10 HA records indicated that as at June 2016, the premises of 6 drug suppliers had been inspected, comprising 1 inspected in 2012, 1 in 2013, 2 in 2014 and 2 in 2015. For all the 6 inspections, the suppliers' premises and practices were considered as reasonable or acceptable.

5.11 Audit considers that inspection of premises of drug suppliers is useful for monitoring the quality of drugs procured from them. The HA needs to review this programme to determine whether there is room for expanding it. For example, Audit noted that all the 6 drug suppliers which had been inspected by the HA were local drug manufacturers. The HA may also inspect the premises of local drug wholesalers, especially those associated with many drug quality complaints (see Case 3 for an example).

### Case 3

#### **A drug supplier associated with many drug quality complaints not covered by the inspection programme**

1. Supplier D was a local drug wholesaler.
2. During each of the past 3 years, Supplier D supplied 57 to 59 drug items to the HA in considerable quantity. In 2015-16, the amount of the 57 drug items procured from Supplier D totalled \$35 million.
3. From time to time, drug quality complaints about Supplier D were lodged with the HA. During 2013-14 to 2015-16, 51 of the 940 drug quality complaints were related to Supplier D.
4. As at June 2016, the HA had not conducted any inspection visit to the premises of Supplier D.

#### ***Audit comments***

5. Supplier D was one of the main suppliers. The many drug quality complaints about Supplier D might call for an inspection visit to its premises.

*Source: Audit analysis of HA records*



## **Audit recommendation**

5.12      Audit has *recommended* that the Chief Executive, HA should consider expanding the programme on inspection of premises of drug suppliers to cover more drug suppliers, particularly those associated with many drug quality complaints and supplying considerable amount of drugs to the HA.

## **Response from the Hospital Authority**

5.13      The Chief Executive, HA has said that the HA agrees with the audit recommendation. He has also said that the HA will review the existing programme on inspection of premises of drug suppliers to take into account the volume of supply as an additional prioritisation criterion.

## **Investigation of complaints about drug quality**

5.14      The Chief Pharmacist's Office is responsible for reviewing and following up drug quality complaints received from frontline hospitals and clinics. It will request suppliers to investigate the issue and propose improvement measures where necessary. In 2015-16, there were 343 drug quality complaints (Note 27). As at May 2016, the investigations of 240 cases had been completed (Note 28). Audit analysis of the 240 cases revealed that in 24 cases, it took more than 6 months to complete the investigations (see Table 17).

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**Note 27:** *There were 275 complaints in 2013-14 and 322 in 2014-15.*

**Note 28:** *Of the remaining 103 cases, 97 cases were still under investigation and 6 cases had been closed after concluding that no investigation was necessary. The 97 outstanding cases included 7 which had been outstanding for over 6 months.*

**Table 17****Time taken to complete investigations of  
240 drug quality complaints received in 2015-16**

<b>Time taken</b>	<b>No. of cases</b>
1 month or less	13 (5%)
Over 1 to 3 months	126 (53%)
Over 3 to 6 months	77 (32%)
Over 6 months (Note)	24 (10%)
Total	240 (100%)

*Source: Audit analysis of HA records*

*Note: The longest time taken to complete investigation was 13.5 months, involving one case.*

5.15 Audit noted that, in requesting suppliers to investigate drug quality complaints, the HA required suppliers to provide investigation reports within one month for its follow-up. Table 17 shows that in 227 (95%) cases, the total time taken by the HA to complete investigation (including the time used by suppliers) exceeded one month. Of the 227 cases, suppliers failed to report within the one-month time frame in 138 (61%) cases. The tardiness of supplier actions could be a factor causing the long time taken to complete some investigations. Upon enquiry, the HA informed Audit in September 2016 that the course of an investigation sometimes involved logistics for returning samples to overseas manufacturers, commissioning independent tests and implementing improvement measures that required regulatory approvals. All these needed adequate time for completion.

5.16 Audit considers that sub-standard drugs could pose a significant risk to patient health and safety. Investigations of drug quality complaints should be completed as soon as possible, with a view to taking timely remedial action where necessary.

## **Audit recommendation**

5.17      Audit has *recommended* that the Chief Executive, HA should take effective measures to ensure that investigations of complaints about drug quality are completed as soon as possible.

## **Response from the Hospital Authority**

5.18      The Chief Executive, HA has said that the HA agrees with the audit recommendation. He has also said that the HA will develop performance indicators to regularly monitor the investigation of complaints and take measures to ensure timely completion of investigations.

## **PART 6: ADMINISTERING FINANCIAL ASSISTANCE PROGRAMMES FOR PURCHASING SELF-FINANCED DRUGS**

6.1 This PART examines issues related to the HA's administration of financial assistance programmes for purchasing self-financed drugs. Audit has found room for improvement in the following areas:

- (a) expanding coverage of drugs (paras. 6.7 to 6.12); and
- (b) conducting post-approval checks (paras. 6.13 to 6.24).

### ***Government's healthcare policy***

6.2 The Government's healthcare policy is to ensure that no one is prevented, through lack of means, from obtaining adequate medical treatment. According to the HA:

- (a) to fulfil this policy objective, the HA has been providing highly subsidised healthcare services to the public. Patients are provided with drugs in accordance with their clinical needs and available treatment guidelines in the HA at highly subsidised rates. The scope of this policy is described by services under the standard fees and charges. For general drugs and special drugs of which usage is within the specific indications, they are provided within the standard fees and charges; and
- (b) guided by the principles of evidence-based medical practice, targeted subsidy and opportunity costs considerations, self-financed drugs are non-standard provisions in the HA and patients will have to purchase these drugs at their own expenses.

***Financial assistance programmes for  
purchasing self-financed drugs***

6.3 For some self-financed drugs proven to be of significant benefits but extremely expensive for the HA to provide as part of its subsidised services, subsidies are provided through the following two Government funds to needy patients to meet the drug expenses:

- (a) ***Samaritan Fund (SF, established in 1950).*** The objective of the Fund is to provide subsidies to needy patients for designated privately purchased medical items including specified self-financed drugs. The HA has administered the Fund since 1990; and
- (b) ***Community Care Fund (CCF, established in 2011).*** The objective of the Fund is to provide assistance to people facing economic difficulties, in particular those who fall outside the social safety net or those within the safety net but have special circumstances that are not covered. The Fund runs a number of assistance programmes. The HA is responsible for administering a medical assistance programme to provide subsidies to needy patients to purchase specified self-financed cancer drugs.

6.4 As at April 2016, the SF and the CCF covered a total of 30 self-financed drugs (referred to as self-financed drugs with safety net — Note 29). For the other 47 self-financed drugs listed on the HADF (referred to as self-financed drugs without safety net — see Table 1 in para. 2.2), no financial assistance is provided to patients for purchasing them. Upon enquiry, the HA informed Audit in September 2016 that:

- (a) self-financed drugs without safety net included drugs with only preliminary medical evidence, drugs with marginal benefits over available alternatives but at significantly higher costs, as well as lifestyle drugs (e.g. anti-obesity drugs). The therapeutic objectives of these drugs fell outside the scope of highly subsidised public medical services; and

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**Note 29:** *The SF covered 22 drugs while the CCF covered 10 drugs. As 2 drugs were covered by both Funds (the clinical indications designated by the Funds were different), the total number of drugs covered was 30.*

## Administering financial assistance programmes for purchasing self-financed drugs

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- (b) the provision of self-financed drugs without safety net allowed patients the choice of using drugs outside the highly subsidised healthcare system through self-financing while remaining within the highly subsidised healthcare system.

6.5 To be eligible for subsidies under the SF and the CCF for purchasing self-financed drugs with safety net, the patient must be an HA patient and fulfil all of the following requirements:

- (a) ***Clinical requirement.*** The patient's clinical indications and commencement of treatment must be supported by a designated HA doctor;
- (b) ***"Eligible Person" requirement.*** The patient must be an eligible person within the meaning of the latest relevant government gazette published under the Hospital Authority Ordinance; and
- (c) ***Financial requirement.*** The patient must pass a household-based financial assessment conducted by the Medical Social Worker (Note 30). The financial assessment includes assessment on the patient's household income, expenditures and assets to calculate the annual disposable financial resources (Note 31).

6.6 Table 18 shows the amounts of subsidies for purchasing self-financed drugs with safety net provided by the SF and the CCF during 2010-11 to 2015-16.

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**Note 30:** *Medical Social Workers of the Social Welfare Department or the HA are stationed in public hospitals and some specialist out-patient clinics. Comprehensive Social Security Assistance recipients do not need to go through financial assessment.*

**Note 31:** *If the amount of annual disposable financial resources is \$20,000 or less, the subsidy is the drug cost; if the amount is \$20,001 to \$60,000, the subsidy is the drug cost minus \$1,000 or \$2,000; and if the amount is over \$60,001, the subsidy is the drug cost minus 5% to 20% of the amount. No subsidy is provided if the calculated subsidy is a negative amount.*

## Administering financial assistance programmes for purchasing self-financed drugs

**Table 18**

### Subsidies for purchasing self-financed drugs with safety net provided by SF and CCF (2010-11 to 2015-16)

Year	SF		CCF	
	No. of approved cases	Amount of drug subsidies (\$ million)	No. of approved cases	Amount of drug subsidies (\$ million)
2010-11	1,354	144	N/A (Note)	N/A (Note)
2011-12	1,516	155	200	20
2012-13	1,745	208	829	73
2013-14	2,027	240	1,364	112
2014-15	2,230	240	1,680	109
2015-16	2,237	269	1,678	123
Total	11,109	1,256	5,751	437

*Source: HA records and financial statements of the SF and the CCF*

*Note: The CCF's medical assistance programme commenced in August 2011.*

## Expanding coverage of drugs

6.7 As at April 2016, there were 30 self-financed drugs with safety net and 47 self-financed drugs without safety net (see para. 6.4). These 77 drugs have been evaluated with positive recommendations by the Drug Advisory Committee before they are listed on the HADF (see para. 2.5(a)). The 47 self-financed drugs without safety net included 18 drugs for treatment of certain cancers. Table 19 shows that during 2013-14 and 2014-15, the number of self-financed drugs without safety net prescribed to out-patients was much greater than that for self-financed drugs with safety net. This indicated that many patients needed self-financed drugs without safety net for treatment.

**Administering financial assistance programmes  
for purchasing self-financed drugs**

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**Table 19**

**Drug items prescribed to out-patients  
(2013-14 and 2014-15)**

Category	2013-14		2014-15	
	No. of items (‘000)	Percentage	No. of items (‘000)	Percentage
General drugs	38,685	88.8%	38,945	87.9%
Special drugs	4,282	9.8%	4,737	10.7%
Self-financed drugs with safety net	23	0.1%	25	0.1%
Self-financed drugs without safety net	576	1.3%	589	1.3%
Total	43,566	100%	44,296	100%

*Source: HA records*

*Remarks: The 2014-15 data were the latest available data at the time of audit review.*

6.8 From time to time, there have been requests from patients and patient groups for expanding the coverage of the safety net to benefit more patients (e.g. drugs for treatment of certain cancers). The HA has an established mechanism for conducting annual exercises to prioritise new drugs to be included under the scope of the safety net, taking into account the safety, efficacy and cost-effectiveness of the new drugs and other relevant factors such as financial resources (Note 32).

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**Note 32:** *The Drug Management Committee convenes an annual meeting to prioritise all drug-related safety net proposals. The recommended list for the SF would be sent to the Samaritan Fund Office for processing and onward prioritisation by the Samaritan Fund Management Committee. Final endorsement by the Medical Services Development Committee under the HA Board has to be obtained before implementation. Similarly, the recommended list for the CCF would be sent to the HA Community Care Fund Administration Committee, the Community Care Fund Task Force and finally the Commission on Poverty for approval.*



6.9        Audit noted that between 2013-14 and 2015-16, seven new self-financed drugs were included under the scope of the safety net. In Audit's view, given that many patients needed self-financed drugs without safety net for treatment (see para. 6.7), the HA should continue its efforts to prioritise such drugs for inclusion under the scope of the safety net.

## **Audit recommendation**

6.10        Audit has *recommended* that the Chief Executive, HA should continue to include appropriate new self-financed drugs under the scope of the safety net.

## **Response from the Hospital Authority**

6.11        The Chief Executive, HA has said that the HA agrees with the audit recommendation. He has also said that the HA will continue to include appropriate new drugs under the scope of the safety net, based on safety, efficacy and cost-effectiveness considerations and other relevant factors as described in the HADF Management Manual.

## **Response from the Government**

6.12        The Secretary for Food and Health has said that:

- (a)        while the Government's healthcare policy is to ensure that no one is prevented, through lack of means, from obtaining adequate medical treatment, self-financed drugs (both with or without safety net) are services that fall outside the scope of this policy; and
- (b)        as can be seen from Table 19 in paragraph 6.7, in both 2013-14 and 2014-15, general drugs and special drugs, which were highly subsidised by public funding and covered by the standard fees and charges in public hospitals and clinics, accounted for 98.6% of the drug items prescribed to out-patients, which was much greater than that of the self-financed drugs (both with or without safety net). It shows that the HA has on the whole ensured equitable access by patients to cost-effective drugs of proven safety and efficacy.

## **Conducting post-approval checks**

6.13 The subsidies under the SF and the CCF are provided only for needy patients. Acquiring a subsidy by deception is a criminal offence. In addition to the consequence of being ineligible for the subsidy, the patient/applicant/patient's household member(s) shall be liable on conviction upon indictment to imprisonment of 10 years under the Theft Ordinance (Cap. 210). To prevent and detect fraud and abuse and to take appropriate action against suspect who commits deception related offence, the HA conducts sample checks on the approved SF/CCF cases, as follows:

- (a) ***Level-1 checks at cluster level.*** The Cluster Checking Units (CCUs) (Note 33) at individual clusters conduct checks on the accuracy and completeness of financial information provided by applicants for selected approved SF/CCF cases (Note 34). For all cases of under-reporting of income and/or assets (referred to as “under-reporting cases” hereinafter), the CCUs will take appropriate actions (e.g. issuing warning letters and recovering the overpaid amounts). For significant under-reporting cases (Note 35), the CCUs will also refer them to the HA Head Office for level-2 checks; and
- (b) ***Level-2 checks at HA Head Office.*** The Medical Fee Assistance Section (MFA Section) reviews the under-reporting cases referred by the CCUs for taking necessary action, including reporting suspected fraud cases to the police for investigation.

Appendix C shows the workflow of post-approval checks on SF/CCF cases.

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**Note 33:** *The CCUs report to their Cluster Chief Executives.*

**Note 34:** *The Medical Fee Assistance Section at the HA Head Office selects approved SF/CCF cases mainly on a random basis, and allocates them to the CCUs for level-1 checks. According to the HA, in setting the post-approval checking strategy, the HA has considered the risk level, checking processing time and resource requirements.*

**Note 35:** *They are cases with the amount of overpayment of subsidy not less than \$16,000.*

## Administering financial assistance programmes for purchasing self-financed drugs

6.14 Table 20 shows the results of post-approval checks on SF/CCF cases approved between 2010-11 and 2015-16. Table 21 shows the amounts of overpayment of subsidy in under-reporting cases.

**Table 20**

### Results of post-approval checks on SF/CCF cases (2010-11 to 2015-16)

Year of approval	No. of cases completed			
	Under-reporting cases		Cases without under-reporting found	Total
	With overpayment of subsidy	Without overpayment of subsidy		
2010-11	37 (27%)	27 (19%)	76 (54%)	140
2011-12	41 (27%)	25 (16%)	86 (57%)	152
2012-13	42 (20%)	60 (29%)	106 (51%)	208
2013-14	24 (8%)	99 (34%)	171 (58%)	294
2014-15	16 (4%)	148 (40%)	204 (56%)	368
2015-16	2 (1%)	70 (34%)	135 (65%)	207
Overall	162 (12%)	429 (31%)	778 (57%)	1,369 (Note)

591 (43%)

*Source: Audit analysis of HA records*

*Note: The total number of cases selected for post-approval checks was 1,672. As at the time of audit review (March 2016), there were 1,369 cases completed, 159 cases not yet completed and 144 cases terminated due to various reasons (e.g. death of patient or patient was a Comprehensive Social Security Assistance recipient (see Note 30 to para. 6.5(c))).*

**Administering financial assistance programmes  
for purchasing self-financed drugs**

**Table 21**

**Under-reporting cases with overpayment of subsidy  
(2010-11 to 2015-16)**

Year of approval	SF		CCF		Total	
	No. of cases	Amount overpaid (\$ '000)	No. of cases	Amount overpaid (\$ '000)	No. of cases	Amount overpaid (\$ '000)
2010-11	37	820	N/A (Note 1)	N/A (Note 1)	37	820
2011-12	40	1,790	1	0	41	1,790
2012-13	33	1,307	9	40	42	1,347
2013-14	16	493	8	68	24	561
2014-15	8	438	8	401	16	839
2015-16	2	33	0	0	2	33
Total	136	4,881	26	509	162	5,390 (Note 2)

*Source: Audit analysis of HA records*

*Note 1: The CCF's medical assistance programme commenced in August 2011.*

*Note 2: As at July 2016, of the overpayment of \$5.39 million, the HA had recovered \$3.66 million (68%), had agreed with the patients to recover \$1.14 million (21%) by instalments and was taking other recovery procedures (e.g. legal action) to recover the remaining \$0.59 million (11%).*

***High percentage of under-reporting cases***

6.15 It can be seen from Tables 20 and 21 that during 2010-11 to 2015-16, of the 1,369 cases with post-approval checks completed, 591 (43%) cases were under-reporting cases, involving overpayments of subsidies totalling \$5.39 million. Upon enquiry, the HA informed Audit in September 2016 that:

## Administering financial assistance programmes for purchasing self-financed drugs

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- (a) to safeguard public funds, the HA's primary strategies were to prevent and deter fraud. Between 2010 and 2015, the HA had rolled out various measures, including patient education and publicity; and
- (b) the decreasing trends of under-reporting cases with overpayment of subsidy (from 27% to 1% — see Table 20) and the amount overpaid (from \$820,000 to \$33,000 — see Table 21) demonstrated the effectiveness of these strategies.

However, Audit found some areas for improvement in the conduct of post-approval checks (see paras. 6.16 to 6.21). In Audit's view, after implementing appropriate improvement measures, the HA needs to monitor the results of the checks, and determine whether more sample checks are required to prevent and detect fraud and abuse.

### *Limited scope of checks*

6.16 In conducting post-approval checks on SF/CCF cases, the HA mainly used the information obtained from bank searches. The scope of checks did not include other asset searches. Audit considers that, given the limited scope of checks, the HA would not be able to detect under-reporting of assets effectively. The HA needs to explore expanding the scope of checks, particularly for cases involving a substantial amount of subsidy. For example, the Land Registry's service on owner's properties information check may be used to obtain information on properties registered in the patient's/household member's name for detecting under-reporting of properties (Note 36).

### *Need to consider extending the bank search period*

6.17 In applying for SF/CCF financial assistance, the applicant is required to make a declaration on the information provided. After approval, if there are changes in the particulars in the application within the validity period of the assistance, the applicant is required to notify the HA immediately and provide all relevant information to the Medical Social Worker for financial reassessment as appropriate.

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**Note 36:** *Self-use residential property is not counted as an asset in calculating the annual disposable financial resources.*

## Administering financial assistance programmes for purchasing self-financed drugs

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6.18 According to the current HA guidelines, for the purposes of conducting post-approval checks, bank information should be obtained for the period from 3 months before the declaration date up to the approval date or latest financial reassessment approval date, whichever is the later (Note 37). Audit notes that such practice (i.e. not obtaining bank information up to the expiry of the validity period) does not enable the HA to check whether there were unreported changes after the approval date that affected the eligibility of the patient (see para. 6.17). The HA needs to consider extending the bank search period for cases involving a substantial amount of subsidy.

### *Long time taken to follow up some significant under-reporting cases*

6.19 As mentioned in paragraph 6.13 and shown in Appendix C, CCUs refer significant under-reporting cases (with overpaid subsidy not less than \$16,000) to the MFA Section for level-2 checks. After conducting the level-2 checks and consolidating the information, the MFA Section will refer those cases to the case conference (Note 38) for discussion. The conference members will decide the appropriate actions for suspected fraud cases (e.g. reporting to the police for investigation). The MFA Section maintains central registries for both the level-1 and level-2 checking cases to ensure that all significant under-reporting cases are followed through.

6.20 As shown in Table 20 in paragraph 6.14, among the cases approved during 2010-11 to 2015-16 and with post-approval checks completed, there were 162 under-reporting cases involving overpayment of subsidy. Audit noted that 56 (35%) of the 162 cases were significant cases with overpaid subsidy ranging from \$17,000 to \$223,000 per case. Table 22 shows the progress of handling these 56 cases as at 31 August 2016.

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**Note 37:** *Before 2014, the bank search period was up to the expiry of the validity period of the financial assistance. Considering that the primary focus of post-approval check was to identify under-reported financial conditions at the time of application, the bank search period was revised to the financial assistance approval date with effect from 1 January 2014.*

**Note 38:** *The case conference is composed of representatives from the HA Head Office, Cluster/Hospital Management, SF Office (for SF cases only), CCUs, MFA Section, Social Welfare Department, and Medical Social Services Units under the Social Welfare Department and the HA.*

**Administering financial assistance programmes  
for purchasing self-financed drugs**

**Table 22**

**Progress of handling of significant under-reporting cases  
approved between 2010-11 and 2015-16  
(31 August 2016)**

Case status	SF		CCF		Total	
	No. of cases	Amount overpaid (\$ '000)	No. of cases	Amount overpaid (\$ '000)	No. of cases	Amount overpaid (\$ '000)
Cases which had not been submitted by CCUs to MFA Section for level-2 checks	14	1,046	1	150	15	1,196
Cases which had been submitted to MFA Section for level-2 checks:						
• Cases which had been returned to CCUs (Note 1)	6	381	1	163	7	544
• Cases which had been reported to the police (Note 2)	12	1,211	0	0	12	1,211
• Cases which had not been reported to the police	18	1,945	4	119	22	2,064
Sub-total	36	3,537	5	282	41	3,819
Total	50	4,583	6	432	56	5,015

*Source: Audit analysis of HA records*

*Note 1: These included cases checked to be inaccurate/incomplete and returned to CCUs for further follow-up, and cases with other medical assistance application approved and assigned back to CCUs for checking.*

*Note 2: As at 31 August 2016, no case had been prosecuted.*

*Remarks: The significant under-reporting cases had overpaid subsidy ranging from \$17,000 to \$223,000 per case.*

## **Administering financial assistance programmes for purchasing self-financed drugs**

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6.21 Audit noted that a long time was taken to follow up some significant under-reporting cases after completion of level-1 checks. Examples are as follows:

- (a) as at 31 August 2016, 15 cases had not yet been submitted by the CCUs to the MFA Section for level-2 checks. Of these 15 cases, the level-1 checks for 10 cases had been completed for over 1 to 2.9 years (averaging 1.9 years); and
- (b) as at 31 August 2016, 22 cases which had been submitted to the MFA Section for level-2 checks had not been reported to the police. Of these 22 cases, the level-1 checks for 14 cases had been completed for over 1 to 2.5 years (averaging 1.6 years).

6.22 Timely follow-up of significant under-reporting cases detected during post-approval checks, including instituting prosecution action in warranted cases and publicising the outcomes, helps create a deterrent effect and prevent fraud and abuse. The HA needs to review the audit findings in paragraph 6.21 and take improvement measures.

## **Audit recommendations**

6.23 **Audit has *recommended* that the Chief Executive, HA should:**

- (a) **monitor the results of post-approval checks on SF/CCF cases to determine whether more sample checks are required to prevent and detect fraud and abuse;**
- (b) **explore expanding the scope of post-approval checks on SF/CCF cases, particularly for cases involving a substantial amount of subsidy;**
- (c) **consider extending the bank search period up to the expiry of the validity period of the financial assistance for cases involving a substantial amount of subsidy; and**
- (d) **review the long time taken to follow up some significant cases of under-reporting of income and/or assets and take improvement measures.**

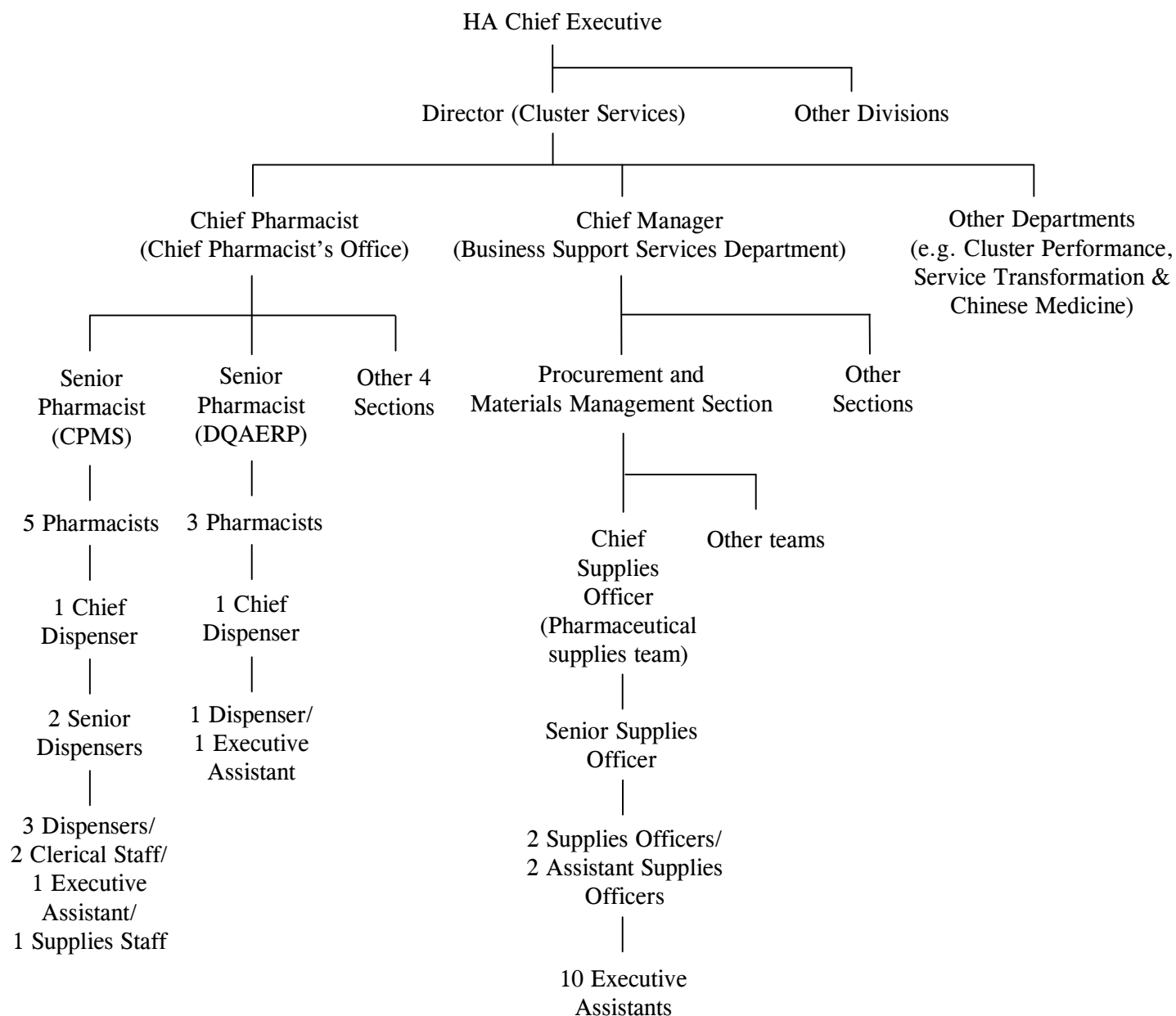


## **Response from the Hospital Authority**

6.24 The Chief Executive, HA has said that the HA agrees with the audit recommendations. He has also said that the HA will:

- (a) explore, for cases involving a substantial amount of subsidy, sampling more cases for checking, expanding the scope of checking and extending the bank search period up to the expiry of the validity period of the financial assistance; and
- (b) develop performance indicators to monitor the processing time of level-1 and level-2 checks.

**Hospital Authority Head Office  
Organisation chart (extract)  
(31 March 2016)**

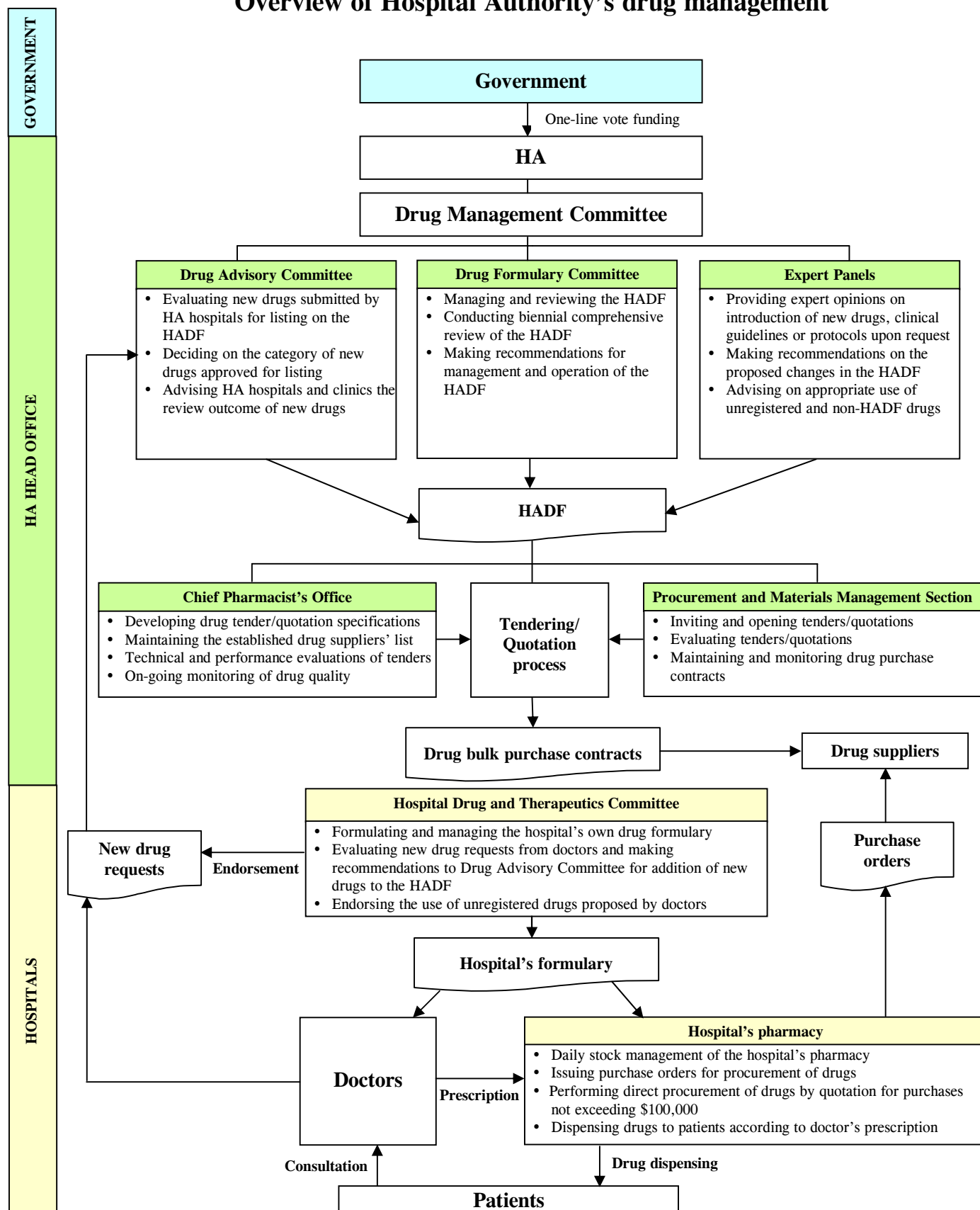


Legend: CPMS Corporate Pharmaceutical Management Section  
DQAERP Drug Quality Assurance and Enterprise Resource Planning Section

Source: HA records

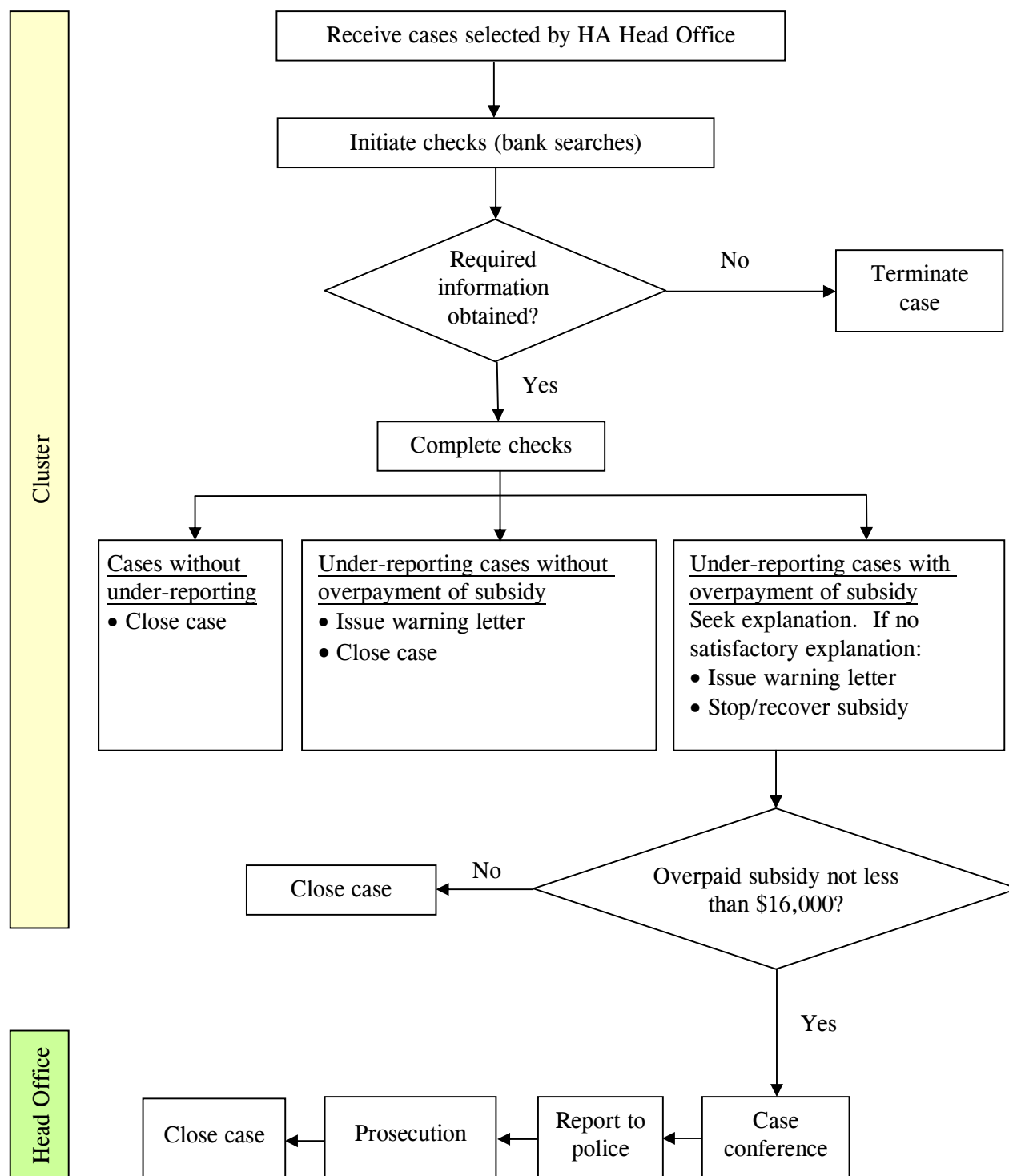
**Appendix B**  
(paras. 1.9 and  
2.5 refer)

## Overview of Hospital Authority's drug management



Source: Audit analysis of HA records

## Workflow of post-approval checks on financial assistance cases



Source: Audit analysis of HA records

**Acronyms and abbreviations**

Audit	Audit Commission
CCF	Community Care Fund
CCUs	Cluster Checking Units
DTCs	Drug and Therapeutics Committees
HA	Hospital Authority
HADF	Hospital Authority Drug Formulary
MFA Section	Medical Fee Assistance Section
SF	Samaritan Fund

## **CHAPTER 6**

### **University Grants Committee Secretariat**

**Funding of academic research projects  
by Research Grants Council**

**Audit Commission  
Hong Kong  
28 October 2016**

*This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.*

Report No. 67 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

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# **FUNDING OF ACADEMIC RESEARCH PROJECTS BY RESEARCH GRANTS COUNCIL**

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# **FUNDING OF ACADEMIC RESEARCH PROJECTS BY RESEARCH GRANTS COUNCIL**

## **Executive Summary**

1. In Hong Kong, there are eight universities funded by the University Grants Committee (UGC) (all universities mentioned hereinafter refer to UGC-funded universities). Hong Kong adopts a dual funding system for research at the universities. The Research Portion of the UGC's recurrent grants is disbursed to the universities as infrastructure funding to enable the universities to provide the human capital and the facilities necessary to carry out research, as well as to fund a certain level of research. The universities would also seek funding from the Research Grants Council (RGC) for the conduct of research projects on a competitive basis. In academic year 2015/16 (all years mentioned hereinafter refer to academic years), the amount of funds granted under RGC funding schemes was \$1,288.5 million.

2. The RGC was established in 1991. It operates under the aegis of the UGC and functions as a non-statutory advisory body on research matters. The RGC has established 10 committees and 18 panels to assist its work. The RGC administers 19 funding schemes. Of the 19 schemes, 16 are targeted for the eight universities while three are for the 13 local self-financing degree-awarding institutions. Of the 19 schemes, two schemes are funded by the UGC's recurrent grants and the remaining 17 are funded by the Research Endowment Fund (REF), which was set up by the Government in 2009 to provide stable funding to support research in the universities with an endowment of \$18 billion and a further injection in 2012 of \$5 billion. The Audit Commission (Audit) has recently conducted a review of funding of academic research projects by the RGC.

## Executive Summary

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### Governance and management issues

3. *Appointment of Council members.* The Government has promulgated the six-year rule to ensure a healthy turnover of members of advisory and statutory bodies. Audit reviewed the tenures of 48 members appointed in the period 2011/12 to 2015/16 and noted that up to the end of their tenures, eight (16.7%) members had served (or would have served) the Council continuously for more than six years (ranging from 7.5 to 12 years) (paras. 2.4 and 2.5).

4. *Matters related to Council/committee/panel meetings.* Audit examination of RGC Council/committee/panel records revealed that: (a) the RGC had not promulgated rules of procedure governing the conduct of meetings for the Council, its 10 committees and 18 panels; (b) due to the tight time schedules between the finalisation of committee/panel reports and the date of Council meetings, committee/panel reports and committee/panel funding recommendation summaries were only issued to Council members shortly before the Council meetings or only issued at the meetings; and (c) in the period 2013/14 to 2015/16, 8 of the 10 committees and 13 of the 18 panels had held meetings. There were no minutes of meetings for 5 of the 8 committees and 10 of the 13 panels (para. 2.10).

5. *Awards of research project grants.* One of the terms of reference of the RGC is to approve awards from funds for research. Audit reviewed the records of processing funding applications for 19 research funding schemes and noted that for eight funding schemes, there was no documentary evidence showing that the Council had reviewed or approved individual projects. When a Council meeting was held to approve the projects, the total number of the projects to be approved and the total amount of funding to be approved were submitted to the Council. For six of the eight schemes, there was no documentary evidence showing that the Council had been provided with any information on individual projects to be approved (paras. 2.16 and 2.17).

## Executive Summary

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6. ***Management of conflicts of interest.*** The RGC adopts a two-tier reporting system for the declarations of interests. Regarding the first-tier declarations, Audit reviewed the record of submission or update of Register of Interests Forms of Council/committee members in the period 2011/12 to 2015/16 and noted that: (a) a Council member did not submit (or update) the annual Form throughout the period 2011/12 to 2015/16; (b) some Forms for 2011/12 and 2012/13 could not be located; and (c) the ex-officio member of the Steering Committee on Competitive Research Funding for the Self-financing Degree Sector had not been required to submit the Form since his appointment in July 2014. Audit also reviewed the records of the submission (or update) of the Forms by 211 panel members for individual research schemes for 2015/16 and found that 179 (85%) of the 211 panel members submitted (or updated) the Forms late. The delays ranged from 4 to 190 days (averaging 53 days). Audit noted that the panel members for Joint Research Schemes were requested to submit their Forms only upon their appointment but not upon re-appointment and on an annual basis. Audit also noted that 13 (35%) of 37 panel members for the Joint Research Schemes had not submitted the Forms upon their re-appointments in 2016. Regarding the second-tier declarations, Audit reviewed the 3,314 projects of three funding schemes approved in the period 2013/14 to 2015/16 and noted that for six projects, the principal investigators were four Council members. However, no documentation was available showing that declarations of interests had been made before or during the meetings at which funding was awarded (paras. 2.20 to 2.23 and 2.26).

7. ***Other management issues.*** The REF is expected to generate an annual return at around 5% on a long-term basis at the time of its establishment in 2009. From 2017 to 2019, the average annual return on investment was forecasted in December 2015 to be around 4%. At this lower rate of return, the investment income alone would be insufficient to cover the 2016/17 budget of \$1,251 million of the 17 funding schemes funded by the REF. The UGC Secretariat forecasted that from 2023/24 onwards, the investment income and the reserve would be insufficient to cover the provision of funding. The shortfall would have to be met by depleting the principal of the REF (para. 2.31).

## Executive Summary

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### Project management

8. *Administration of RGC funding schemes.* The UGC considers that, to drive excellence, there is a need to aggregate and concentrate funding, collaborate and select according to strength as identified, and pool the resources across disciplines. However, the majority of RGC funding was allocated to a large number of small projects. The General Research Fund accounted for almost half (46.3%) of the 2015/16 funding, with an average funding size of \$0.63 million per project. The normative unit cost for each subject panel is one of the factors in determining the indicative allocation of funding to the five subject panels each year. The same set of normative unit costs had been adopted for ten years since 2006/07. In the past ten years, there had been a lot of changes in the RGC funding schemes which made it necessary to conduct a review of the appropriateness of this fixed set of normative unit costs. The Hong Kong PhD Fellowship Scheme provides each awardee with a conference and research-related travel allowance of \$10,000 per year for a period up to three years. After the completion of the three-year fellowship period, the universities are required to return the unspent travel allowance to the RGC. The UGC Secretariat does not have readily available information on the number of awardees with unspent allowance that should be refunded and the amount involved. Audit reviewed the records relating to six awardees who had completed or withdrawn from the fellowship in the period from 2013/14 to 2015/16 and found that three awardees had unspent balance not yet refunded (paras. 3.4, 3.8, 3.10, 3.12, 3.18 and 3.21).

9. *Monitoring of funded projects.* Universities are required to submit project reports, namely progress reports, and completion reports or concluding reports. The RGC monitors and assesses the progress and performance of funded projects by assessment of project reports. The RGC did not set target completion dates for committee/panel members' assessment for completion and concluding reports. As at 31 May 2016, there had been 973 completion/concluding reports received but not assessed and 678 (69.7%) of these reports had been received for over one year but not yet assessed. In extreme cases, four reports were submitted more than nine years ago but still pending assessment. In the period 2011/12 to 2015/16, 87 projects were terminated before completion (on average 17 terminated projects per year). Audit examined 10 terminated projects approved in the period 2009/10 to 2014/15 and found that, for seven projects, the principal investigators did not submit the concluding reports (paras. 3.26, 3.27, 3.32 to 3.34 and 3.39).

## Executive Summary

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10. ***Handling of alleged misconduct cases.*** The Disciplinary Committee completed the investigation of five misconduct cases (e.g. plagiarism) discovered during the processing of the funding applications for the 2015/16 exercise and made a recommendation to the RGC for approval in December 2015. However, since the RGC decided in June 2015 to separate the role of investigating allegations from the role of imposing penalties for substantiated cases, the recommendation on penalties for these five substantiated cases was left to the newly formed Disciplinary Committee (Penalty). Consequently, up to August 2016, the five substantiated misconduct cases were still pending determination of the level of penalty. Audit examined 26 alleged misconduct cases and noted that the time taken from the discovery of the suspected misconduct cases to the notification of investigation results and the penalty to the universities concerned ranged from one to four years (averaging 1.5 years). Audit noted that there is room for expediting the process in handling alleged misconduct cases (paras. 3.49, 3.52, 3.54 and 3.55).

### Research output and way forward

11. ***Research output of universities.*** The UGC collates and compiles statistical data from the universities. For each project funded by the RGC, the principal investigator is required to provide in the completion report the research performance (e.g. research outcome and research output) for monitoring and assessment. Audit observed that the RGC did not use the research performance reported in the completion reports submitted under individual funding schemes to monitor the effectiveness of the respective funding schemes. Audit analysed the information on the research outputs of research projects and noted that: (a) the total number of research outputs of the universities dropped slightly by 2.6% from 27,019 in 2010/11 to 26,317 in 2014/15 whereas research funding provided by the UGC and the RGC increased by 26% in the same period; and (b) the overall research output per academic staff for the eight universities decreased by 9% from 5.91 in 2010/11 to 5.40 in 2014/15. Audit also analysed two categories of research outputs relating to commercialisation, and noted the relatively small percentage of research outputs relating to commercialisation versus that relating to publication as well as the decreasing number of research outputs relating to commercialisation (paras. 4.3 to 4.5, 4.7, 4.8, 4.12 and 4.15).



## Executive Summary

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12. **Way forward.** To facilitate the commercialisation of research and development results and technology transfer, efforts should be stepped up to strengthen the linkages among various stakeholders (i.e. Government, industry, academic and research sectors). Audit noted that: (a) in the period 2010/11 to 2014/15, the industry sector only financed 3% of the total research expenditure of the universities, as compared to 11% in Korea, 9% in Taiwan and 7% in Singapore; and (b) measures for forging a closer link between the funding programmes of the Innovation and Technology Fund and the RGC were only applicable to the collaborative funding schemes, but not the individual funding schemes (i.e. General Research Fund and Early Career Scheme) (paras. 4.18 to 4.21 and 4.23).

### Audit recommendations

13. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in the Executive Summary. Audit has recommended that the Secretary-General, University Grants Committee, in consultation with the RGC, should:**

#### *Governance and management issues*

- (a) **promulgate rules of procedure for Council/committee/panel meetings (para. 2.11(a));**
- (b) **issue meeting papers in advance of Council meetings to ensure that members are provided with all the information that they need to properly consider and discuss well before the meetings (para. 2.11(b));**
- (c) **prepare minutes for those committee/panel meetings which currently do not have minutes (para. 2.11(c));**
- (d) **ensure that applications for project grants are approved by the proper authority and the approvals are properly documented (para. 2.18);**

## **Executive Summary**

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- (e) **take measures to ensure that all Council/committee/panel members make the required first-tier declarations of interests in a timely manner and make second-tier declarations of interests when they see a reason to do so (para. 2.27(a) and (d));**
- (f) **take measures to ensure the safe keeping of Register of Interests Forms (para. 2.27(e)) ;**
- (g) **keep in view the decreasing investment return of the REF amidst volatile market conditions, and draw up an action plan to address the issue (para. 2.39(a));**

### ***Project management***

- (h) **take measures to improve the portfolio balance of the funding schemes and the calculation of the normative unit costs for the subject panels (para. 3.22(a));**
- (i) **review the records of all the Hong Kong PhD Fellowship Scheme awardees who have completed or withdrawn from their fellowship in the past years to ensure that all unspent allowance had been refunded (para. 3.22(c));**
- (j) **take effective measures to clear as soon as practicable the backlog of the assessment of project reports received (para. 3.47(b));**
- (k) **review the process of handling alleged misconduct cases (para. 3.56(b));**

### ***Research output and way forward***

- (l) **collate adequate management information on research output and devise suitable performance measures for the evaluation of the research performance of the universities, and disclose the information on its website (para. 4.16(a));**

## Executive Summary

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- (m) work with the Innovation and Technology Bureau to facilitate the commercialisation of the universities' research results (para. 4.16(c));
  - (n) enhance measures to foster the university-industry collaboration (para. 4.27(a)); and
  - (o) extend the measures applicable to the collaborative funding schemes to individual funding schemes with a view to enhancing a closer link with the Innovation and Technology Fund (para. 4.27(b)).
14. Audit has also *recommended* that the Secretary for Education should monitor the tenure of the Council members to ensure a healthy turnover as far as practicable in the appointment and re-appointment of Council members (para. 2.8).

## Response from the Government

15. The Government agrees with the audit recommendations.

## PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

### Background

1.2 In Hong Kong, there are eight universities funded by the University Grants Committee (UGC) (all universities mentioned hereinafter refer to UGC-funded universities — Note 1). Hong Kong adopts a dual funding system for research at the universities. The Research Portion of the UGC's recurrent grants (details can be found in a separate audit report on the UGC (Note 2)) is disbursed to the universities as infrastructure funding to enable the universities to provide the human capital and the facilities (e.g. accommodation and equipment) necessary to carry out research, as well as to fund a certain level of research. The universities have the autonomy in deciding how the resources available are put to use. The universities would also seek funding from the Research Grants Council (RGC) for the conduct of research projects on a competitive basis. In academic year 2015/16 (all years mentioned hereinafter refer to academic years), the amount of funds granted under RGC funding schemes was \$1,288.5 million.

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**Note 1:** *The eight universities are: (a) City University of Hong Kong; (b) Hong Kong Baptist University; (c) Lingnan University; (d) The Chinese University of Hong Kong; (e) The Education University of Hong Kong; (f) The Hong Kong Polytechnic University; (g) The Hong Kong University of Science and Technology; and (h) The University of Hong Kong.*

**Note 2:** *See Chapter 2 of the Director of Audit's Report No. 67: Funding of universities by University Grants Committee.*

### *Research Grants Council*

1.3 The RGC was established in 1991. It operates under the aegis of the UGC and functions as a non-statutory advisory body on research matters. The RGC's terms of reference are:

- (a) to advise the Government, through the UGC, on the needs of the institutions of higher education in Hong Kong in the field of academic research, including the identification of priority areas, in order that a research base adequate for the maintenance of academic vigour and pertinent to the needs of Hong Kong may be developed; and
- (b) to invite and receive, through the institutions of higher education, applications for research grants from academic staff and for the award of studentships and post-doctoral fellowships; to approve awards and other disbursements from funds made available by the Government through the UGC for research; to monitor the implementation of such grants and to report at least annually to the Government through the UGC.

### *Organisation structure of RGC*

1.4 The RGC's members are appointed by the Secretary for Education under the delegated authority of the Chief Executive of the Hong Kong Special Administrative Region. The RGC meets two times a year. As at 30 June 2016, the RGC comprised a Chairman and 24 members (12 non-local academics, 10 local academics, 2 local lay persons and an ex-officio member).

1.5 The RGC has established 10 committees and 18 panels to assist its work in (i) overseeing the policies of the research funding schemes; (ii) evaluating the research funding applications under various funding schemes; (iii) monitoring and assessing the on-going and completed projects; and (iv) handling the alleged misconduct cases. According to its terms of reference, the RGC is the authority for approving research funding applications. The committees and panels are:

### *Overseeing the policies of research funding schemes*

- (a) Major Projects Steering Committee;
- (b) Hong Kong PhD Fellowship Scheme (HKPFS) Steering Committee;
- (c) Steering Committee on Competitive Research Funding for the Self-financing Degree Sector;

### *Evaluating research funding applications*

- (d) Areas of Excellence (AoE) Scheme Selection Panel;
- (e) Theme-based Research Scheme (TRS) Selection Panel;
- (f) Collaborative Research Fund Committee;
- (g) one pool of five subject panels for individual research schemes and another pool of five subject panels for Joint Research Schemes (JRSs). Each pool of subject panels include:
  - (i) Biology and Medicine Panels;
  - (ii) Business Studies Panels;
  - (iii) Engineering Panels;
  - (iv) Humanities and Social Sciences Panels; and
  - (v) Physical Sciences Panels;
- (h) Humanities and Social Sciences Prestigious Fellowship Scheme (HSSPFS) Selection Committee;
- (i) two selection panels for the HKPFS. The panels are:

## Introduction

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- (i) Humanities, Social Sciences and Business Studies Selection Panel;  
and
- (ii) Science, Medicine, Engineering and Technology Selection Panel;
- (j) Selection Committee for the National Natural Science Foundation of China (NSFC)/RGC JRS;
- (k) Assessment Panel for Competitive Research Funding Schemes for the Local Self-financing Degree Sector;
- (l) Selection Committee for the State Natural Science Award (Note 3);

### *Monitoring and assessing the on-going and completed projects*

- (m) Monitoring and Assessment Panels for the AoE Scheme;
- (n) Monitoring and Assessment Panels for the TRS;
- (o) Monitoring and Assessment Panel for Competitive Research Funding Schemes for the Local Self-financing Degree Sector;

### *Handling the alleged misconduct cases*

- (p) Disciplinary Committee (Investigation) (DC (Investigation));
- (q) DC (Penalty); and
- (r) DC (Appeal).

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**Note 3:** *At the invitation of the Education Bureau (EDB), the RGC assists in the annual preliminary content assessment of the State Natural Science Award applications and makes recommendations to the EDB for submission to the National Office for Science and Technology Awards.*

As at 30 June 2016, committee/panel members comprised 259 local academics, 367 non-local academics, 4 local lay members and 1 ex-officio member (a person may serve as a member of more than one committee/panel). The composition of individual committee/panel members as at 30 June 2016 is shown at Appendix A.

1.6 The RGC, its committees and panels are supported by the UGC Secretariat, which is headed by the Secretary-General, UGC. The Secretariat also serves the UGC on research matters (Note 4). An organisation chart of the UGC Secretariat as at 30 June 2016 is shown at Appendix B.

### ***Funding schemes of RGC***

1.7 The RGC administers 19 funding schemes. Of the 19 schemes, 16 are targeted for the eight universities while three are for the 13 local self-financing degree-awarding institutions. Appendix C lists out these universities/institutions as at 30 June 2016.

1.8 The 19 funding schemes are:

#### ***Project grants — individual research***

- (a) ***General Research Fund (GRF)***. This Fund supplements the universities' research support to researchers who have achieved or have the potential to achieve excellence;
- (b) ***Early Career Scheme (ECS)***. This Scheme nurtures junior academics and prepares them for a career in education and research;

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**Note 4:** *As at 30 June 2016, the UGC Secretariat had a staff establishment of 30 (21 civil service posts and 9 non-civil service contract posts) in the Research Section serving the RGC and the UGC on research related matters. For financial year 2016-17, the estimated operating expenditure related to the operation of the RGC was \$67.1 million.*



### *Project grants — group research*

- (c) ***AoE Scheme.*** This Scheme supports the universities in building upon their existing strengths and develop the strengths into areas of excellence;
- (d) ***TRS.*** This Scheme supports research efforts on themes of strategic importance (e.g. “Developing a sustainable environment”) to the long-term development of Hong Kong;
- (e) ***Collaborative Research Fund.*** This Fund provides funding for the procurement of major research facilities and equipment as well as library collections to support collaborative research involving two or more universities or group research activities that operate across disciplines and/or normal institutional boundaries;
- (f) ***four JRSs.*** Eight JRSs are established in collaboration with research bodies in the Mainland and overseas and are meant to promote and further encourage research co-operation and exchanges. Four JRSs provide funding for actual research expenses in addition to passage and subsistence (see (i) and (k) for the other four JRSs). The four JRSs are:
  - (i) NSFC/RGC JRS;
  - (ii) The French National Research Agency/RGC JRS;
  - (iii) Scottish Funding Council/RGC JRS; and
  - (iv) European Commission/RGC Collaboration Scheme (Note 5);

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**Note 5:** *Applications for the European Commission/RGC Collaborative Scheme was first invited in November 2015. The Scheme was launched in 2016/17.*

### *Fellowship*

- (g) ***HKPFS***. This Scheme enhances the quality of PhD students, strengthens the training of academic researchers and improves the overall research capability of the universities by attracting research students who demonstrate outstanding qualities of academic performance, research ability/potential, communication and interpersonal skills as well as leadership abilities, to pursue their research-based PhD programmes in the universities;
- (h) ***HSSPFS***. This Scheme grants time-off and supporting funds to the outstanding investigators under the subject panel of Humanities and Social Sciences to enable them to focus on research work and writing;
- (i) ***two JRSs***. Two JRSs provide funding to support Hong Kong scholars to undertake research work in the partner region, including passage and subsistence costs. The two JRSs are:
  - (i) Fulbright — RGC Hong Kong Senior Research Scholar/Research Scholar Award Programmes; and
  - (ii) Hong Kong — Scotland Partners in Post Doctoral Research;

### *Travel/Conference grants*

- (j) ***Postgraduate Students Conference/Seminar Grants***. These grants support conferences/seminars organised by or for research students in order to encourage research students of the same discipline of different universities to come together and share their experiences and research results;
- (k) ***two JRSs***. Two JRSs provide funding for passage and subsistence costs for Hong Kong researchers to visit collaborators, or sponsor passage and subsistence costs of guest speakers and direct organising costs of conferences/workshops held in Hong Kong. The two JRSs are:

- (i) Germany/Hong Kong JRS; and
- (ii) PROCORE-France/Hong Kong JRS;

### *Competitive research funding schemes for the local self-financing degree sector*

- (l) ***Faculty Development Scheme.*** This Scheme develops the research capability of academic staff in the local self-financing degree-awarding institutions so that they can transfer their research experiences and new knowledge into teaching and learning;
- (m) ***Institutional Development Scheme.*** This Scheme builds up the research capacity of local self-financing degree-awarding institutions in their strategic areas; and
- (n) ***Inter-Institutional Development Scheme.*** This Scheme enhances academics' research capability in the local self-financing degree-awarding institutions and keeps them abreast of new developments and challenging research topics in relevant fields.

1.9 An organisation chart showing the 19 funding schemes and the committees/panels of the RGC as at 30 June 2016 is at Appendix D.

1.10 Table 1 and Table 2 show the amount of funds granted and the number of projects approved/awardees (for the HKPFS) respectively under the RGC funding schemes for the five years from 2011/12 to 2015/16.

Table 1

**Amount of funds granted under RGC funding schemes  
(2011/12 to 2015/16)**

Scheme	2011/12 (\$ million)	2012/13 (\$ million)	2013/14 (\$ million)	2014/15 (\$ million)	2015/16 (\$ million)
<b><i>Project grants — individual research</i></b>					
(a) GRF	641.1 (Note 11)	523.8	560.6	594.9	596.5
(b) ECS	Nil (Note 1) & (Note 11)	102.1	97.8	94.1	91.9
<i>Sub-total</i>	<i>641.1</i>	<i>625.8</i>	<i>658.5</i>	<i>689.0</i>	<i>688.4</i>
<b><i>Project grants — group research</i></b>					
(c) AoE Scheme (Note 2)	Nil		144.0	Nil	
(d) TRS	247.7	203.0	176.3	205.0	202.8
(e) Collaborative Research Fund	64.7 (Note 11)	80.0	94.9	165.1	110.0
(f) NSFC/RGC JRS	19.4 (Note 11)	21.3	23.6	23.2	26.3
(g) The French National Research Agency/RGC JRS	Nil (Note 3)	9.3	8.3	11.0	7.1
(h) Scottish Funding Council/RGC JRS	Nil (Note 4)			1.6	Nil (Note 5)
(i) Economic and Social Research Council of the UK/RGC JRS	2.9 (Note 11)	2.6	Nil (Note 6)		
(j) Specialised Research Fund for the Doctoral Program of Higher Education and RGC Earmarked Research Grants JRS (Note 7)	Nil	4.2	4.8	Nil	
<i>Sub-total</i>	<i>334.8</i>	<i>320.3</i>	<i>452.0</i>	<i>405.9</i>	<i>346.2</i>
<b><i>Fellowship</i></b>					
(k) HKPFS	93.8	123.8	138.8	167.3	162.0
(l) HSSPFS	Nil (Note 1)	5.0	4.9	5.3	1.5
(m) Fulbright-RGC Hong Kong Senior Research Scholar/Research Scholar Award Programmes	1.4	1.2	1.1	1.2	1.2
(n) Hong Kong-Scotland Partners in Post Doctoral Research (Note 8)	Nil	0.3	0.2	Nil	0.3
<i>Sub-total</i>	<i>95.1</i>	<i>130.2</i>	<i>144.9</i>	<i>173.7</i>	<i>164.5</i>

## Introduction

**Table 1 (Cont'd)**

Scheme	2011/12 (\$ million)	2012/13 (\$ million)	2013/14 (\$ million)	2014/15 (\$ million)	2015/16 (\$ million)
<b><i>Travel/Conference grants</i></b>					
(o) Postgraduate Students Conference/Seminar Grants	0.8	0.6	0.8	0.8	0.7
(p) Germany/Hong Kong JRS	1.0	1.0	0.9	1.0	1.0
(q) PROCORE-France/Hong Kong JRS	0.8	0.6	0.9	0.7	0.9
(r) The Netherlands Organisation for Scientific Research/RGC JRS	0.4	0.1	Nil (Note 6)		
(s) Spanish National Research Council/RGC JRS	0.3	0.2	Nil (Note 9)		
<i>Sub-total</i>	3.3	2.6	2.6	2.6	2.6
<b><i>Competitive research funding schemes for the local self-financing degree sector</i></b>					
(t) Faculty Development Scheme	Nil (Note 10)			32.5	30.6
(u) Institutional Development Scheme				68.0	52.8
(v) Inter-Institutional Development Scheme				2.5	2.9
<i>Sub-total</i>				103.0	86.3
<b>Total</b>	1,074.3	1,078.9	1,258.0	1,374.1	1,288.5

Source: RGC records

Note 1: Applications for the ECS and the HSSPFS were first invited in August 2011 and September 2011 respectively.

Note 2: As at 30 June 2016, the AoE Scheme had conducted six rounds of granting exercises and granted a total of \$1,086 million for 18 projects. The last round (i.e. the Sixth Round) was completed in 2013/14. The Seventh Round (2016/17) is underway.

Note 3: The French National Research Agency/RGC JRS was first launched in 2012/13.

Note 4: A framework agreement was signed in November 2013 between the Scottish Funding Council and the RGC to explore collaborative research opportunities between the two parties.

Note 5: The Scottish Funding Council/RGC JRS was being reviewed and no funding exercise was conducted for 2015/16.

**Table 1 (Cont'd)**

- Note 6: The Economic and Social Research Council of the UK/RGC JRS, and the Netherlands Organisation for Scientific Research/RGC JRS were ceased in December 2014.*
- Note 7: The Specialised Research Fund for the Doctoral Program of Higher Education and RGC Earmarked Research Grants JRS was first launched in 2012/13. The Scheme was ceased in December 2014.*
- Note 8: The Hong Kong-Scotland Partners in Post Doctoral Research was first launched in 2012/13. The Scheme was under review and no funding exercise was conducted in 2014/15.*
- Note 9: The Spanish National Research Council/RGC JRS was ceased in 2012.*
- Note 10: Applications for funding schemes for local self-financing degree-awarding institutions were first invited in December 2013.*
- Note 11: Amounts of funds granted in 2011/12 under the GRF, ECS, Collaborative Research Fund, NSFC/RGC JRS and Economic and Social Research Council of the UK/RGC JRS were inclusive of 15% of on-costs. Starting from 2012/13, on-costs have been allocated on a competitive basis through the Research Portion of the Block Grant.*
- Remarks: Figures may not add up due to rounding.*

**Table 2**  
**Number of projects approved under RGC funding schemes**  
**(2011/12 to 2015/16)**

Scheme	2011/12 (No.)	2012/13 (No.)	2013/14 (No.)	2014/15 (No.)	2015/16 (No.)
<b><i>Project grants — individual research</i></b>					
(a) GRF	801	770	920	972	949
(b) ECS	Nil (Note 1)	131	151	154	151
<i>Sub-total</i>	<i>801</i>	<i>901</i>	<i>1,071</i>	<i>1,126</i>	<i>1,100</i>
<b><i>Project grants — group research</i></b>					
(c) AoE Scheme (Note 2)	Nil		3	Nil	
(d) TRS	6	5	3	4	5
(e) Collaborative Research Fund	12	12	14	30	18
(f) NSFC/RGC JRS	21	23	23	22	23
(g) The French National Research Agency/RGC JRS	Nil (Note 3)	4	3	5	3
(h) Scottish Funding Council/RGC JRS	Nil (Note 4)			13	Nil (Note 5)
(i) Economic and Social Research Council of the UK/RGC JRS	8	8	Nil (Note 6)		
(j) Specialised Research Fund for the Doctoral Program of Higher Education and RGC Earmarked Research Grants JRS (Note 7)	Nil	11	13	Nil	
<i>Sub-total</i>	<i>47</i>	<i>63</i>	<i>59</i>	<i>74</i>	<i>49</i>
<b><i>Fellowship</i></b>					
(k) HKPFS (number of awardees)	125	165	185	223	216
(l) HSSPFS	Nil (Note 1)	8	7	7	3
(m) Fulbright-RGC Hong Kong Senior Research Scholar/Research Scholar Award Programmes	8	8	6	6	6
(n) Hong Kong-Scotland Partners in Post Doctoral Research (Note 8)	Nil	3	3	Nil	4
<i>Sub-total</i>	<i>133</i>	<i>184</i>	<i>201</i>	<i>236</i>	<i>229</i>
<b><i>Travel/Conference grants</i></b>					
(o) Postgraduate Students Conference/Seminar Grants	18	14	18	18	16
(p) Germany/Hong Kong JRS	20	14	12	13	15
(q) PROCORE-France/Hong Kong JRS	13	10	12	10	15
(r) The Netherlands Organisation for Scientific Research/RGC JRS	7	2	Nil (Note 6)		
(s) Spanish National Research Council/RGC JRS	5	5	Nil (Note 9)		
<i>Sub-total</i>	<i>63</i>	<i>45</i>	<i>42</i>	<i>41</i>	<i>46</i>

Table 2 (Cont'd)

Scheme	2011/12 (No.)	2012/13 (No.)	2013/14 (No.)	2014/15 (No.)	2015/16 (No.)
<i>Competitive research funding schemes for the local self-financing degree sector</i>					
(t) Faculty Development Scheme	Nil (Note 10)			54	47
(u) Institutional Development Scheme				6	7
(v) Inter-Institutional Development Scheme				6	6
<i>Sub-total</i>				66	60
Total	1,044	1,193	1,373	1,543	1,484

Source: RGC records

Notes 1 to 10: See Notes 1 to 10 of Table 1.

### ***Research Endowment Fund***

1.11 Of the 19 funding schemes administered by the RGC, two schemes, namely the AoE Scheme and the HKPFS, are funded by the UGC's recurrent grants and the remaining 17 are funded by the Research Endowment Fund (REF).

1.12 In 2009, to provide stable funding to support research in the universities, the Government set up the REF with an endowment of \$18 billion. In 2012, the Government injected \$5 billion into the REF bringing the endowment to \$23 billion and extended the funding scope to include the local self-financing degree-awarding institutions. Of the \$23 billion, \$20 billion is designated for the universities while \$3 billion is designated for the local self-financing degree-awarding institutions. Incomes from the investment of \$20 billion and \$3 billion are disbursed as research grants to the universities and institutions respectively.

1.13 The REF was set up as a trust under the Permanent Secretary for Education Incorporated (the Trustee). The UGC advises the Trustee on the policies and procedures governing the operation, development and investment of the REF. The REF's endowment is invested through placements with the Exchange Fund managed by the Hong Kong Monetary Authority.



## **Introduction**

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### **Audit review**

1.14 In April 2016, the Audit Commission (Audit) commenced a review of funding of academic research projects by the RGC. The review has focused on the following areas:

- (a) governance and management issues (PART 2);
- (b) project management (PART 3); and
- (c) research output and way forward (PART 4).

Audit has found room for improvement in the above areas and has made a number of recommendations to address the issues.

### **General response from the Government**

1.15 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has also thanked Audit for providing constructive recommendations to the RGC's work.

### **Acknowledgement**

1.16 Audit would like to acknowledge with gratitude the full cooperation of the staff of the UGC Secretariat during the course of the audit review.

## **PART 2: GOVERNANCE AND MANAGEMENT ISSUES**

2.1 This PART examines governance and management issues of the RGC. Audit found room for improvement in the following areas:

- (a) appointment of Council members (paras. 2.3 to 2.9);
- (b) matters related to Council/committee/panel meetings (paras. 2.10 to 2.12);
- (c) awards of research project grants (paras. 2.13 to 2.19);
- (d) management of conflicts of interest (paras. 2.20 to 2.28); and
- (e) other management issues (paras. 2.29 to 2.40).

2.2 Under the RGC, there are 10 committees and 18 panels. As at 30 June 2016, committee/panel members comprised 259 local academics, 367 non-local academics, 4 local lay members and 1 ex-officio member (a person may serve as a member of more than one committee/panel). They are responsible for overseeing the policies of the research funding schemes, evaluating the research funding applications submitted under various funding schemes, monitoring and assessing the on-going and completed projects, and handling the alleged misconduct cases.

### **Appointment of Council members**

2.3 When necessary, the Secretary-General, UGC recommends and seeks the approval of the Secretary for Education on the appointments of new Council members and re-appointments of existing ones. The authority of appointments and re-appointments of the committee members and panel members rests with the Chairman of the RGC.

### *Need to monitor the tenure to ensure healthy turnover of Council members*

2.4 The Government has promulgated the six-year rule to ensure a healthy turnover of members of advisory and statutory bodies. According to the rule:

- (a) a non-official member of an advisory or statutory body should, as a general rule, not serve on the same body in any one capacity for more than six years;
- (b) government bureaux and departments are required to vigorously enforce the six-year rule in respect of the boards and committees under their respective purview;
- (c) non-compliance with the six-year rule should only be allowed in special circumstances; and
- (d) any exception to this rule should be reasonable and proportionate to the special circumstances of the case and the appointing authority should be provided with full justifications for any such departure.

2.5 Audit reviewed the tenures of 48 members appointed in the period 2011/12 to 2015/16 and noted that up to the end of their tenures, eight (16.7%) members had served (or would have served) the Council continuously for more than six years (ranging from 7.5 to 12 years) (see Table 3).

**Table 3**

**Council members appointed in the period 2011/12 to 2015/16  
with continuous tenures exceeding 6 years**

<b>Member</b>	<b>No. of years up to expiry of tenure</b>
A	7.5
B	8
C	8
D	10
E	8
F	8
G	8
H	12

*Source: Audit analysis of RGC records*

2.6 In response to Audit enquiry in September 2016, the Secretary for Education said that the EDB was satisfied that all these cases of departure from six-year rule were fully justified. He also said that seven of the eight members were non-local members, and it was simply not easy to identify non-local academics of high standing who were willing to commit to serving Hong Kong. Moreover, non-local members naturally take more time to fully familiarise themselves with the local higher education landscape before they are ready to make significant contributions to the RGC.

2.7 While recognising the difficulties in appointing individuals who are competent and experienced to meet the specific needs of the RGC, Audit considers that the Secretary for Education needs to monitor the tenure of Council members to ensure a healthy turnover by injecting new blood, and provide opportunities for more people to serve the RGC as far as practicable in the appointment and re-appointment of Council members.

### Audit recommendation

2.8        Audit has *recommended* that the Secretary for Education should monitor the tenure of Council members to ensure a healthy turnover as far as practicable in the appointment and re-appointment of Council members.

### Response from the Government

2.9        The Secretary for Education agrees with the audit recommendations. He has said that:

- (a)        all identified cases of departure from the six-year rule were fully justified; and
- (b)        the EDB will continue to ensure a healthy turnover of Council members as far as practicable.

### Matters related to Council/committee/panel meetings

2.10        Audit examination of Council/committee/panel records revealed that:

- (a)        *No rules of procedure promulgated.* The RGC had not promulgated rules of procedure governing the conduct of meetings (e.g. frequency and quorum of meetings, and voting requirements) for the Council, its 10 committees and 18 panels (see para. 1.5);
- (b)        *Committee/panel reports were only issued to Council members shortly before the Council meetings or only issued at the meetings.* Due to the tight time schedules between the finalisation of committee/panel reports and the date of Council meetings, committee/panel reports and committee/panel funding recommendation summaries were only issued to Council members shortly before the Council meetings or only issued at the meetings. Audit considers that it is important to distribute committee/panel reports early to ensure that Council members are provided well before the meetings with all the information that they need to properly consider and discuss; and

- (c) *No minutes of meetings for 5 committees and 10 panels.* In the period 2013/14 to 2015/16, 8 of the 10 committees and 13 of the 18 panels had held meetings. There were no minutes of meetings for 5 of the 8 committees and 10 of the 13 panels. According to the UGC, the deliberations regarding policy issues, attendance of members, declarations of interest and assessment remarks were recorded in other forms of documents (e.g. “Chairman’s Brief”, “assessment forms/summary”, “feedback on research proposals” and “summary table”).

## **Audit recommendations**

**2.11      Audit has *recommended* that the Secretary-General, University Grants Committee, in consultation with the RGC, should:**

- (a) **promulgate rules of procedure for Council/committee/panel meetings (e.g. frequency and quorum of meetings, and voting requirements);**
- (b) **issue meeting papers in advance of Council meetings to ensure that members are provided with all the information that they need to properly consider and discuss well before the meetings; and**
- (c) **prepare minutes for those committee/panel meetings which currently do not have minutes.**

### Response from the Government

2.12 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a) based on the prevailing rules of procedure for Council/committee/panel meetings, the UGC Secretariat will consult the RGC on the arrangements for promulgating formal sets of rules of procedure for Council/committee/panel meetings taking into account their respective roles and functions. The Review of the RGC (Phase II) (see para. 2.36) will examine, amongst others, the assessment and monitoring processes. It will provide further insight to facilitate the RGC in promulgating the formal sets of rules;
- (b) meeting papers containing background of funding schemes are issued to members about one week before the meeting. The UGC Secretariat will publish the pledge regarding the issue of meeting papers to members; and
- (c) the Council, the three committees overseeing policies of funding schemes and three panels record the deliberation of meetings in the form of “minutes of meeting”. The UGC Secretariat will refine the arrangements in notes-recording for the committees/panels mentioned in paragraph 2.10(c) by consolidating the information which used to be recorded in various forms of documents and presenting it in the form of “minutes of meeting” in future.

### Awards of research project grants

2.13 The RGC operates under the aegis of the UGC and functions as a non-statutory advisory body (Note 6) on research matters within the organisational structure of the UGC. One of the terms of reference is “to approve awards and other disbursements from funds made available by the Government through the UGC for research”.

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**Note 6:** *According to the Home Affairs Bureau, non-statutory advisory bodies are set up to provide expert advice in particular areas or subjects, or advise on the development of government policies or on the delivery of public services.*

2.14 The REF was established by a declaration of trust made on 6 February 2009 by the Permanent Secretary for Education Incorporated (the Trustee). The REF provides stable research funding to the universities and local self-financing degree-awarding institutions. Under the declaration of trust, the UGC may, directly or via the UGC Secretariat, advise the Trustee on the provision of grant from the REF for distribution to the universities/institutions for the purpose of supporting research or other activities reasonably incidental thereto undertaken by the universities/institutions. Before the start of an academic year, based on the advice via UGC Secretariat, the Trustee approves allocation from the investment income of the REF as an annual provision for research funding to the RGC for the coming academic year. The UGC Secretariat then allocates research grants to universities/institutions as endorsed by the RGC accordingly. However, the awards of grants to projects are not approved by the Trustee or the Secretary-General, UGC.

2.15 In October 2016, the Financial Services and the Treasury Bureau informed Audit that:

- (a) Controlling Officers, not a steering, management or advisory committee, are ultimately responsible and accountable for the proper use of funds under their control pursuant to the Public Finance Ordinance (Cap. 2). Irrespective of how public funds are disbursed, Controlling Officers should satisfy themselves that an appropriate system of cost control or monitoring is in place, having regard to economy, efficiency and effectiveness in the delivery of public service and use of the public funds. Hence, Secretary-General, UGC, as the Controlling Officer of recurrent grants provided by the UGC and the Permanent Secretary for Education Incorporated as the Trustee of the REF, has the duty to ensure the grants are disbursed in a way in line with the requirements under the Public Finance Ordinance and other relevant statutes/legal documents as well as government regulations and circulars;
- (b) the ultimate approving authority for provision of grants from the REF to the UGC for the purpose of supporting research rests with the Permanent Secretary for Education Incorporated. Respective roles and responsibilities of the Permanent Secretary for Education Incorporated, the UGC and the Secretary-General, UGC have been enshrined in the Trust Deed. In exercising its power, the Permanent



Secretary for Education Incorporated can seek supplementary information/clarification from the UGC, which is answerable to and responsible for its advice to the Permanent Secretary for Education Incorporated on the level of funding. The Permanent Secretary for Education Incorporated may decline to follow the UGC's advice and the UGC may disclose to the public those instances or decisions according to the Trust Deed. An annual report on the operation of REF would be submitted to the Permanent Secretary for Education Incorporated and detailed accounts of the REF would have to be tabled at the Legislative Council; and

- (c) at the operational level, the UGC is entrusted with the authority to control and monitor the use of grants paid to institutions (through the vehicle of RGC). Members of the UGC and RGC are appointed by the Chief Executive and Secretary for Education respectively. The Trust Deed specifies that while any member of UGC/UGC Secretariat shall not be liable for loss of the REF, it states that any wilful fraud, wrongdoing or omission on the part of the Trustee, any member of the UGC, the Secretary-General, UGC, or any member of UGC Secretariat who is sought to be made liable. There are also guidelines on code of conduct for compliance by RGC members. The RGC is required to submit its annual report to the UGC.

### ***Applications for research project grants not properly approved by RGC***

2.16 One of the terms of reference of the RGC is to approve awards and other disbursements from funds made available by the Government through the UGC for research.

2.17 Under the existing arrangement adopted by the RGC, applications for research funding are evaluated by the committees and panels. Committee/panel meetings are held to discuss which applications and the amounts of funding that should be approved. Audit reviewed the records of processing funding applications for 19 research funding schemes and noted that:

- (a) for ten schemes, namely the HKPFS, 8 JRSs and Postgraduate Student Conference/Seminar Grants, the authority of approving applications for research funding was delegated to the RGC Chairman, the Joint Selection Committees/Boards, and the UGC Secretariat respectively; and
- (b) for eight of the remaining nine funding schemes, there was no documentary evidence showing that the Council had reviewed or approved individual projects. When a Council meeting was held to approve the projects, the total number of the projects to be approved and the total amount of funding to be approved were submitted to the Council. The eight funding schemes were GRF, ECS, AoE Scheme, TRS, Collaborative Research Fund, HSSPFS, Faculty Development Scheme and Inter-Institutional Development Scheme. Audit further noted that, for six of the eight schemes, there was no documentary evidence showing that the Council had been provided with any information on individual projects to be approved, e.g. the project title, project objectives, or amount of project funding (Note 7).

### Audit recommendation

2.18 **Audit has recommended that the Secretary-General, University Grants Committee, in consultation with the RGC, should ensure that applications for project grants are approved by the proper authority and the approvals are properly documented.**

### Response from the Government

2.19 The Secretary-General, University Grants Committee agrees with the audit recommendation. He has said that:

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**Note 7:** *For the Collaborative Research Fund, the Council was provided (by projecting on-screen) with the project title and the recommended amount of funding for each project in the Council meeting. For the TRS, before June 2016, the Council was not provided with any information on individual projects. In June 2016, the Council was provided (by projecting on-screen) with the theme, project title and the recommended amount of funding for each project in the Council meeting.*

- (a) all research funding applications are approved in accordance with prevailing rules and funding approvals are properly documented. Under the peer review mechanism for individual and collaborative funding schemes, applications are assessed by at least two external reviewers and two to three committee/panel members who are experts in the fields of the applications before they are submitted to committee/panel meetings for final rating. Committees'/panels' recommendations to the Council are the considered judgement of the whole committee/panel; and
- (b) for research funding schemes for individual principal investigators (PIs) such as GRF, ECS, HSSPFS, Faculty Development Scheme and Inter-Institutional Development Scheme, the UGC Secretariat will consult the RGC to consider appropriate measures for providing more details regarding the recommended projects for members' scrutiny and approval. Given the large number of recommended projects under some of the research funding schemes (such as the GRF and the ECS which have over 1,000 recommended projects per exercise), the more details on the recommended projects to be provided at the Council meeting, the more complicated the second-tier declarations will have to be managed and the longer the meeting will take. A reasonable balance is required to be struck among the objectives of providing detailed list of recommended projects to the Council, the level of details on the recommended projects to be provided, the integrity of the declaration of interest procedures and the efficiency of Council meetings. The Review of the RGC (Phase II) (see para. 2.36) will examine, amongst others, the assessment and monitoring processes, and the arrangement guarding against conflicts of interest. It will provide further insight to facilitate the RGC in considering the matter.

## **Management of conflicts of interest**

2.20 The RGC promulgated the Code of Conduct and Guidelines on Handling Conflicts of Interest During Proposal Evaluation Process setting out the requirements related to management of conflicts of interest in respect of the Council/committee/panel members/external reviewers. The RGC adopts a two-tier reporting system for the declarations of interests. The pertinent requirements stipulated in the Code and the Guidelines are:

- (a) at the first tier, Council/committee/panel members are required to declare fully their direct personal interests in the Register of Interests Form on first appointment, re-appointment or significant change of circumstances. Subsequently, members are required to submit (or update) the Register of Interests Form to the UGC Secretariat on an annual basis;
- (b) at the second tier, members should declare interests whenever they see a reason to, on a case-by-case basis;
- (c) when a conflict of interest is declared and in case there is a meeting to be convened to discuss the matter, the respective Chairman shall decide on whether the member may speak or vote on the matter, remain in the meeting as an observer or withdraw from the meeting altogether; and
- (d) members should not assess applications when there are major conflicts of interest.

### *Need to improve first-tier declarations*

2.21 *Council/committee members.* Audit reviewed the record of submission or update of Register of Interests Forms of Council/committee members in the period 2011/12 to 2015/16 and noted that:

- (a) a Council member did not submit (or update) the annual Register of Interests Form throughout the period 2011/12 to 2015/16 despite reminders were sent to him. Further review of the member's submission record revealed that this member had only submitted the Form once on first appointment in 2009;
- (b) some Register of Interests Forms for 2011/12 and 2012/13 could not be located. Up to August 2016, the UGC Secretariat was only able to locate the Forms of 9 of the 29 Council members in 2011/12 and 14 of the 27 Council members in 2012/13; and

- (c) the ex-officio member of the Council has submitted the Register of Interests Form. However, the ex-officio member of the Steering Committee on Competitive Research Funding for the Self-financing Degree Sector had not been required to submit the Register of Interests Form since his appointment in July 2014.

**2.22 Panel members for individual research schemes.** Panel members for individual research schemes are required to submit (or update) the Register of Interests Forms in December every year. Funding applications and the relevant supporting information will be distributed to panel members in early February every year for their consideration before the panel meetings are held in June to discuss the applications. In deciding whether the distribution to individual panel members should be withheld, the UGC Secretariat will make reference to the Register of Interests Forms. If the Form from a particular member has not been received before the distribution (i.e. end of January), the member may receive applications that should not have been distributed to him (Note 8). Audit reviewed the records of the submission (or update) of Register of Interests Forms by 211 panel members for individual research schemes for 2015/16 and found that:

- (a) 32 (15%) of the 211 panel members submitted the Forms on time, but 179 (85%) submitted (or updated) late. The delays ranged from 4 to 190 days (averaging 53 days);
- (b) of the 179 panel members in (a) above, 91 (51%) members only submitted (or updated) the Forms in or after February 2016 (i.e. after the funding applications had been distributed to them for consideration); and
- (c) of the 179 panel members, 16 (9%) members only submitted (or updated) the Forms 15 to 26 days (averaging 17 days) after the panel meetings were held on 13 to 15 June 2016 for deciding which funding applications should be recommended for Council's approval.

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**Note 8:** *Members are reminded to decline receiving the relevant papers of applications that they may have conflicts of interest.*

2.23 *Panel members for JRSs.* The panels for the JRSs were set up in February 2012 and members were first appointed in February 2012 for evaluation of applications submitted under the JRSs. Audit noted that the panel members for JRSs were requested to submit their Register of Interests Forms only upon their appointment but not upon re-appointment and on an annual basis. Audit noted that panel members of the JRSs are requested to indicate interests on proposals distributed to them in early March. If the Form from a particular member has not been updated before the distribution (i.e. end of February), the member may receive applications that should not have been distributed to him. Upon enquiry, the RGC informed Audit in August 2016 that formal updating of Register of Interests Forms was not requested upon re-appointments of the JRS members until June 2016. Audit also noted that 13 (35%) of 37 panel members had not submitted the Register of Interests Forms upon their re-appointments in 2016. Audit further reviewed the record of these 13 members and found that nine (69%) of them had also not submitted the Register of Interests Forms upon their re-appointments in 2014.

### *Need to improve second-tier declarations*

2.24 According to the Code of Conduct, members and reviewers should not take part in the assessment of applications in which they are in any way associated, such as applications from:

- (a) themselves/colleagues in their departments/universities; or
- (b) universities that they have served within two years; or
- (c) universities that they have been invited for pre-review.

2.25 In order to prevent the public perception of the members using their capacity to obtain financial benefits from the RGC, the member concerned will be requested to be excused from the discussion when his/her own application is considered. Failure to avoid, declare, disclose or report such conflict in particular with the applicants or comment on proposals from applicants with affiliation without permission may give rise to the perception and criticisms of favouritism, abuse of authority or even allegations of corruption. In this connection, members or reviewers should declare upfront any conflicts of interest situation to the Secretariat where appropriate.

2.26 Audit reviewed the 3,314 GRF, ECS and HSSPFS projects approved in the period 2013/14 to 2015/16 and noted that for six projects, the PIs were Council members. In the wording of the Code of Conduct, these six projects were “applications from themselves”. Four Council members were involved in these six projects. However, no documentation was available showing that declarations of interests had been made before or during the meetings at which funding was awarded.

### Audit recommendations

2.27 Audit has *recommended* that the Secretary-General, University Grants Committee, in consultation with the RGC, should:

- (a) take measures to ensure that all Council/committee/panel members make the required first-tier declarations of interests in a timely manner by:
  - (i) submitting the Register of Interests Form on first appointment, re-appointment or significant change of circumstances; and
  - (ii) submitting or updating the Form annually;
- (b) consider, in consultation with the Home Affairs Bureau, whether it is necessary for ex-officio Council/committee/panel members to make first-tier declarations of interests by:
  - (i) submitting the Register of Interests Form on first appointment, re-appointment or significant change of circumstances; and
  - (ii) submitting or updating the Form annually;
- (c) ensure that the panel members of JRSs submit or update the Register of Interests Form on an annual basis;
- (d) ensure that Council/committee/panel members make second-tier declarations of interests when they see a reason to do so;

- (e) **take measures to ensure the safe keeping of Register of Interests Forms;**
- (f) **take measures to ensure that all declarations of conflicts of interest made before or during meetings by the Council/committee/panel members are properly documented; and**
- (g) **take measures to ensure that Council/committee/panel members do not take part in the assessment of applications in which they are in any way associated.**

## **Response from the Government**

2.28 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a) notwithstanding the room for improvement in the timeliness in making the first-tier declarations of interests by submission of the Register of Interests Forms, the UGC Secretariat has all along ensured the timeliness in making the second-tier declarations. The second-tier declarations are made before or at the assessment stage of each funding exercise to ensure that committee/panel members do not take part in the assessment of the applications in which they have major conflicts of interests. The UGC Secretariat will enhance measures to closely monitor the timely submission of Register of Interests Forms in the first-tier declarations of interests;
- (b) the UGC Secretariat will consider, in consultation with the Home Affairs Bureau, whether it is necessary for an ex-officio committee member, who is a government official and whose appointment to the committee is post-tied, to make first-tier declaration of interests;
- (c) starting from June 2016, the following improvements have already been made regarding subject panel members' making the first-tier and second-tier declarations:
  - (i) panel members of JRSs have been required to submit or update their Register of Interests Forms on an annual basis; and



## **Governance and management issues**

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- (ii) there is a statement in the Chairman's Brief inviting the Panel Chairmen to remind Panel members of the GRF, ECS and HSSPFS to seek the former's permission before expressing their opinions at meetings. Panel members are also required to fill in declaration of interests forms when they declare interests during the meetings for record purposes;
- (d) starting from June 2015, in view of Council members' increasing awareness of the need to guard against any possible perceived conflicts of interest, while the practice of masking the identity of applicants under the funding schemes for individual research projects still remains intact, improvements have been made to invite any Council members whose applications are under consideration at the time, to leave the conference room and not to take part in the discussion of the item. The Review of the RGC (Phase II) will examine, amongst others, the arrangement guarding against conflicts of interest. It will provide further insight to facilitate the RGC in refining the arrangement in making declarations of interests during meetings; and
- (e) the UGC Secretariat will further improve the filing of documents concerning the declarations of interests by members.

## **Other management issues**

### ***Decreasing return on investment of REF***

2.29 According to the Finance Committee paper on the establishment of the REF, the Government expected to maintain a steady flow of research funding for the universities. The investment income of the REF should in general be able to fully cover the cash flow requirements for funding research as well as the disbursements incidental to its administration on an ongoing basis.

2.30 Currently, the REF invests its endowment through the three placements with the Exchange Fund managed by the Hong Kong Monetary Authority. The UGC advises the Trustee on the policies and procedures governing the operation, development and investment of the REF, and the provision of grants from the REF for distribution to the universities/institutions for the purpose of conducting, promoting and assisting research.

2.31 The REF is expected to generate an annual return at around 5% on a long-term basis at the time of its establishment in 2009. The average annual rate of return on investment from 2009 to 2016 was 5.3%. However, from 2017 to 2019, the average annual return on investment was forecasted in December 2015 to be around 4%, which would be 1.3 percentage points lower than the 5.3% for the period 2009 to 2016. At this lower rate of return, the investment income alone would be insufficient to cover the 2016/17 budget of \$1,251 million of the 17 funding schemes funded by the REF. The projected deficit of \$239 million for 2016/17 will be absorbed by the reserve of the REF. Assuming an average annual return of 4% in the medium term and the same budget as that in 2015/16, the UGC Secretariat forecasted that from 2023/24 onwards, the investment income and the reserve would be insufficient to cover the provision of funding. The shortfall would have to be met by depleting the principal of the REF. According to the latest figures forecasted by the UGC Secretariat in June 2016, the projected annual return on investment for 2016/17 would further decrease to 3.3% and the projected deficit for 2016/17 would increase to \$508 million.

2.32 At an RGC meeting held in December 2015, members expressed concern on the decreasing investment return of the REF. Members said that as there was a need to increase the amount of research funding in the long run, the RGC should consider seeking further injection into the REF in the future. Members also suggested that the assessment panels might consider tightening up the success rates so that approved projects would be more fully funded. The meeting concluded that the RGC should keep a close watch of the funding position of the REF in the future. Audit considers that the RGC needs to draw up an action plan to address this issue.

### *Need to improve the timeliness in the submission of annual report to EDB*

2.33 As stated in the terms of reference of the RGC, the RGC should report at least annually to the Government through the UGC. In March 1999, the then Secretary for Education and Manpower requested the RGC to publish its annual report in the year immediately following the report period (i.e. within 12 months) after noting that the annual report for 1997 was only published in 1999 (Note 9).

2.34 Audit examined the submission of annual reports for the period 2005 to 2014/15 by the RGC to the EDB and found that, except for the most recent two reports for 2013/14 and 2014/15, the RGC submitted the annual reports within 12 months after year end, ranging from three to nine months. However, the report for 2013/14 was submitted 15 months after the year end. Up to 31 August 2016, the annual report for 2014/15 had not been submitted (i.e. 14 months after the year end date of 30 June 2015).

2.35 In response to Audit enquiry in September 2016, the UGC Secretariat informed Audit that in view of the advancement of technology, the RGC had improved the transparency and timeliness in disseminating information. The full range of information and data concerning the RGC funding schemes and activities are now uploaded onto the RGC website once such information is available. The annual audited financial statements of the REF have been laid upon the table of the Legislative Council every year since the establishment of the Fund in 2009. The Annual Report on the Operation of the REF has been submitted to the Trustee of the REF, i.e. the Permanent Secretary for Education Incorporated, every year. The RGC will consider whether there is added value in producing the Annual Report in its current form given the present circumstances and whether the financial and operation reports on the REF, with suitable adjustment, submitted to the EDB annually can already meet the reporting requirement as stated in the terms of reference of the RGC.

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**Note 9:** *Before 2012/13, the RGC annual report covered a calendar year.*

***Need to closely monitor the implementation of RGC Review***

2.36 In 2014, the RGC started work on planning a review of the RGC. The original objective of the review was to examine the RGC's operation, but the scope was later expanded to cover the portfolio balance of its research funding schemes, its structure, and standard and good practice in other comparable jurisdictions after taking into consideration the concerns of the universities. The RGC decided at the meeting held in December 2015 that the RGC Review would be conducted in two phases:

- (a) ***Phase I.*** To cover macro issues such as the portfolio balance of the RGC research funding schemes, the RGC and the assessment panels'/committees' structure, and good practice in overseas funding agencies; and
- (b) ***Phase II.*** To cover micro issues such as the quality of the assessment and monitoring processes, the means of communication among members of the panels/committees, the timeline of research funding schemes and the arrangement guarding against conflicts of interest in the assessment process.

2.37 To safeguard the independence and credibility of the RGC Review, in April 2016, the UGC decided to set up the Task Force on the Review of the RGC (Phase I) under the Research Group of the UGC to oversee the implementation of Phase I Review. The findings and recommendations of Phase I Review are expected to be available in mid 2017. The Phase II Review will be conducted after the Phase I Review.

2.38 According to the timetable proposed in October 2015 for the engagement of consultant, the consultancy brief and the invitation for quotations from potential consultants would be issued in December 2015, the consultancy proposal would be received in January 2016 and the consultancy agreement would be signed in April 2016. The UGC issued the consultancy brief in early August 2016 and received the consultancy proposal in mid August 2016. An external consultant was appointed in late August 2016. Audit noted that there was a change in the plan due to the need to address the independence and credibility issues of the expanded scope of the RGC Review. The Task Force on the Review of the RGC (Phase I) was established by the UGC in July 2016. The

Task Force convened the first meeting with the Consultant in early September 2016. Detailed milestones of the consultancy study have been endorsed by the UGC. In order to ensure the timely completion of the Phase I Review, the UGC needs to closely monitor the implementation of the RGC Review.

### Audit recommendations

2.39 **Audit has *recommended* that the Secretary-General, University Grants Committee, in consultation with the RGC, should:**

- (a) **keep in view the decreasing investment return of the REF amidst volatile market conditions, and draw up an action plan to address the issue;**
- (b) **take measures to ensure that the RGC annual reports are submitted to the Government and uploaded onto its website in a timely manner; and**
- (c) **take measures to closely monitor the implementation of the RGC Review to ensure its timely completion.**

### Response from the Government

2.40 The Secretary-General, University Grants Committee generally agrees with the audit recommendations. He has said that:

- (a) the UGC Secretariat has been exercising prudence in advising the UGC on investment strategy and portfolio, taking into account the objective of the REF. Given the volatility in the global financial markets, the UGC carefully considered and decided in 2014 to continue placing the two trenches of funds with the Hong Kong Monetary Authority in order to generate a steady return on investment. The UGC also agreed to explore with the Hong Kong Monetary Authority an alternative investment model which might yield a higher return for adoption for the third trench of funds upon its expiry in June 2018;

- (b) the UGC Secretariat will continue to provide full support to the UGC in considering investment(s) which is/are expected to generate a steady return on investment and, in the event that the significant decrease in investment return of the REF persists for a long period of time in future, considering other alternatives;
- (c) the UGC Secretariat will, in consultation with the Education Bureau, review whether there is added value in producing the RGC annual report in its present form in addition to the financial and operation reports on the REF submitted annually to the EDB. Subject to the outcome of the review, the report in its present form or a new agreed form will be submitted to the Government and uploaded on the RGC website in a timely manner; and
- (d) the UGC Secretariat will continue to provide full support to the Task Force on the Review of the RGC (Phase I) in closely monitoring the progress of the review for timely completion.

## **PART 3: PROJECT MANAGEMENT**

3.1 This PART examines issues relating to project management, focusing on the following areas:

- (a) administration of RGC funding schemes (paras. 3.2 to 3.25);
- (b) monitoring of funded projects (paras. 3.26 to 3.48); and
- (c) handling of alleged misconduct cases (paras. 3.49 to 3.57).

### **Administration of RGC funding schemes**

3.2 Seventeen of the 19 funding schemes administered by the RGC are funded by the REF. The remaining two funding schemes, namely the AoE Scheme and the HKPFS, are funded by the UGC. Every year, the RGC approves a “Strategic Plan and Budget” prepared by the UGC Secretariat to allocate funding for individual funding schemes.

3.3 In the report “Aspirations for the Higher Education System in Hong Kong” issued by the UGC in December 2010 (hereinafter referred to as the 2010 Report), it was stated that given the limited funding that could receive support from public purse, Hong Kong’s research efforts needed to be focused to achieve critical mass and be at the leading edge internationally. Following the issue of the 2010 Report, the UGC and the universities agreed that resources should be pooled together and expertise be shared to bring in more cross-disciplinary and cross-institutional collaboration and to maximise research capacity to build up critical mass.

3.4 The UGC believes that outstanding research drives innovation and made contributions to society and the economy. The UGC considers that:

- (a) given finite resources, it is essential to allocate research funding in ways that drive excellence; and

- (b) to drive excellence, there is a need to aggregate and concentrate funding, collaborate and select according to strength as identified, and pool the resources across disciplines.

3.5 The RGC has expressed concern on whether the existing mix of small and large projects was the right balance. At a meeting of the Working Group on the Preparation of the RGC Review held in November 2015, members commented that:

- (a) the majority of the RGC funding was for small grants with relatively high success rates;
- (b) such amount was not sufficient for supporting students; and
- (c) there were too many small scale JRSs on travel grants.

The RGC members agreed that the portfolio balance of the RGC funding schemes should be examined by the RGC Review with an aim of increasing the effective and efficient use of the RGC funding to maintain academic vigour and to meet the needs of Hong Kong.

### ***Majority of RGC funding is allocated to small projects***

3.6 Audit analysed the number of approved projects and amount of funds granted under RGC funding schemes in 2015/16. The result is shown in Table 4. In the analysis, Audit classified the approved projects according to the amount of approved funding:

- (a) large projects (funding of more than \$10 million per project);
- (b) medium-sized projects (funding from \$2 million to \$10 million per project); and
- (c) small projects (funding below \$2 million per project).



**Table 4**  
**Analysis of approved RGC research projects**  
**(2015/16)**

Item No.	Scheme	Approved project			Average funding per project (\$ million)
		No.	Funding (\$ million)	Percentage of total funding (%)	
Large projects					
1	TRS	5	202.8	15.7	40.57
Overall for large projects		5	202.8	15.7	40.57
Medium-sized projects					
2	Institutional Development Scheme	7	52.8	4.1	7.54
3	Collaborative Research Fund	18	110.0	8.5	6.11
4	The French National Research Agency/RGC JRS	3	7.1	0.6	2.38
Overall for medium-sized projects		28	169.9	13.2	6.07
Small projects					
5	NSFC/RGC JRS	23	26.3	2.0	1.14
6	HKPFS (number of awardees)	216	162.0	12.6	0.75
7	Faculty Development Scheme	47	30.6	2.4	0.65
8	GRF	949	596.5	46.3	0.63
9	ECS	151	91.9	7.1	0.61
10	HSSPFS	3	1.5	0.1	0.50
11	Inter-Institutional Development Scheme	6	2.9	0.2	0.49
12	Fulbright - RGC Hong Kong Senior Research Scholar Programme	6	1.2	0.1	0.19
13	Hong Kong-Scotland Partners in Post Doctoral Research	4	0.3	0.0	0.07
14	Germany/Hong Kong JRS	15	1.0	0.1	0.07
15	PROCORE-France/Hong Kong JRS	15	0.9	0.1	0.06
16	Postgraduate Students Conference/Seminar Grants	16	0.7	0.1	0.04
Overall for small projects		1,451	915.7	71.1	0.63
Overall		1,484	1,288.5	100.0	0.87

Source: Audit analysis of RGC records

Remarks: 1. Three of the 19 funding schemes were not included in this analysis. No application exercises were undertaken in 2015/16 for two schemes, namely the AoE Scheme and Scottish Funding Council/RGC JRS. The third scheme, European Commission/RGC Collaboration Scheme, was newly introduced in 2016/17.

2. Figures may not add up due to rounding.

3.7 Table 4 shows that in 2015/16, small projects dominated the funding provided by the funding schemes both in terms of number of projects and amount of funding:

- (a) of the total 1,484 projects funded by the schemes, 1,451 (97.8%) were small projects;
- (b) small projects accounted for \$915.7 million (71.1%) of the total funding of \$1,288.5 million of the schemes, while large projects and medium-sized projects accounted for 15.7% and 13.2% respectively of the total funding; and
- (c) on average, each small project received \$0.63 million per project. In particular, each project under the three conference/travel grants received only \$40,000 to \$70,000.

3.8 The majority of RGC funding was allocated to a large number of small projects. The GRF, which is the scheme with the largest share of RGC funding allocation, accounted for almost half (46.3%) of the 2015/16 funding, with an average funding size of \$0.63 million per project.

3.9 While the RGC strives to allocate research funding in ways that drive excellence, the RGC Review (Phase I) will provide an excellent opportunity to examine the portfolio balance of the RGC funding schemes and help direct the distribution of funding that would better augment and align with the government's efforts to meet the needs of Hong Kong in the 21<sup>st</sup> century. Audit considers that the RGC needs to keep in view the results of the RGC Review, and take measures to implement the recommendations of the Review on the portfolio balance of the funding schemes.

### *Need to review the normative unit cost for each subject panel*

3.10 The RGC adopts a formula in determining the indicative allocation of funding of the GRF and the ECS to the five subject panels each year. The formula incorporates the following four factors:

- (a) the normative unit cost for each panel, i.e. a fixed set of values based on the historical relative costs of the projects sought by the applicants of each panel in the three years from 2003/04 to 2005/06 (see para. 3.11);
- (b) the quality of proposals, i.e. the proportion of proposals of each panel that meets the minimum quality threshold (with an average score of external assessments at 4.0 or above out of full score at 5.0);
- (c) the proportion of proposals submitted to each panel against the total number of proposals submitted to the GRF/ECS in the current exercise and the immediate last exercise; and
- (d) policy adjustment where required.

3.11 The values of the factor on the quality of proposals (see para. 3.10(b)) and the factor on the number of proposals submitted to each panel (see para. 3.10(c)) are adjusted annually. However, the set of values on normative unit cost (see para. 3.10(a)) has been frozen and has remained unchanged since 2006/07 (Note 10).

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**Note 10:** *In June 2005, the RGC expressed concern that if PIs in a discipline collectively exaggerated their funding needs, it was possible for that panel to be allocated a much larger share than it would otherwise deserve. Therefore, the RGC decided that the unit cost factor would be set at a fixed set of normative values based on the historical relative costs of the GRF projects sought by the applicants of the then existing four panels in the past three years from 2003/04 to 2005/06.*

3.12 The same set of normative unit costs had been adopted for ten years since 2006/07. In Audit's view, in the past ten years, there had been a lot of changes in the RGC funding schemes which made it necessary to conduct a review of the appropriateness of this fixed set of normative unit costs. For instance:

- (a) a new Business Studies Panel was established in 2011/12 to consider the Business Studies proposals which were previously submitted under the Humanities, Social Sciences and Business Studies Panel. The RGC did not review the normative unit cost of each panel and assigned the same normative unit cost of Humanities, Social Sciences and Business Studies Panel to the Business Studies Panel. The normative unit cost for the Business Studies Panel may not be the same as that for the Humanities, Social Sciences and Business Studies Panel;
- (b) the total amount of funding for the GRF and the ECS increased by 70% from \$404.6 million in 2005/06 to \$688.4 million in 2015/16 and the number of applications for the GRF and the ECS increased by 59% from 1,947 in 2005/06 to 3,088 in 2015/16. These increases may have affected the normative unit costs; and
- (c) the funding allocation for each panel would be different if the normative unit cost was calculated using the average unit costs based on the cost of projects in a three-year period in the recent past, say 2013/14 to 2015/16, instead of the three-year period 2003/04 to 2005/06 (see Table 5).

**Table 5****Average unit costs of GRF project proposals  
(2003/04 to 2005/06 and 2013/14 to 2015/16)**

<b>Panel</b>	<b>Average unit cost</b>		<b>Increase/ (decrease) in average unit cost (Percentage difference)</b>
	<b>From 2003/04 to 2005/06 (\$'000)</b>	<b>From 2013/14 to 2015/16 (\$'000)</b>	
Biology and Medicine	1,278	1,448	+ 170 (+ 13 %)
Business Studies	700 (Note)	523	– 177 (– 25 %)
Engineering	846	1,124	+ 278 (+ 33 %)
Humanities and Social Sciences	700 (Note)	762	+ 62 (+ 9 %)
Physical Sciences	914	1,276	+ 362 (+ 40 %)

*Source: Audit analysis of RGC records*

*Note: Before the establishment of the Business Studies Panel in 2011/12, Business Studies was a sub-panel under the Humanities, Social Sciences and Business Studies Panel.*

3.13 In response to Audit enquiry in September 2016, the UGC Secretariat informed Audit that in formulating the scope of the RGC Review, the UGC had identified that there was a need to review the formula for allocating budget across subject panels to reflect the updated demand of funding in different disciplines. Audit considers that, in the light of the results of the RGC Review, the RGC needs to take measures to improve the calculation of the normative unit costs for the subject panels, and conduct periodic reviews on the normative unit costs for the Panels.

***Decreasing number of applications under TRS***

3.14 The investment income derived from \$4 billion, out of the \$18 billion of the REF set up in January 2009 (i.e. approximately \$200 million per annum, based on a 5% return assumption), was deployed to support the projects under the TRS. The TRS was first launched in September 2010 to provide funding for research projects on specific themes with project duration of a maximum of five years and a maximum funding of \$75 million for each project. The objective of the TRS is to focus academic research efforts of universities on themes of strategic importance to the long-term development of Hong Kong. A Steering Committee was set up in June 2009 to advise the Government on the selection of research themes, the framework and policy issues concerning the TRS. The Steering Committee would advise the Government on selection of appropriate themes in accordance with a number of major principles, including: (i) once selected, a theme would normally be valid for three to five years; and (ii) the number of themes selected should be limited to no more than five or six for each exercise and such exercise be conducted once in about every three years.

3.15 There were four themes under the 2016/17 exercise. Three themes were introduced in 2011/12, namely “Promoting Good Health”, “Developing a Sustainable Environment” and “Enhancing Hong Kong’s Strategic Position as a Regional and International Business Centre”. The fourth theme was first introduced in the 2016/17 funding exercise, i.e. “Advancing Emerging Research and Innovations Important to Hong Kong”.

3.16 In the 2010 Report issued by the UGC, it was stated that the establishment of the TRS would encourage the creation of critical mass and collaboration between academics/universities, and also spur work on issues of particular relevance to Hong Kong. Audit noted that except for the new theme introduced in the 2016/17 exercise (i.e. “Advancing Emerging Research and Innovations Important to Hong Kong”), the number of applications for TRS for the remaining three themes was generally decreasing (see Table 6):

- (a) the number of applications received under the theme “Promoting Good Health” decreased by 41% from 39 in 2011/12 to 23 in 2016/17;
- (b) the number of applications received under the theme “Developing a Sustainable Environment” decreased by 59% from 27 in 2011/12 to 11 in 2016/17; and

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- (c) for the theme of “Enhancing Hong Kong’s Strategic Position as a Regional and International Business Centre”, the number of applications dropped from 23 in 2011/12 to nil in 2016/17.

The total number of applications decreased from 89 in 2011/12 to 28 in 2015/16. Although the total number increased to 55 with the introduction of a new theme in 2016/17, the total number in 2016/17 was only 62% of that in 2011/12.

**Table 6**

**Number of applications under each theme of TRS  
(2011/12 to 2016/17)**

Year	Theme				Total (No.)
	Promoting Good Health  (No.)	Developing a Sustainable Environment  (No.)	Enhancing Hong Kong’s Strategic Position as a Regional and International Business Centre  (No.)	Advancing Emerging Research and Innovations Important to Hong Kong  (Note) (No.)	
2011/12	39	27	23	N/A	89
2012/13	20	18	8		46
2013/14	15	19	8		42
2014/15	18	16	3		37
2015/16	15	10	3		28
2016/17	23	11	0	21	55

*Source: Audit analysis of RGC records*

*Note: The theme was introduced in 2016/17.*

3.17 According to the paper submitted to the Finance Committee of the Legislative Council in January 2009 on the establishment of the REF, the review exercise on selection of themes for TRS was to be conducted once in about every three years. Audit noted that the EDB started planning a review exercise in late 2013. In early 2015, on the recommendation of the Steering Committee, the EDB approved the proposal to maintain the first three themes and promulgate a new theme. The RGC then conducted a review on the grand challenges topics under the existing three themes and the new theme. The review was completed in June 2015, and the new theme and the new/revised grand challenge topics were implemented in July 2015. Audit considers that in view of the declining number of applications for the three themes introduced since 2011/12, the EDB needs to closely monitor the number of applications under the TRS and, in consultation with the RGC and the universities, consider an appropriate timing to initiate the next review on the themes under the TRS.

### ***Need to improve mechanism to monitor the refund of allowance under HKPFS***

3.18 The HKPFS was established in 2009. The HKPFS provides each awardee with an annual stipend of \$240,000 and a conference and research-related travel allowance of \$10,000 per year for a period up to three years. Unspent allowance is allowed to be carried forward within the three-year fellowship period. After the completion of the fellowship period, the universities are required to return the unspent allowance to the RGC.

3.19 Audit noted that the RGC relies on the universities to report and refund the unspent conference and research-related travel allowance. Every year, the RGC requests the universities to provide a return on unspent amount of awardees ending the three-year fellowship period by 31 December and refund the unspent amount. Based on the information provided by the universities to the UGC Secretariat, about 40% of the awardees had unspent allowance and the average unspent allowance per awardee was about \$6,500 (i.e. 21.7% of the \$30,000 travel allowance per awardee). The estimated unspent amount for the awardees of the first three cohorts of the HKPFS (i.e. 2010/11, 2011/12 and 2012/13 intakes) accounted for 7.5% of the total conference and research-related travel allowance and 0.3% of the total grant for these awardees under the HKPFS. For the last three financial years 2013-14 to 2015-16, three universities refunded a total of unspent amount of \$213,639 for 21 awardees (see Table 7).



**Table 7**

**Refund of unspent conference and  
research-related travel allowance under the HKPFS  
(financial years 2013-14 to 2015-16)**

<b>Financial Year</b>	<b>No. of universities with unspent allowance refunded</b>	<b>No. of awardees with unspent allowance</b>	<b>Amount of refund (\$)</b>
2013-14	3	8	69,912
2014-15	3	7	68,393
2015-16	1	6	75,334
Total		21	213,639

*Source: Audit analysis of RGC records*

3.20 Before June 2016, the awardees of the HKPFS are required to report the amount of conference and research-related travel allowance spent each year and the details of their participation in research-related activities in the annual progress report. Since June 2016, in addition to the annual progress report, the HKPFS awardees have also been required to report the spent amount of the travel allowance in the graduate report upon graduation. The RGC can make use of the annual progress report and the graduate report to ascertain if there was any unspent amount and ensure that the amount was refunded by the universities.

3.21 The UGC Secretariat does not have readily available information on the number of awardees with unspent allowance that should be refunded to the UGC Secretariat and the amount involved. Audit reviewed the records relating to six awardees of five universities who had completed or withdrawn from the fellowship in the period from 2013/14 to 2015/16. Audit found that five awardees had unspent amounts of conference and research-related travel allowance after completion totalling \$32,848 (on average \$6,570 per awardee — 21.9% of the \$30,000 allowance) (see Table 8). Of the five awardees, only the unspent amount of two awardees were refunded by the two universities. No refund of the unspent amount has been made for the remaining three awardees by three universities. In particular, one of the three awardees had withdrawn from the fellowship in

August 2013 (i.e. three years up to August 2016). While the RGC has requested universities to expedite the process in refunding the unspent allowance under the HKPFS to the RGC, Audit considers that the RGC needs to take measures to ensure that the universities refund the unspent allowance under the HKPFS in a timely manner after the completion of or withdrawal from the fellowship period.

**Table 8**

**Status of refund for awardees with unspent amount  
of conference and research-related travel allowance  
(15 August 2016)**

<b>Awardee</b>	<b>End date of fellowship</b>	<b>Unspent amount (\$)</b>	<b>Date of refund</b>
A	31.8.2013	799	January 2014
B	31.8.2014	8,402	Not yet refunded
C	16.12.2015	2,294	Not yet refunded
D	31.8.2015	12,186	February 2016
E	28.8.2013	9,167	Not yet refunded
Total		32,848	

*Source: Audit analysis of RGC records*

## **Audit recommendations**

**3.22 Audit has recommended that the Secretary-General, University Grants Committee, in consultation with the RGC, should:**

- (a) **in the light of the results of the RGC Review, take measures to improve the portfolio balance of the funding schemes and the calculation of the normative unit costs for the subject panels;**

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- (b) **consider conducting periodic reviews on the portfolio balance of the funding schemes and the normative unit costs for the subject panels;**
  - (c) **review the records of all the HKPFS awardees who have completed or withdrawn from their fellowship in the past years to ensure that all unspent allowance had been refunded; and**
  - (d) **take measures to ensure that in future the universities refund the unspent allowance under the HKPFS in a timely manner after the completion or termination of the fellowship period.**
- 3.23 **Audit has *recommended* that the Secretary for Education should:**
- (a) **closely monitor the number of applications under the TRS; and**
  - (b) **when necessary, consider initiating a review on the themes under the TRS.**

## **Response from the Government**

3.24 The Secretary-General, University Grants Committee generally accepts the audit recommendations. He has said that:

- (a) the Review of the RGC (Phase I) is currently being conducted to examine, amongst others, the portfolio balance of funding schemes and the normative unit costs for Panels. In the light of the results of the review, the UGC Secretariat will provide full support to the RGC in considering appropriate measures for further improvement and conducting periodic reviews in these two areas; and

- (b) the UGC Secretariat has regularly asked the universities to return the unspent allowance under the HKPFS in a timely manner. The UGC Secretariat will consolidate and review the existing information reported in the annual progress reports and the graduate reports of all awardees who have completed the fellowship to ensure that all unspent allowance is refunded. The UGC Secretariat will also continue to provide full support to the RGC in considering appropriate measures to enhance the refund process.

3.25 The Secretary for Education agrees with the audit recommendations.

## **Monitoring of funded projects**

3.26 The RGC has put in place mechanisms to monitor and assess the progress and performance of funded projects for all funding schemes, including:

- (a) issue of monitoring guidelines (Note 11) for compliance by universities; and
- (b) assessment of project progress reported in the progress reports and/or on-site inspections, and assessments of project performance reported in the completion reports and concluding reports by a panel or a member.

### ***Backlog in assessments of project progress and performance***

3.27 Universities are required to submit project reports, namely progress reports, and completion reports or concluding reports. PIs are required to submit annual progress reports or mid-term progress reports on all on-going projects through their universities to the RGC. On completion of a project, the university is

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**Note 11:** *The “Disbursement, Accounting and Monitoring Arrangements for Funding Schemes Administered by the Research Grants Council” (DAMA) sets out the rules and requirements on the accounting and monitoring of funded projects under the Earmarked Research Grants. For the AoE Scheme, the TRS and the three funding schemes for the local self-financing degree sector, separate sets of guidelines are issued. The guidelines follow the principles of DAMA with particular requirements for monitoring the projects of the concerned funding schemes.*

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required to submit a completion report to the RGC within 12 months of the completion date. On termination of a project, the university is required to submit a concluding report to the RGC within six months of the project termination date. Any unspent balance of project fund should be returned to the RGC together with a statement of accounts within six months of the project completion or termination date.

3.28 The progress reports, completion reports and concluding reports of approved projects will be reviewed by the responsible committee/panel members to ensure that the UGC grants are used appropriately and reasonably within the approved scope and timeframe. In accordance with the RGC procedures, the summary of assessment of the completion reports and concluding reports will be presented for formal endorsement by the RGC. For projects which have been provisionally rated as “barely satisfactory” or “unsatisfactory”, written representations will be invited from the PIs before the relevant panels decide on the final ratings.

3.29 If a progress report or completion report remains overdue after the two-month grace period from the due date for submission of the report, the RGC would consider terminating the project and rate it as “unsatisfactory”. The PIs concerned will be debarred from applying for UGC/RGC grants in any capacities for two academic years. Those who fail to submit the outstanding report within two years after the due date will be debarred from submitting new applications until the report is submitted.

3.30 Timely assessment of the project reports is important. Delays in assessment not only affect the monitoring of projects, but also the subsequent disbursement of funding. Prior to 2015/16, the approved project funds for individual research projects (but not joint research projects and group research projects) will be released to the universities in one or two instalments at designated time regardless of the assessment results of their progress reports. Starting from 2015/16, the release of the instalments of project funds other than the first instalment will be subject to satisfactory assessment result of the progress report. Therefore, the delay in submission and assessment of progress report may affect the cashflow of the projects.

3.31 As at 31 May 2016, four concluding reports were overdue and were rated “unsatisfactory” by the RGC at its meeting in June 2016. Regarding progress reports and completion reports, there were 707 progress reports and 222 completion reports due for submission on 30 June 2016. Fifty-six (7.9%) of 707 progress reports and 19 (8.6%) of 222 completion reports were submitted late (see Table 9). As at 29 August 2016, 1 (0.1%) progress report and 3 (1.4%) completion reports had still not been submitted.

**Table 9**

**Submission of progress reports and completion reports  
(29 August 2016)**

Submission of reports	No. of reports due for submission on 30.6.2016	
	Progress report	Completion report
Submitted on/before due date	650 (92.0%)	200 (90.0%)
Submitted after due date	56 (7.9%)	19 (8.6%)
Not yet submitted	1 (0.1%)	3 (1.4%)
Total	707 (100%)	222 (100%)

*Source: Audit analysis of RGC records*

3.32 For progress reports, panel members had been alerted of the change in payment arrangement for the individual research projects approved starting from 2015/16 and advised that they should complete the assessment of progress reports in one month’s time. For completion and concluding reports, the RGC did not set target completion dates for committee/panel members’ assessment. According to the record of the RGC, as at 31 May 2016, there had been 973 completion/concluding reports received but not assessed and 678 (69.7%) of 973 reports had been received for over one year but not yet assessed (see Table 10). In extreme cases, 4 (0.4%) reports were submitted more than nine years ago but still pending assessment.

**Table 10**

**Ageing analysis of the 973 completion/concluding reports  
received but not assessed  
(May 2016)**

<b>Time elapsed since report receipt date</b>	<b>No. of reports</b>	<b>Percentage</b>	
≤ 1 year	295	30.3 %	
> 1 year to 3 years	288	29.6 %	} 678 (69.7%)
> 3 years to 5 years	216	22.2 %	
> 5 years to 7 years	140	14.4 %	
> 7 years to 9 years	30	3.1 %	
> 9 years	4	0.4 %	
<b>Total</b>	<b>973</b>	<b>100.0 %</b>	

*Source: Audit analysis of RGC records*

3.33 Audit reviewed the records of 30 projects (5 on-going projects, 15 completed projects and 10 terminated projects) approved in the period 2009/10 to 2014/15. Audit found that the PIs of these 30 projects were required to submit a total of 58 project reports (33 progress reports, 15 completion reports and 10 concluding reports). Audit noted that out of these 58 reports:

- (a) 7 (12%) concluding reports were not yet submitted and had been overdue. In response to Audit enquiry in September 2016, the UGC Secretariat informed Audit that all the PIs of the 7 projects had left the universities concerned and would unlikely submit the reports which were overdue. The PIs concerned had been barred from applying for RGC grants until they submitted the outstanding reports;
- (b) for the remaining 51 (88%) reports submitted, 39 were assessed and 12 were not yet assessed:
  - (i) for 8 (21%) (6 progress reports, 1 completion report and 1 concluding report) of the 39 reports assessed, it took more than one year for the panel members to complete the assessment after the receipt of reports (see Table 11). The longest case took 49.2 months; and

**Table 11**

**Time elapsed between the receipt and the completion of assessment of project reports for 30 projects**

Time elapsed	No. of reports	
≤ 6 months	28	
> 6 months to 1 year	3	
> 1 year to 2 years	3	} 8 (21%)
> 2 years to 3 years	2	
> 3 years to 4 years	2	
> 4 years	1	
Total	39	

*Source: Audit analysis of RGC records*

- (ii) for the 12 reports not yet assessed, as at 30 June 2016, the assessment of 9 (75%) reports (8 progress reports and 1 completion report) had been pending for more than one year, ranging from 13.8 to 50.6 months (averaging 37.5 months) (see Table 12).

**Table 12**

**Analysis of the reports pending assessment (30 June 2016)**

Time elapsed since report receipt date	No. of reports	
≤ 6 months	1	
> 6 months to 1 year	2	
> 1 year to 2 years	2	} 9 (75%)
> 2 years to 3 years	1	
> 3 years to 4 years	3	
> 4 years	3	
Total	12	

*Source: Audit analysis of RGC records*



***Need to closely monitor terminated research projects***

3.34 In the period 2011/12 to 2015/16, 87 projects were terminated before completion (averaging 17 terminated projects per year) (see Table 13).

**Table 13**

**Analysis of projects terminated  
(2011/12 to 2015/16)**

<b>Year of termination</b>	<b>No. of terminated projects</b>	<b>Total no. of projects approved</b>	<b>Total no. of on-going projects</b>	<b>Funds paid to universities for terminated projects (\$ million)</b>
2011/12	13	1,044	4,469	9.2
2012/13	15	1,193	4,923	9.6
2013/14	12	1,373	5,240	6.4
2014/15	19	1,543	5,600	9.3
2015/16	28	1,484	6,011	15.8
Total	87	—	—	50.3 (Note)

*Source: Audit analysis of RGC records*

*Note: Up to 30 June 2016, \$15.7 million had been returned to the RGC.*

3.35 Audit analysed the reasons for termination of the 87 projects. In 66 (76%) of 87 projects, the major reason for termination of projects was the departure of the PIs from the universities (see Table 14).

Table 14

**Major reasons for termination of 87 terminated projects  
(2011/12 to 2015/16)**

Major reason	No. of projects	Percentage
Departure of the PIs from universities	66	76%
Progress reports overdue	8	9%
PI retired	5	6%
PI passed away	4	5%
Change of eligibility status of PIs	3	3%
Family obligations and other research obligations	1	1%
Total	87	100%

*Source: Audit analysis of RGC records*

3.36 At the time of application for a project, the university concerned is required to state that it is satisfied that the PI will complete the project. The RGC requires the universities to confirm at the time of application that if the PI is not a permanent staff, the employment contract will cover at least the first year of the project's duration.

3.37 Audit analysed the time the PIs had been involved in the projects before leaving the universities. Audit found that for 23 (35%) of the 66 projects, the PIs left the universities 12 months or less after the commencement of the projects (see Table 15).

Table 15

**PIs' leaving the universities after commencement of project**

Duration after commencement of project	No. of projects	
≤ 6 months	2 (3%)	} 23 (35%)
> 6 months to 12 months	21 (32%)	
> 12 months	43 (65%)	
Total	66 (100%)	

*Source: Audit analysis of RGC records*

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3.38 According to the DAMA, universities should notify the RGC as soon as the PI's departure has been confirmed and the project account should be frozen at the same time. Universities are required to identify a suitable Co-Investigator who has been involved in the project since commencement to take over the role of the PI for RGC's approval. Universities are also required to, within six months from the termination date:

- (a) return the unspent project funding together with a Statement of Accounts; and
- (b) submit a concluding report to the RGC.

3.39 Audit examination of 10 terminated projects (see para. 3.33) found that:

- (a) ***PI's departure not promptly reported.*** In one project, the university only notified the RGC on the early departure of the PI four months after the PI's departure;
- (b) ***Progress report not assessed by RGC.*** For seven projects, seven progress reports were submitted in the period July 2011 to June 2015, but three reports were not yet assessed and rated by panel members as at 30 June 2016. For the remaining three projects, the projects were terminated before submission of any progress reports; and
- (c) ***Concluding reports not submitted or not assessed.*** For seven projects, the PIs did not submit the concluding reports. For the other three projects where the concluding reports were submitted, one concluding report was assessed and rated by the responsible panel member in May 2016, 17 months after it was submitted in December 2014.

3.40 Although the number of and the percentage of terminated projects were not large, Audit noted that there had been an increasing trend in the number of terminated projects since 2013/14. To safeguard the proper use of public money, Audit considers that the RGC needs to closely monitor the number of terminated projects and reasons for the termination. Furthermore, the RGC needs to take measures to ensure that the universities submit the concluding reports in a timely manner, and ensure the timely assessment of progress reports and concluding reports for the terminated projects.

***Need to keep in view projects rated as “unsatisfactory” or “barely satisfactory”***

3.41 After assessment by the committees/panels, the completed projects will be rated as “satisfactory”, “barely satisfactory” or “unsatisfactory”. The project will be rated as “unsatisfactory” or “barely satisfactory” because of poor research quality or non-submission and overdue submission of progress reports and completion reports. Previous records of RGC funded projects rated “unsatisfactory” or “barely satisfactory” may be taken into account when a PI’s new funding application is considered. The overall grading of the PI’s funding application submitted to the new funding exercises may be downgraded. Normally, the “unsatisfactory” and “barely satisfactory” records of more than three years ago would be disregarded in the assessment of new applications of the PI.

3.42 Audit examined the rating of the completed projects for the GRF and ECS approved in the period 2007/08 to 2012/13 (Note 12) and noted that the proportion of the completed projects rated as “unsatisfactory” or “barely satisfactory” ranged from 3.2% to 5.7% (see Table 16). The RGC needs to keep in view the number of completed projects being rated as “unsatisfactory” or “barely satisfactory” and take measures to address the issue if there is a further increase in the number of such projects.

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**Note 12:** *Projects are assessed based on the information in the completion report. As the duration of a project is normally three years and the completion report is required to be submitted within 12 months of the completion date, the completion reports of the projects approved in 2013/14 are only required to be submitted by June 2017. Therefore, the most recent assessment was on completed projects approved in 2012/13.*

**Table 16****Rating of completed GRF and ECS projects  
(24 August 2016)**

Year of approval	Total no. of projects rated (a)	No. of projects rated as		Percentage of projects rated as “barely satisfactory” or “unsatisfactory”  (d) = (c)/(a) × 100%
		“satisfactory” (b)	“barely satisfactory” or “unsatisfactory” (c)	
2007/08	647	625	22	3.4%
2008/09	745	721	24	3.2%
2009/10	666	640	26	3.9%
2010/11	630	594	36	5.7%
2011/12	564	539	25	4.4%

Source: RGC records

Remarks: Most of the completion reports for projects approved in 2012/13 have not been submitted by the PIs. For the 177 projects with completion reports submitted and rated, 11 (6.2%) were rated as “barely satisfactory” or “unsatisfactory”.

***Need to expedite the planned extension of on-site inspections to medium-scale schemes and small-scale schemes***

3.43 Apart from assessment of project reports submitted by the PIs, on-site inspection of achievements can help the panel members evaluate the effectiveness of the funded projects. Arrangement for on-site inspections of achievements that are stated in completion reports is in place for large-scale projects (i.e. projects under the TRS and AoE). To step up efforts in evaluating the effectiveness of funded projects, the RGC decided in June 2015 that a manageable number of projects, say about 80 projects per year for the medium-scale and small-scale research schemes (except for travel/conference grants, fellowships and some small-scale JRSs), would be selected for on-site inspections. An inspection panel comprising around 2 to 3 local members would be drawn from each subject panels. One or two half-day inspections to each university would be arranged once a year. The RGC decided that this measure would be implemented starting from the 2015/16 funding cycle. The UGC Secretariat undertook to work out the implementation details in

consultation with the universities. However, the implementation details of the extension of on-site inspections were still in the final drafting stage by 31 August 2016.

### *Need to expedite the procurement of a new Electronic System*

3.44 An Electronic System was launched in July 2002 to process the funding applications of the GRF. The System has been extended to process the HKPFS and the ECS. The Electronic System has the following functions:

- (a) the management of the records on the external reviewers (e.g. their expertise);
- (b) the assignment of proposals to the reviewers; and
- (c) the monitoring of the receipt of reviews and issuance of reminders, and assessment and assignment of scores by panel members.

In order to enhance efficiency in processing applications, the UGC Secretariat informed the RGC in December 2013 that it would progressively expand the capability of the Electronic System so that applications in paper mode could eventually be processed electronically. The Electronic System was subsequently extended to process applications of the HSSPFS and the Collaborative Research Fund.

3.45 Audit noted that only 5 (26%) of the 19 funding schemes allow electronic submission of applications and electronic assessment by committees/panels through the Electronic System. The remaining 14 (74%) funding schemes are still processed in paper mode in both submission and assessment stages.

3.46 Since the Electronic System was developed over ten years ago, it does not meet the present operational needs fully (e.g. limited capacity, outdated functions, inability to generate some management reports, etc.). In June 2015, the UGC Secretariat planned to develop a new Electronic System to replace the existing one. As at August 2016, the Secretariat had prepared a draft work assignment brief for issuing to government contractors to outsource the development of a new Electronic System.

### **Audit recommendations**

**3.47      Audit has *recommended* that the Secretary-General, University Grants Committee, in consultation with the RGC, should:**

- (a)      set a target completion date for the assessment of project reports;**
- (b)      take effective measures to clear as soon as practicable the backlog of the assessment of project reports received;**
- (c)      closely monitor the number of terminated projects and reasons for the termination and take measures to address the issue if there is a further increase in such projects;**
- (d)      monitor the submission of concluding reports for terminated projects and where practicable, urge the PIs to submit the concluding reports in a timely manner;**
- (e)      take measures to ensure that progress reports and concluding reports of terminated projects are assessed in a timely manner;**
- (f)      keep in view the number of completed projects rated as “unsatisfactory” or “barely satisfactory” and take measures to address the issue if there is a further increase in such projects;**
- (g)      expedite the implementation of conducting on-site inspections to the medium-scale projects and small-scale projects; and**
- (h)      expedite the development of a new Electronic System so that the system will be extended to cover other funding schemes operated in paper mode.**

## **Response from the Government**

3.48 The Secretary-General, University Grants Committee generally agrees with the audit recommendations. He has said that:

- (a) the UGC Secretariat will consult the RGC to consider setting target completion dates for panel members' assessment of progress, completion and concluding reports as well as strengthening measures, other than the current arrangements of issuing repeated reminders to the panel members (mostly retired members) or re-assigning the monitoring and assessment duties to other members, to clear the backlog and enhance timely assessment of reports by panel members. The Review of the RGC (Phase II) will examine, amongst others, the assessment and monitoring processes. It will provide further insight to facilitate the RGC in considering enhanced measures to clear backlog and ensure members' timely assessment of reports;
- (b) the UGC Secretariat will continue to provide full support to the RGC in keeping in view the number of terminated projects and reasons for the termination and considering appropriate measures to address the issue if there is a substantial increase in the number in future;
- (c) the existing policy in governing the timely submission of progress and completion reports is effective as evidenced by the very small number of late submission of progress and completion reports beyond the grace period. For concluding reports, as the PIs in most cases have left the universities, they will unlikely submit the concluding reports which may remain overdue. The UGC Secretariat will continue to work closely with the universities to ensure PIs' submission of reports in a timely manner;
- (d) the UGC Secretariat will continue to provide full support to the RGC in keeping in view of the number of completed projects rated as "unsatisfactory" or "barely satisfactory" and considering appropriate measures to address the issue if there is a substantial increase in the number in future;
- (e) the UGC Secretariat is actively working on the plan to conduct on-site inspections to the medium-scale projects and small-scale projects in the last quarter of 2016; and



- (f) the UGC Secretariat is actively working on the development of a new Electronic System.

### **Handling of alleged misconduct cases**

3.49 The DC was set up under the RGC in December 2013 to handle alleged misconduct cases related to RGC funded projects and those discovered during the processing of the funding applications. The DC helps maintain consistency and equity among assessment committees/subject panels in imposing penalties for substantiated cases. Examples of misconduct cases include:

- (a) non-disclosure of similar or related projects by the applicant;
- (b) non-disclosure of relationship with the nominated reviewers by the applicant; and
- (c) plagiarism.

3.50 At the meeting held in June 2015, the RGC considered that the roles of investigating alleged misconduct cases and recommending the level of penalty for substantiated cases should be separated. The RGC thus decided that the DC(Penalty) (see para. 1.5(q)) should be set up to formulate guiding principles for determining the level of penalty and to recommend the level of penalty for substantiated cases starting from the 2015/16 funding exercise. The existing DC should take up the role of investigating alleged cases and was renamed DC(Investigation) (see para. 1.5(p)).

3.51 In addition to the DC(Investigation) and the DC(Penalty), it was approved at the RGC meeting held in June 2016 that the DC(Appeal) (see para. 1.5(r)) should be set up to handle appeal cases to address the concern on independence of authority for making decisions on alleged misconduct cases and appeal cases. The terms of reference of the DC(Investigation), the DC(Penalty) and the DC(Appeal) and the membership of the DC(Investigation) and DC(Penalty) were approved at the same meeting. Members of the DC(Appeal) were formally appointed on 15 August 2016.

***Need to expedite determination of penalty  
for substantiated misconduct cases***

3.52 The DC completed the investigation of five misconduct cases discovered during the processing of the funding applications for the 2015/16 exercise and made a recommendation to the RGC for approval in December 2015. However, since the RGC decided in June 2015 to separate the role of investigating allegations from the role of imposing penalties for substantiated cases, the recommendation on penalties for these five substantiated cases was left to the newly formed DC(Penalty), the membership of which was approved by the RGC in June 2016. Up to August 2016, no meeting had been held by the DC(Penalty). Consequently, up to August 2016, the five substantiated misconduct cases were still pending determination of the level of penalty. The results of the funding applications for the 2015/16 and 2016/17 exercises involving the PIs concerned were pending until the decision on the penalties was approved by the RGC. Prompt announcement of results of funding applications is required in order not to affect the renewal of the employment contracts between the PIs and the universities concerned, and the planning of the research projects by the universities.

***Need to expedite the process of handling alleged misconduct cases***

3.53 For each alleged misconduct case, an Investigation Working Group (IWG) is appointed by the DC(Investigation) (or the DC before DC(Investigation) was formed). The IWG comprises the Chairman of the relevant committee/subject panels concerned and two committee/panel members to examine the institutional investigation report and give views to the DC(Investigation) (or DC). The IWG submits the investigation report to the DC(Investigation) (or DC) for consideration. Up to 31 August 2016, the DC(Investigation) (or DC) had completed the handling of 35 alleged misconduct cases. The analysis of the 35 alleged misconduct cases is at Table 17.

**Table 17****Alleged misconduct cases handled by the DC(Investigation) (or DC)  
(31 August 2016)**

<b>Nature</b>	<b>No. of cases</b>		
	<b>Substantiated</b>	<b>Not substantiated</b>	<b>Total</b>
Non-disclosure of similar/related projects in the application form	6	1	7
Non-disclosure of relationship with nominated reviewers	10	15	25
Plagiarism	3	—	3
<b>Total</b>	<b>19</b>	<b>16</b>	<b>35</b>

*Source: Audit analysis of RGC records*

3.54 Audit examined 26 of the 35 cases and noted that the time taken from the discovery of the suspected misconduct cases to the notification of investigation results and the penalty, if any, to the universities concerned ranged from one to four years (1.5 years on average). It is desirable to shorten the time taken because the PIs involved in the misconduct cases will not be awarded RGC funding for those proposals recommended for funding by the relevant committee/subject panels until the RGC has a decision on the alleged misconduct cases. This may affect the employment contract renewal of the PIs and the planning of research projects by the universities.

3.55 Audit noted that there is room for expediting the process in handling alleged misconduct cases (see Case 1):

- (a) the UGC Secretariat should approach the committee/panel members for advice promptly after the misconduct case has come to light;

- (b) each case should be handled and referred to the DC on its own instead of waiting for other cases for referral in one go; and
- (c) the notification letter on the decision of the RGC should be issued to the university concerned promptly after the endorsement of the decision by the RGC.

### **Case 1**

#### **Room for expediting the process in handling an alleged misconduct case (October 2013 to October 2015)**

1. The UGC Secretariat received an anonymous complaint in October 2013 regarding the alleged misconduct of a GRF project approved in the 2013/14 funding exercise. In November 2013, the UGC Secretariat consulted the Panel Chairman on the handling of the case. In April 2014 (i.e. five months after receipt of the complaint), the UGC Secretariat approached the other two Panel members for their views as to whether there was sufficient prima facie evidence to support the allegations. After receiving the views, the UGC Secretariat then requested the university concerned to conduct an internal investigation on the case in May 2014. The university submitted the investigation report to the Secretariat in June 2014.

2. Eight months after the university's submission of the investigation report, in February 2015, the UGC Secretariat submitted a list of membership of the IWG for this case together with that of the IWGs for 25 other alleged misconduct cases to the Chairman of the DC for endorsement and appointment. The IWG completed the investigation and the report from the IWG was submitted to the DC for consideration in April 2015. In June 2015, the DC's report on investigation of the alleged misconduct cases including this case was tabled at the RGC meeting for endorsement.

3. Four months after RGC's endorsement, in October 2015, the UGC Secretariat conveyed the decision of the RGC concerning the case to the university.

#### ***Audit comments***

4. It took two years (from October 2013 to October 2015) for the RGC to complete the handling of the alleged misconduct case. The time required to handle this alleged misconduct case could have been substantially reduced if the handling process had been streamlined (see para. 3.55).

*Source: Audit analysis of RGC records*

### Audit recommendations

3.56 **Audit has *recommended* that the Secretary-General, University Grants Committee, in consultation with the RGC, should:**

- (a) **determine the level of penalty for substantiated cases as soon as practicable;**
- (b) **review the process of handling alleged misconduct cases; and**
- (c) **in the light of the results of the review, take action to streamline the process of handling alleged misconduct cases with a view to shortening the time taken to inform the universities of the RGC's decision on the cases.**

### Response from the Government

3.57 The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a) since the setting up of the DC in December 2013, the RGC reviewed the structure of the DC and the investigation procedures from time to time with a view to ensuring that each alleged misconduct case would be thoroughly deliberated before a decision was made. The new procedures/arrangements introduced after each review applied not only to the new alleged misconduct cases but also the cases in process which, to a certain extent, lengthened the process of individual cases;
- (b) the UGC Secretariat will continue to provide full support to the DC(Penalty) and the RGC respectively, in making recommendations and decisions on the level of penalty for substantiated cases as soon as practicable; and
- (c) the Review of the RGC (Phase I) is currently being conducted to examine, amongst others, the structure of the DC. In the light of the results of the review, the UGC Secretariat will provide full support to the RGC in considering appropriate measures to further streamline the process of handling alleged misconduct cases.

## PART 4: RESEARCH OUTPUT AND WAY FORWARD

4.1 This PART examines the research output of the universities and explores the way forward for the RGC.

### Research output of universities

4.2 Research is often a key part of a university's institutional identity and integral to its programme of teaching, talent development, and community service. It plays an important role in knowledge transfer (KT) to society. Although funding for research in Hong Kong comes from various sources, the UGC and the RGC are the main public funding bodies for academic research in Hong Kong (see Figure 2 in para. 4.19). In 2014/15, the total research expenditure (Note 13) of the universities amounted to \$8,631.8 million, which was equivalent to about 0.37% of the Gross Domestic Product of Hong Kong in the same period.

4.3 The UGC collates and compiles statistical data from the universities for the purpose of planning and monitoring the performance of the higher education sector. The data is uploaded onto the UGC website for public information. The UGC Secretariat reviews the content of the data in consultation with the universities to ensure that the data collected from the universities serves the intended purpose. The UGC Secretariat collates information from the universities on research outputs in the following six categories:

- (a) conference papers;
- (b) journal publications;
- (c) scholarly books, monographs and chapters;
- (d) creative and literary works, consulting reports and cases studies;
- (e) patents, agreements, assignments and companies; and
- (f) all other research-related outputs.

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**Note 13:** *Research expenditure is the amount of expenditure on research allocated to the academic departments of the universities (i.e. departmental expenditure on research).*

## **Research output and way forward**

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4.4 For each project funded by the RGC, the PI is required to provide in the completion report:

- (a) the financial statement;
- (b) achievement of project objectives;
- (c) major findings and research outcome;
- (d) layman's summary; and
- (e) research output (e.g. journal publications, conference papers, students trained and patents/technology transfer)

for the monitoring and assessment of PIs' achievements in their approved projects and for sharing of the research outputs of the individual funded projects on the RGC website.

### ***Need to analyse information on research output according to RGC funding schemes***

4.5 Audit observed that the RGC did not use the research performance (e.g. research outcome and research output) reported in the completion reports submitted under individual funding schemes to monitor the effectiveness of the respective funding schemes. This was not conducive to the RGC's monitoring of the achievements of projects funded by RGC funding schemes, and forming a view on whether the funding schemes have achieved their intended objectives.

### ***Need to collate suitable management information on research performance***

4.6 Based on the statistical data collated from the universities (see para. 4.3), the following statistical information on research output is submitted to UGC members by the UGC Secretariat annually:

- (a) the total number of research outputs (with breakdown by universities and categories);

- (b) the total number of refereed research outputs (Note 14) (with breakdown by universities); and
- (c) the total number of research outputs per academic staff (Note 15) (with breakdown by universities).

The statistics on the total number of research outputs (see para. 4.6(a)) and the total number of refereed research outputs (see para. 4.6(b)) are uploaded on the UGC website. The information on the total number of research outputs per academic staff (see para. 4.6(c)) can be calculated by using the information on the number of research outputs and the number of academic staff, which are uploaded on the UGC website.

**4.7 Analysis of research output.** Quality and impact of some research are not always measurable or immediately apparent. Some research increases society's understanding of the world and allows application of that improved knowledge over time. In the absence of readily available information on research output of research projects funded by the RGC, Audit analysed the information on the research outputs of research projects reported by the UGC Secretariat to the UGC. Audit noted that the total number of research outputs of the universities dropped slightly by 2.6% from 27,019 in 2010/11 to 26,317 in 2014/15 (see Figure 1). Of the total, 19,143 were refereed in 2014/15 compared with 19,956 in 2010/11. The share of refereed outputs in total research outputs was 72.7% in 2014/15, representing a slight decrease from 73.9% in 2010/11. In the same period, research funding provided by the UGC recurrent grants and the RGC funding schemes increased by 26% from \$5,124 million in 2010/11 to \$6,462 million in 2014/15 (Note 16).

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**Note 14:** *Refereed research output means an academic research output that has been reviewed for merit by a group of professionals ("peers"), a substantial number of whom should be from outside the institution. The academic research peer review should be performed by a group of people with the capacity to judge quality at a high level, operating at arm's length with respect to the researcher and his/her department.*

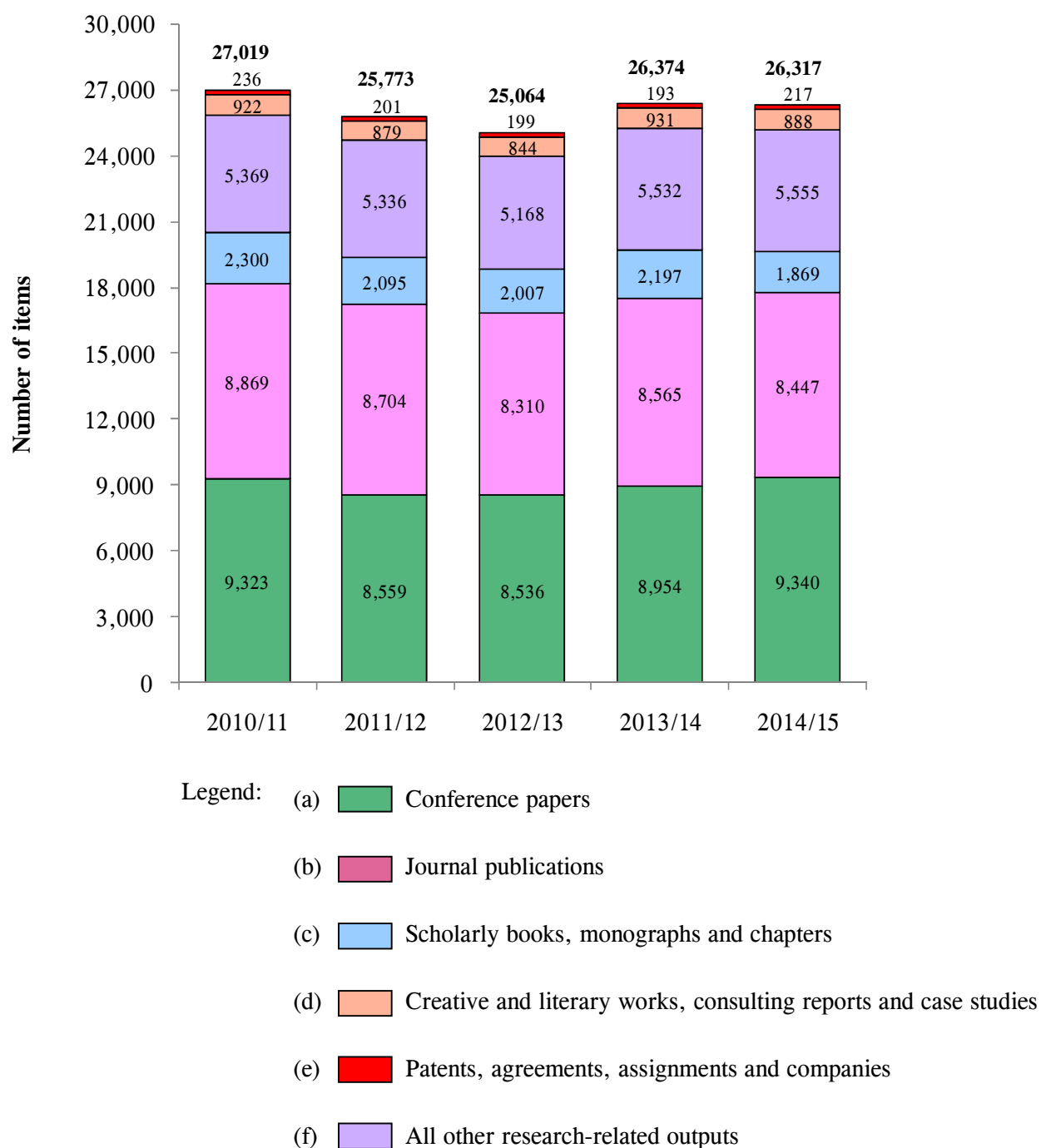
**Note 15:** *This includes senior academic staff and junior academic staff with salary wholly funded from recurrent grants and other income of the universities (except income for specific purposes) in full-time equivalent terms.*

**Note 16:** *There is a lagging effect on the relationship between research funding and research output. As duration of research projects varies, it is difficult to quantify the lagging effect. On a longer timeframe, the research funding increased by 11.2% from \$5,093 million in 2008/09 to \$5,664 million in 2012/13.*



**Figure 1**

**Analysis of research output  
(2010/11 to 2014/15)**



Source: UGC records

Remarks: Figures may not add up due to rounding.

4.8 **Research output per academic staff.** Audit analysed the statistics on research output per academic staff from 2010/11 to 2014/15 submitted by the UGC Secretariat to the UGC. Audit found that the overall research output per academic staff for the eight universities decreased by 9% from 5.91 in 2010/11 to 5.40 in 2014/15 (see Table 18).

**Table 18**

**Research output per academic staff  
(2010/11 to 2014/15)**

<b>Year</b>	<b>Research output per academic staff</b>
2010/11	5.91
2011/12	5.62
2012/13	5.21
2013/14	5.45
2014/15	5.40

*Source: Audit analysis of UGC records*

4.9 In response to Audit enquiry, the UGC Secretariat informed Audit that the number of research outputs should not be taken as the sole performance indicator of research funding. As the RGC competitive funding constitutes only about 10% of the total expenditure on research of the universities, one cannot draw meaningful conclusion from an analysis of changes in research funding vis-a-vis changes in the number of research outputs. The UGC Secretariat also said that the use and effectiveness of this analysis on research output per academic staff as an indicator of universities' research productivity was extremely crude and unreliable. It only measures quantity but totally neglects quality which was a much more important criterion in assessing research output. A more sophisticated, comprehensive and appropriate assessment is in the Research Assessment Exercise (RAE) (Note 17) which covered, amongst others, the number of eligible staff in cost centres.

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**Note 17:** *Since 2000, RAEs were conducted in 2006 and 2014 to assess the research quality of the universities and encourage world-class research. In conducting the RAE in 2014, the basis of assessment comprised the research outputs (accounted for 80% of the weighting) and research inputs and esteem measures (accounted for 20% of the weighting).*

## Research output and way forward

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Furthermore, the number of research outputs per academic staff is only one amongst the many quantitative indicators which are generally considered inadequate by themselves to capture the nuanced judgements that the research assessment process currently provides.

4.10 Noting that the information on the number of research outputs and the number of research outputs per academic staff are submitted to the UGC members for their assessment and monitoring of the research performance of the universities, and the limitations of such information in evaluating research performance of the universities (see para. 4.9), the UGC Secretariat needs to provide more suitable statistics and/or other relevant information on performance of the RGC funded projects to the UGC members and on its website, and to provide suitable guidance notes to help the users interpret the information.

### *Need to encourage more efforts in commercialisation of research results*

4.11 According to the 2016 Policy Address, Hong Kong's scientific research efforts are concentrated in universities. A key issue concerning the development of our innovation and technology industry is how the research results of universities can be commercialised. In a paper issued in March 2015 by the Commission on Strategic Development (Note 18), it was stated that:

- (a) recognition of KT had a lower priority than academic research paper publishing. Therefore, there was a gap between the academically generated intellectual property rights and full commercialisation; and
- (b) consideration should be given to providing incentives to encourage academics to recognise and to put in efforts on the commercialisation of research results.

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**Note 18:** *The Commission on Strategic Development was established in 1998 to explore the way forward for Hong Kong's long-term development strategies. The Commission is chaired by the Chief Executive. There are three ex-officio members (the Chief Secretary for Administration, the Financial Secretary and the Head of the Central Policy Unit) and 32 non-official members. The Central Policy Unit provides secretariat and research support to the Commission.*

4.12 Among the six categories of research outputs, two categories are related to commercialisation. Audit analysed these two categories of research outputs:

- (a) patents, agreements, assignments and companies; and
- (b) creative and literary works, consulting reports and case studies.

4.13 Audit noted that in the period 2010/11 to 2014/15, about 0.8% of research outputs were related to “patents, agreements, assignments and companies” (see Figure 1 in para. 4.7), and the sum of the percentage of the other three categories of research outputs related to publication was about 75%. In the period 2010/11 to 2014/15, the total number of research output relating to “patents, agreements, assignments and companies” for the universities averaged 209 per year (see Table 19).

**Table 19**

**Research output on “patents, agreements, assignments and companies”  
(2010/11 to 2014/15)**

<b>Year</b>	<b>No. of research output</b>
2010/11	236
2011/12	201
2012/13	199
2013/14	193
2014/15	217
Average	209

*Source: Audit analysis of UGC records*

*Remarks: For an invention with patents granted in multiple places/countries, it is counted as one patent granted.*

## Research output and way forward

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4.14 In the period 2010/11 to 2014/15, research output on “creative and literary works, consulting reports and case studies” accounted for about 3.4% of the total research output (see Figure 1 in para. 4.7). The total number of research output relating to “creative and literary works, consulting reports and case studies” for the universities averaged 893 per year (see Table 20).

**Table 20**

**Research output on “creative and literary works,  
consulting reports and case studies”  
(2010/11 to 2014/15)**

<b>Year</b>	<b>No. of research output</b>
2010/11	922
2011/12	879
2012/13	844
2013/14	931
2014/15	888
Average	893

*Source: Audit analysis of UGC records*

4.15 Audit noted:

- (a) the relatively small percentage of research outputs relating to commercialisation versus that relating to publication; and
- (b) the decreasing number of research outputs relating to commercialisation.

Audit considers that the RGC needs to work with Innovation and Technology Bureau (ITB) to facilitate the commercialisation of the universities’ research results.

## Audit recommendations

4.16      **Audit has *recommended* that the Secretary-General, University Grants Committee, in consultation with the RGC, should:**

- (a)      **collate adequate management information on research output and devise suitable performance measures for the evaluation of the research performance of the universities, and disclose the information on its website;**
- (b)      **provide guidance notes to help the information user in the interpretation of the information on research output; and**
- (c)      **work with the ITB to facilitate the commercialisation of the universities' research results.**

## Response from the Government

4.17      The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a)      universities have always been a major cradle of research. Investment in research is long term proposition. Research outcomes may not necessarily be quantified and measured merely in monetary terms or in terms of cost-effectiveness. Apart from producing tangible research outputs, research has intangible value. For example, research enhances our understanding, mastery and application of new knowledge and discoveries for the betterment and well-being of the society. As stated in the 2010 Report, “rather than the occasional spectacular development of a commercial product, it is the continuing flow of research ideas and applications from universities into the economy (together with innovative graduates) that cumulatively provides renewal and advantage”;

## Research output and way forward

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- (b) research output is one of the various indicators for evaluation of research performance. The RAE 2014 assessed the research quality of universities by using international benchmarks and sharpened measures. In the RAE 2014, 46% of the research submissions were assessed as “world leading” or “internationally excellent”. The RGC has been collecting information including research output and other management information of individual approved projects. The Review of the RGC (Phase I) examines, amongst others, the effectiveness of the current RGC funding schemes. Performance indicators will be developed to evaluate performance of funding schemes. Guidance notes will also be formulated to help the information user in the interpretation of the research-related information. The UGC Secretariat will provide full support to the RGC in considering the performance indicators and guidance notes;
- (c) there were examples of other indicators apart from research output. For instance, the Times Higher Education World University Rankings uses a few performance indicators apart from research output including: research (volume, income and reputation), citations (research influence) and industry income (KT). Five universities were ranked in the top 200 of the Times Higher Education World University Rankings and Quacquarelli Symonds World University Rankings 2016-17. These demonstrate that the Hong Kong higher education sector has made great strides and flourished in research; and
- (d) KT includes a wide spectrum of activities, and is not confined to the narrow scope of commercialisation of research results. The UGC is mindful that all universities have distinctive roles and missions, areas of priorities and strengths, and there is no single KT model or KT activity/ies that fit(s) all. Therefore, the UGC encourages universities to interpret KT in a way that fits the universities’ context, and focus on KT activities that are in line with their respective roles. The UGC has also observed that by now, all the universities have declared KT to be one of the core components or pillars to help fulfil their roles and missions, and have given high-level recognition and importance to KT. KT culture has already been fully embedded in all of the universities’ strategies and operations. The UGC has begun to take measures since 2009/10 to facilitate the universities in enhancing KT, including commercialisation by

providing an additional stream of recurrent funding earmarked for the universities. The UGC will continue with this endeavour. In the 2016-19 triennium, a KT funding of \$62.5 million per year is available for allocation to the universities. The UGC Secretariat has been working and will continue to work closely with the ITB on the facilitation of KT activities, including the commercialisation of research results, of the universities.

### Way forward

4.18 According to a paper issued by the Commission on Strategic Development in March 2015:

- (a) one of the main obstacles in innovation and technology development in Hong Kong stemmed from the difficulties in the collaboration among stakeholders, i.e. Government, industry, academic and research sectors;
- (b) to facilitate the commercialisation of research and development (R&D) results and technology transfer, efforts should be stepped up to strengthen the linkages among these stakeholders; and
- (c) consideration should be given to providing incentives to encourage academics to recognise and to put in more efforts on the commercialisation of R&D results.

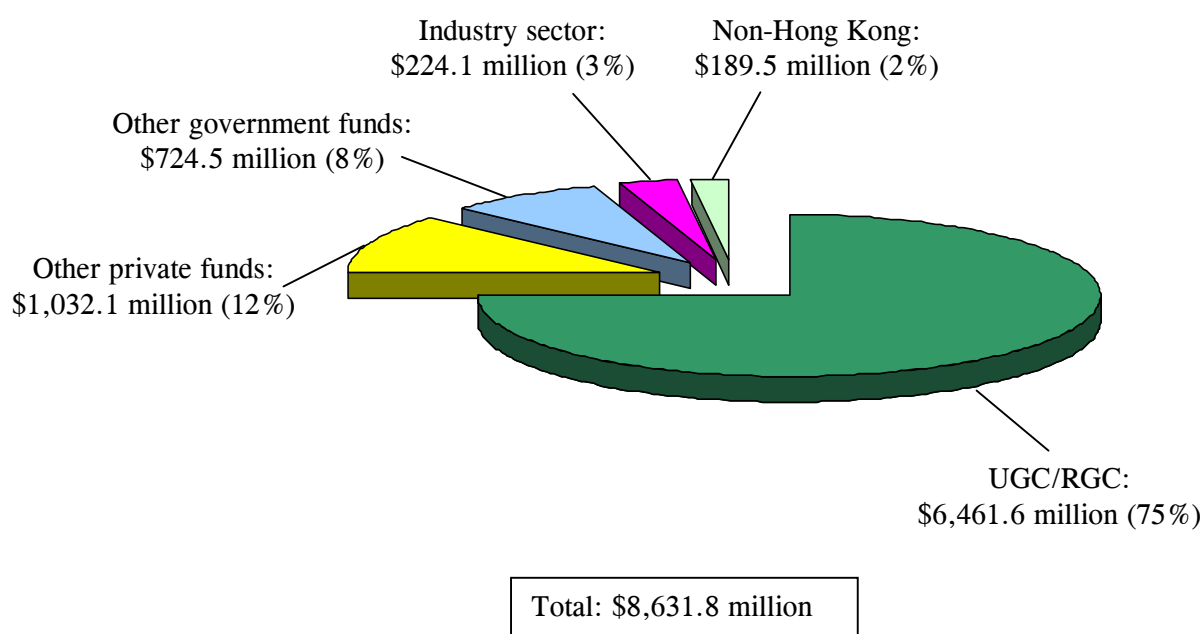
### *Need to foster university-industry collaboration*

4.19 It is recognised in many other countries that academic and industry collaboration is an invaluable component of the innovation chain. However, Audit noted that in the period 2010/11 to 2014/15, the industry sector only financed 3% of the total research expenditure of the universities. The research expenditure of the universities analysed by source of funding for 2014/15 is shown at Figure 2.



Figure 2

**Research expenditure of universities analysed  
by source of funding  
(2014/15)**

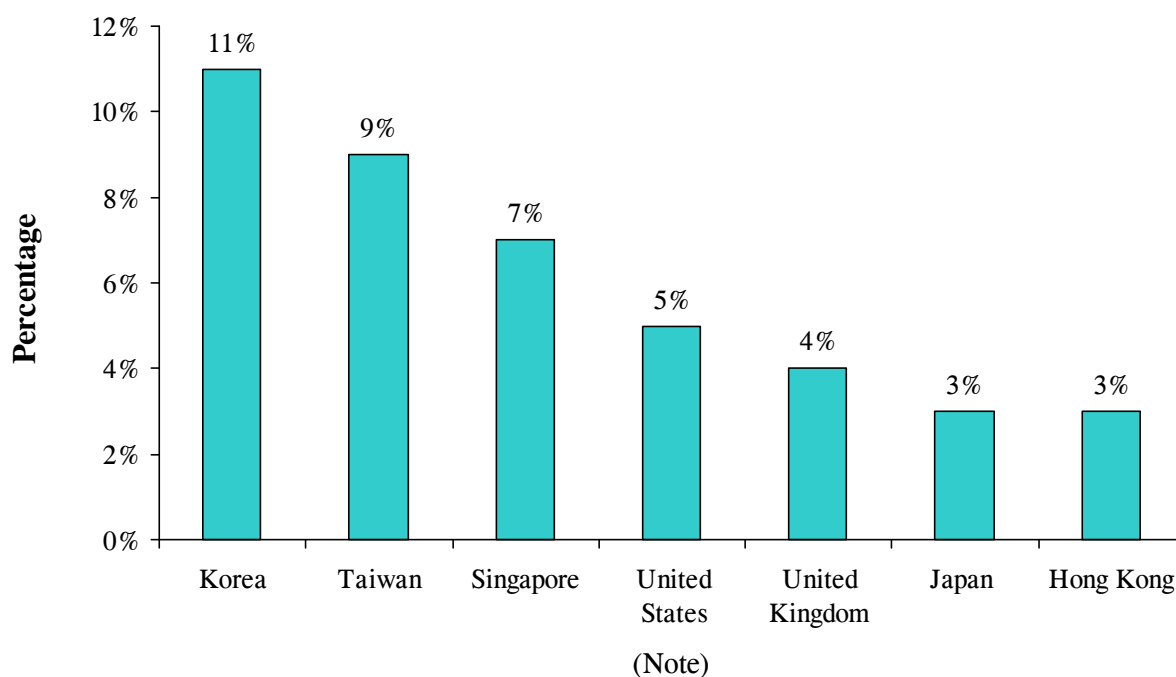


Source: UGC records

4.20 Audit compared the percentage of research expenditure of universities financed by the industry sector in Hong Kong to the percentage of research expenditure financed by the industry in higher education sector in other countries/regions, namely Korea, Taiwan, Singapore, the United States, the United Kingdom and Japan in 2014 (see Figure 3). Audit noted that Hong Kong was one of the countries/regions with the lowest percentage of research expenditure in higher education sector financed by the industry. The percentage of Hong Kong was 3% in 2014, as compared to 11% in Korea, 9% in Taiwan and 7% in Singapore. It was stated in the 2010 Report that “Hong Kong lacks a vibrant private R&D sector: it seems that businessmen in Hong Kong are not as keen as their overseas counterparts to invest in R&D”.

Figure 3

**Percentage of research expenditure financed by the industry sector  
in higher education sector  
(2014)**



*Source: Organisation for Economic Co-operation and Development website and UGC records*

*Note: For the United States, the figure for 2013 (latest available data from the website as at June 2016) was used.*

### *Need to enhance collaboration with Innovation and Technology Commission*

4.21 The RGC provides support to academic research including basic and applied research, whereas the Innovation and Technology Fund (ITF) administered by the Innovation and Technology Commission (ITC) supports applied R&D and promotes technology transfer and commercialisation activities. Measures have been taken to forge a closer link between the funding programmes of the ITF and the RGC. Applicants of the RGC's collaborative funding schemes (i.e. TRS, AoE Scheme and Collaborative Research Fund) are asked to provide an optional technology transfer plan in their funding applications, which serves for the ITC's advance information. Once these applications have been approved for UGC/RGC funding, the ITC will be invited to keep in view these projects and their progress. For projects with potential to proceed to the applied R&D phase, the project teams will be encouraged to apply for the ITF such that their projects may receive funding support from the ITF on successful completion of the RGC-funded projects. These measures can encourage university research staff to include applied R&D components in RGC supported projects at an early stage and provide funding support to the RGC projects for continuation to applied R&D to bring research outputs to applications in industry or community.

4.22 According to the ITC, of the 2,560 applications for the Innovation and Technology Support Programme during the period of 2012 to 2016 (up to June), 302 (12%) were related to RGC-funded projects. Of these 302 applications, 103 (34%) were approved by the ITC with a total approved funding of about \$238 million.

4.23 There was an increasing trend in the proportion of applied research project under the GRF and the ECS (see Table 21). The proportion increased from 35% in 2012/13 to 39% in 2015/16. The RGC needs to consider extending the measures applicable to the collaborative funding schemes to individual funding schemes (i.e. the GRF and the ECS), with a view to encouraging more RGC applied research projects to apply for the ITF and enhancing a closer collaboration between the RGC projects and the ITF projects.

Table 21

**Proportion of funded applied research projects under GRF and ECS  
(2012/13 to 2015/16)**

Year	No. of funded research projects (a)	No. of funded applied research projects (b)	Proportion of funded applied research projects (c) = (b) ÷ (a) × 100%
2012/13	901	318	35 %
2013/14	1,071	362	34 %
2014/15	1,126	387	34 %
2015/16	1,100	430	39 %

*Source: Audit analysis of UGC records*

4.24 Audit notes that the Government has proposed to inject an additional \$2 billion to the ITF to set up a new funding programme (Midstream Research Programme) for universities funded by the UGC. The programme, which is to be managed by the ITC, aims to encourage the universities to carry out more midstream and translational theme-based R&D projects in key technology areas. Audit also notes that the UGC Secretariat has been working with the ITC in developing the proposed programme. The RGC needs to keep in view the implementation of the new programme, and work closely with the ITC to see how best to forge a closer link between this new funding programme of the ITF and the research funding schemes of the RGC.

***Need to ascertain achievements of funding schemes***

4.25 In the past years, reviews on various aspects of the funding schemes were conducted:

- (a) the RGC conducted reviews on two of the JRSs (i.e. NSFC/RGC JRS and PROCORE-France/Hong Kong JRS) by questionnaire surveys in 2008 and 2010 respectively;

## Research output and way forward

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- (b) in 2013, the RGC conducted a review on the effectiveness of the AoE Scheme by questionnaire survey to ascertain whether the funding objectives of the scheme had been met;
- (c) the RGC conducted graduate surveys to obtain data on the first and second cohorts of the graduates under the HKPFS in August 2015; and
- (d) the following internal reviews for other funding schemes, such as the GRF, ECS and Collaborative Research Fund, were conducted:
  - (i) **GRF.** The RGC reviewed the longer-term research arrangement in 2009, and the support for young researchers and Humanities and Social Sciences academics in 2011;
  - (ii) **ECS.** The RGC reviewed the objective of the scheme after its first year of operation in 2012;
  - (iii) **Collaborative Research Fund.** The RGC reviewed its effectiveness in 2012 and decided to increase the budget by 25%; and
  - (iv) **JRSs.** The RGC reviewed and updated the principles in developing new JRSs in 2006 and 2014.

4.26 In September 2016, the UGC Secretariat informed Audit that the RGC Review (Phase I) was intended to address in more detail, among other things, the effectiveness of current RGC funding schemes. Audit considers that the RGC needs to monitor the progress of the RGC Review and ensure that it adequately examines the effectiveness of individual RGC research funding schemes to ascertain whether the funding objectives of these schemes are met.

## **Audit recommendations**

4.27      **Audit has *recommended* that the Secretary-General, University Grants Committee, in consultation with the RGC, should:**

- (a)      **enhance measures to foster the university-industry collaboration;**
- (b)      **extend the measures applicable to the collaborative funding schemes to individual funding schemes (i.e. the GRF and the ECS) with a view to enhancing a closer link with the ITF;**
- (c)      **keep in view the implementation of the new Midstream Research Programme for universities, and work closely with the ITC to see how best to forge a closer link between this new programme of the ITF and the funding programmes of the RGC; and**
- (d)      **monitor the progress of the RGC Review and ensure that it adequately examines the effectiveness of individual RGC research funding schemes to ascertain whether the funding objectives of these schemes are met.**

## **Response from the Government**

4.28      The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:

- (a)      the UGC has made vigorous efforts in fostering university-industry collaboration through, for instance, organising discussion forums with Heads of Universities, and meeting with leaders of the universities and stakeholders in the commercial and industrial sectors over the past years. The UGC Secretariat will continue to provide full support to the UGC in further enhancing university-industry collaboration in consultation with the ITB as far as practicable;

## **Research output and way forward**

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- (b) the UGC has been working closely with the ITC in developing the new Midstream Research Programme for universities, while the RGC has implemented arrangements to provide better interface between its collaborative research funding schemes and the ITF. The UGC Secretariat will continue to provide full support to the UGC and the RGC to continue to work closely with the ITB and ITC in forging closer links between the various research funding schemes of the ITF and RGC; and
- (c) the Review of the RGC (Phase I) is currently being conducted to examine, amongst others, whether the funding schemes have achieved their intended objectives. The UGC Secretariat will continue to support the Task Force on the Review of the RGC (Phase I) in closely monitoring the progress of the review for timely completion.

**Composition of RGC committee/panel members  
(30 June 2016)**

<b>Committee/Panel</b>		<b>Number of members</b>				
		<b>Local Academic</b>	<b>Non-local Academic</b>	<b>Local Lay</b>	<b>Ex-officio</b>	<b>Total</b>
<b><i>Overseeing the policies of research funding schemes</i></b>						
(a)	Major Projects Steering Committee	—	7	—	—	7
(b)	HKPFS Steering Committee	10	—	—	—	10
(c)	Steering Committee on Competitive Research Funding for the Self-financing Degree Sector	6	—	—	1	7
<b><i>Evaluating research funding applications</i></b>						
(d)	AoE Scheme Selection Panel	—	24	—	—	24
(e)	TRS Selection Panel	—	21	1	—	22
(f)	Collaborative Research Fund Committee	—	72	—	—	72
(g)	Five subject panels for individual research schemes					
	(i) Biology and Medicine Panel	11	27	—	—	38
	(ii) Business Studies Panel	9	17	—	—	26
	(iii) Engineering Panel	50	18	—	—	68
	(iv) Humanities and Social Sciences Panel	20	32	—	—	52



**Appendix A**  
(Cont'd)  
(para. 1.5 refers)

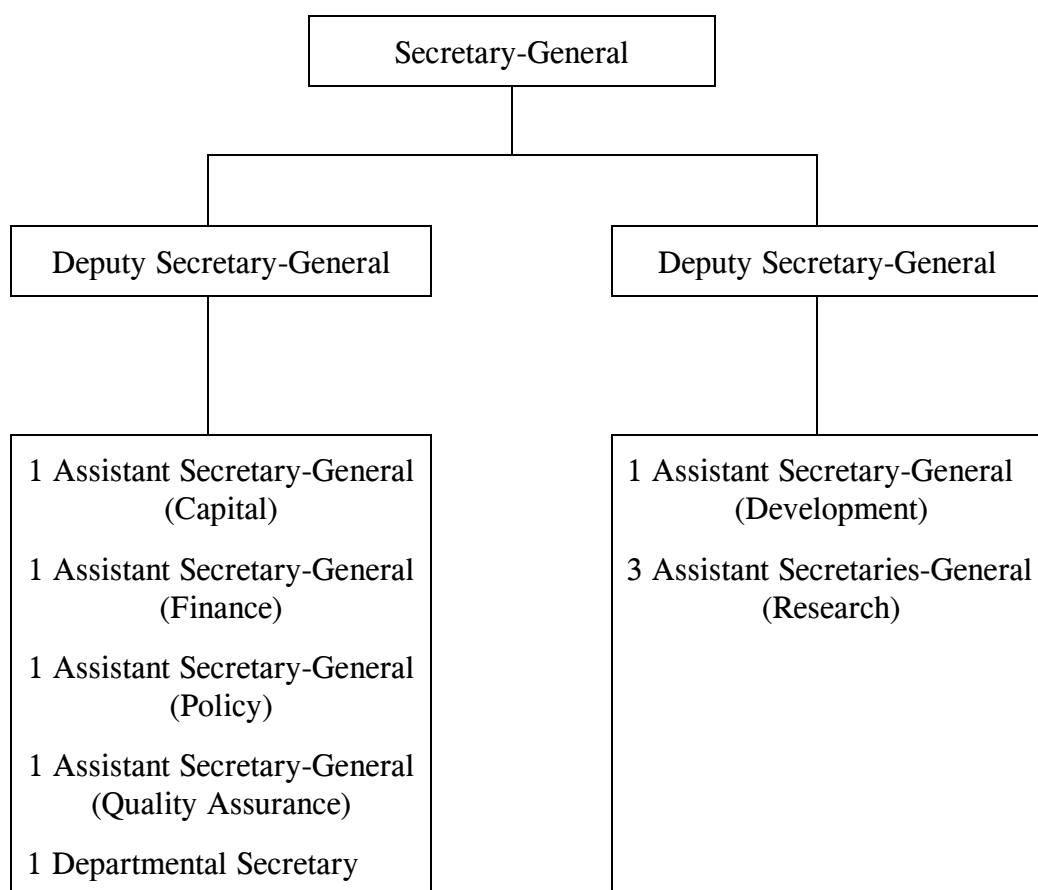
<b>Committee/Panel</b>		<b>Number of members</b>				
		<b>Local Academic</b>	<b>Non-local Academic</b>	<b>Local Lay</b>	<b>Ex-officio</b>	<b>Total</b>
	(v) Physical Sciences Panel	13	14	—	—	27
	Five subject panels for JRSs					
	(i) Biology and Medicine Panel	11	3	—	—	14
	(ii) Business Studies Panel	5	3	—	—	8
	(iii) Engineering Panel	11	6	—	—	17
	(iv) Humanities and Social Sciences Panel	7	3	—	—	10
	(v) Physical Sciences Panel	6	4	—	—	10
(h)	HSSPFS Selection Committee	—	21	—	—	21
(i)	Two selection panels for the HKPFS					
	(i) Humanities, Social Sciences and Business Studies Selection Panel	8	12	—	—	20
	(ii) Science, Medicine, Engineering and Technology Selection Panel	14	15	—	—	29

**Appendix A**  
(Cont'd)  
(para. 1.5 refers)

Committee/Panel		Number of members				
		Local Academic	Non-local Academic	Local Lay	Ex-officio	Total
(j)	Selection Committee for the NSFC/RGC JRS	32	—	—	—	32
(k)	Assessment Panel for Competitive Research Funding Schemes for the Local Self-financing Degree Sector	32	—	—	—	32
(l)	Selection Committee for the State Natural Science Award	3	3	—	—	6
<b><i>Monitoring and assessing the on-going and completed projects</i></b>						
(m)	Monitoring and Assessment Panels for AoE Scheme	—	23	1	—	24
(n)	Monitoring and Assessment Panels for TRS	—	27	2	—	29
(o)	Monitoring and Assessment Panel for Competitive Research Funding Schemes for the Local Self-financing Degree Sector	11	—	—	—	11
<b><i>Handling the alleged misconduct cases</i></b>						
(p)	DC(Investigation)	—	5	—	—	5
(q)	DC(Penalty)	—	5	—	—	5
(r)	DC(Appeal)	—	5	—	—	5
Total		259	367	4	1	631

Source: RGC records

**UGC Secretariat: Organisation chart  
(30 June 2016)**



*Source: UGC records*

**Universities/Institutions eligible for funding schemes administered by RGC  
(30 June 2016)**

***Universities***

- (a) City University of Hong Kong
- (b) Hong Kong Baptist University
- (c) Lingnan University
- (d) The Chinese University of Hong Kong
- (e) The Education University of Hong Kong
- (f) The Hong Kong Polytechnic University
- (g) The Hong Kong University of Science and Technology
- (h) The University of Hong Kong

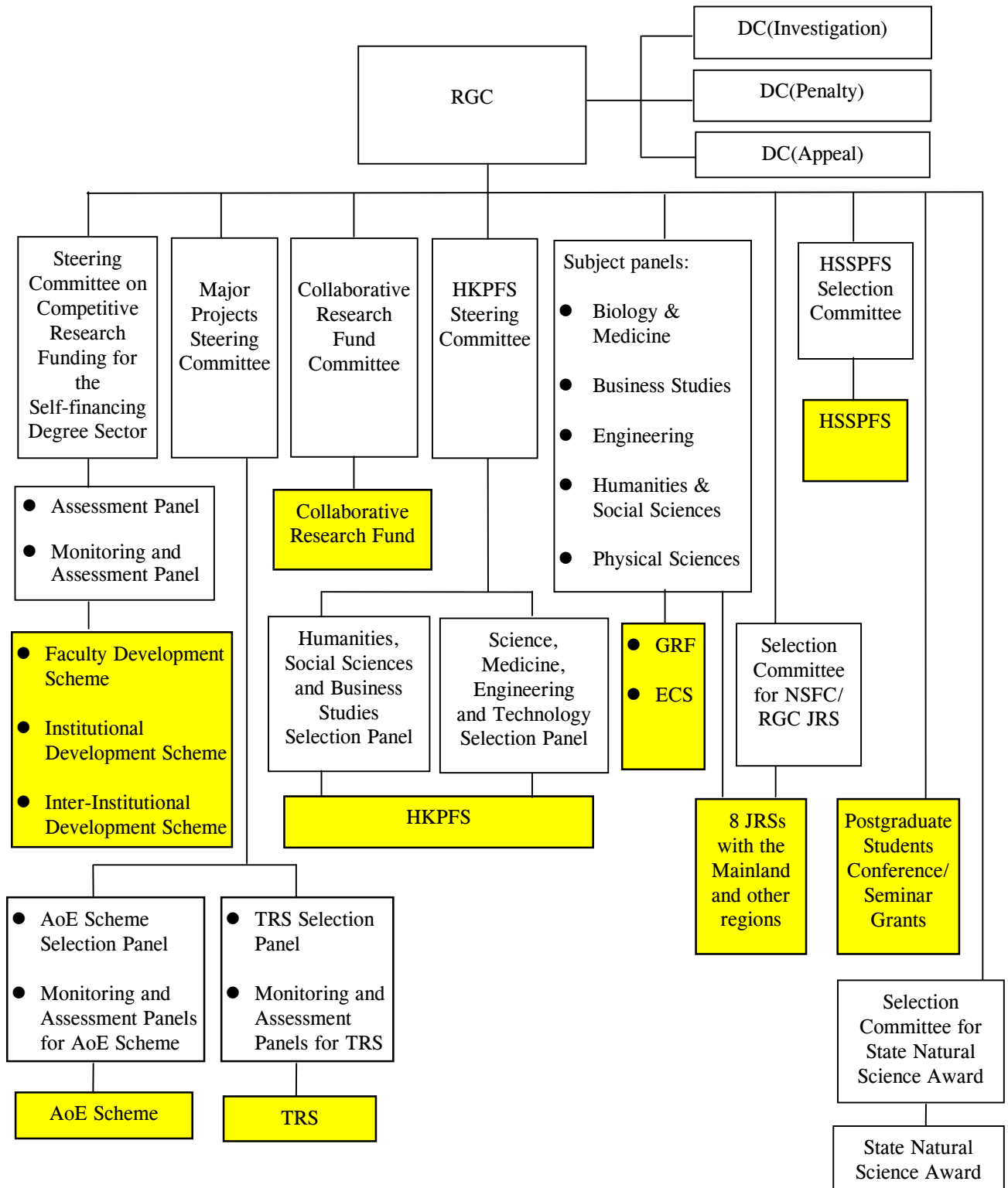
***Local self-financing degree-awarding institutions***


- (a) Caritas Institute of Higher Education
- (b) Centennial College (the management of the Centennial College was taken over by the HKU School of Professional and Continuing Education in May 2016)
- (c) Chu Hai College of Higher Education
- (d) Gratia Christian College
- (e) Hang Seng Management College
- (f) HKCT Institute of Higher Education
- (g) Hong Kong Nang Yan College of Higher Education
- (h) Hong Kong Shue Yan University
- (i) School of Continuing Education, Hong Kong Baptist University
- (j) School of Professional Education and Executive Development, The Hong Kong Polytechnic University
- (k) Technological and Higher Education Institute of Hong Kong
- (l) The Open University of Hong Kong
- (m) Tung Wah College

*Source: RGC records*

**Appendix D**  
(para. 1.9 refers)

## RGC: Organisation chart (30 June 2016)



Legend:  19 funding schemes administered by the RGC

*Source: RGC records*

**Acronyms and abbreviations**

AoE	Areas of Excellence
Audit	Audit Commission
DAMA	Disbursement, Accounting and Monitoring Arrangements for Funding Schemes Administered by the Research Grants Council
DC	Disciplinary Committee
ECS	Early Career Scheme
EDB	Education Bureau
GRF	General Research Fund
HKPFS	Hong Kong PhD Fellowship Scheme
HSSPFS	Humanities and Social Sciences Prestigious Fellowship Scheme
ITB	Innovation and Technology Bureau
ITC	Innovation and Technology Commission
ITF	Innovation and Technology Fund
IWG	Investigation Working Group
JRS	Joint Research Scheme
KT	Knowledge transfer
NSFC	National Natural Science Foundation of China
PI	Principal Investigator
R&D	research and development
RAE	Research Assessment Exercise
REF	Research Endowment Fund
RGC	Research Grants Council
TRS	Theme-based Research Scheme
UGC	University Grants Committee

# **CHAPTER 7**

## **Education Bureau**

<p><b>Assistance schemes for self-financing post-secondary education institutions</b></p>
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**Audit Commission  
Hong Kong  
28 October 2016**

*This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.*

Report No. 67 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

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# **ASSISTANCE SCHEMES FOR SELF-FINANCING POST-SECONDARY EDUCATION INSTITUTIONS**

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# **ASSISTANCE SCHEMES FOR SELF-FINANCING POST-SECONDARY EDUCATION INSTITUTIONS**

## **Executive Summary**

1. The Government adopts a two-pronged strategy of promoting the development of self-financing post-secondary education sector as well as the publicly-funded sector. Since 2001, to promote the healthy and sustainable development, and to enhance the quality of the self-financing post-secondary education sector, the Government has implemented various assistance schemes (administered by the Education Bureau (EDB) or the University Grants Committee (UGC)) for self-financing post-secondary education institutions (SFIs). They comprise: (a) Land Grant Scheme (LGS); (b) Start-up Loan Scheme (SLS); (c) Self-financing Post-secondary Education Fund (SPEF); (d) Qualifications Framework Support Schemes; (e) Qualifications Framework Fund; (f) Matching Grant Scheme (MGS); (g) Research Endowment Fund; and (h) Reimbursement of rates and government rent.

2. As at 30 June 2016, there were 28 SFIs eligible for the government assistance schemes. Some of these 28 SFIs provide self-financing post-secondary programmes (i.e. sub-degree and undergraduate programmes) direct while others through their extension arms. If counting the extension arms separately apart from their mother institutions, altogether there were 40 institutions/extension arms (hereinafter referred to as self-financing programme providers (SFPPs)). For the academic year 2014/15 (all years mentioned hereinafter refer to academic years), there were 76,801 students enrolled in 627 full-time self-financing post-secondary programmes.

3. In April 2016, the Audit Commission (Audit) commenced a review of the provision of assistance schemes for SFIs, focusing on four schemes, namely the LGS, the SLS, the SPEF and the MGS.

### Administration of LGS and SLS

4. ***Processing of LGS applications.*** The LGS provides land sites at nominal premium or vacant premises at nominal rent to SFPPs. Applications for LGS land sites/premises are assessed and recommended by a Vetting Committee (which comprises a non-official chairman, seven non-official members and one official member) and approved by the Secretary for Education. Up to 31 March 2016, 17 land sites/premises had been granted under the LGS. Audit examined the LGS applications and noted that there were inadequacies in the application approval processes: (a) in December 2008, SFPP A (operating under the aegis of a UGC-funded university) applied for the use of an LGS premises by SFPP B (a division of SFPP A). Contrary to the EDB's established approval practice, the application (together with two other applications in the same batch) was only approved by the Permanent Secretary for Education instead of the Secretary for Education; (b) in December 2011, SFPP C (controlled by the UGC-funded university) applied for the temporary use of the premises for three years until the end of 2014/15. The application was approved by the Permanent Secretary for Education; (c) subsequently, an application was made by SFPP C in January 2015 for the extension of the use of the premises for another three years up to August 2018 and was approved by a Deputy Secretary for Education. The change of the user of the premises from SFPP B operating sub-degree programmes to SFPP C operating undergraduate programmes, albeit temporary, was a fundamental and significant change. However, the temporary use of premises by SFPP C and the extension were approved without seeking advice from the Vetting Committee. In May 2016, owing to operational difficulties, the management of SFPP C was taken over by SFPP A; and (d) the EDB did not enter into legally binding agreements with SFPP C, hence SFPP C was not required to submit and had not submitted any Annual Progress Report for EDB's performance monitoring purpose (paras. 1.5(a) and 2.3 to 2.5).

5. ***Renewal of LGS grants.*** Under the LGS, a land site/premises is granted to the grantee for ten years. The grant may be renewed every ten years. As at 31 July 2016, the grants of five land sites had expired and the grantees had applied for renewal. Under the existing practice, renewal applications were only assessed and approved by a Principal Assistant Secretary of the EDB. Audit examined the five renewal applications and found that there were circumstances under which the advice of the Vetting Committee might need to be sought in assessing renewal applications to ensure that renewals were properly granted. For example: (a) in a

## Executive Summary

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renewal application, the SFPP's actual student enrolment of the locally-accredited sub-degree programmes showed a trend of falling short of the expected number in recent years; and (b) in another renewal application, the Lands Department identified breaches of the Conditions of Grant by the SFPP (paras. 2.3(a) and 2.9).

6. ***Unspent SLS loan balances.*** The SLS provides interest-free loans to SFPPs to finance campus development. Up to 31 March 2016, 39 loans amounting to \$7.3 billion had been granted. With effect from July 2006, borrowers are required to repay the Government on demand, in a lump sum, unspent loan balances two years after the final drawdown of the loans. The EDB mainly relies on the project costs reported by borrowers to identify unspent loan balances. Audit noted that the EDB did not require borrowers to submit certified accounts for their projects. It was therefore uncertain whether the project costs reported by the borrowers were accurate (paras. 1.5(b), 2.12 and 2.14).

### Administration of SPEF and MGS

7. ***Administration of the SPEF.*** The SPEF supports worthwhile non-works projects to enhance the quality of education provided by SFPPs under the Quality Enhancement Support Scheme (QESS). The SPEF also aims to provide scholarships/awards to outstanding students nominated by SFPPs under the Self-financing Post-secondary Scholarship Scheme. As at 31 March 2016, \$136 million had been granted to 30 approved projects and \$308 million of scholarships/awards had been granted to some 16,100 students. Audit found that: (a) up to 2015/16, 11 (28%) of the 40 SFPPs had never submitted QESS applications; (b) the EDB did not provide the unsuccessful QESS applicants with feedback on ways to improve so as to facilitate their future applications; and (c) the unpaid amounts of scholarships/awards increased by 466%, from \$680,000 in 2012/13 to \$3,850,000 in 2014/15. Of the unpaid amounts of \$3,850,000, \$3,750,000 (97%) could not be paid to students under the Reaching Out Award because they had not participated in the required outreaching activities (paras. 1.5(c), 3.2, 3.7, 3.8 and 3.20).

## Executive Summary

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8. *Administration of the MGS.* The MGS matches private donations secured by the post-secondary education institutions to help them secure more funds for better quality education. Since the launch of the MGS in July 2003, a total of \$7.4 billion had been granted to 17 institutions through six rounds of MGS funding. Audit examined the sixth round of MGS funding and found that: (a) of the 17 institutions, the majority (82%) of the MGS grants were allocated to the eight UGC-funded universities; (b) one SFI had not submitted the auditor's report for 2014/15 certifying that the institution had complied with the conditions of the MGS grants; and (c) there was no mechanism in place to verify that MGS grants were spent by institutions in a cost-effective manner (paras. 1.5(f), 3.25, 3.27, 3.29 and 3.30).

### Way forward

9. *Latest development of the self-financing post-secondary education sector.* In June 2015, the Code of Good Practices on Governance and Quality Assurance (Code of Good Practices) for self-financing post-secondary education sector was promulgated for voluntary implementation by SFIs. The Code of Good Practices contains 27 individual good practices aiming to enhance transparency in operation and accountability of SFIs to the public. The EDB encourages SFIs to follow the Code of Good Practices and monitors the progress of implementation. Audit examination of five good practices revealed that: (a) less than one-fourth of the 40 SFPPs (see para. 2) disclosed on their websites their strategic and operational plans, annual reports, financial information, and outcomes of quality assurance and programme reviews; and (b) the extent of information disclosure varied significantly among the SFPPs. Audit also noted that in February 2012, the EDB launched the Electronic Advance Application System for Post-secondary Programmes (E-APP) to facilitate applications for post-secondary programmes not covered by the Joint University Programmes Admissions System (JUPAS). E-APP, however, is only a system for SFIs to receive applications, and it is common that multiple places are offered by SFIs to students. SFIs, therefore, charge an enrolment deposit and require students to settle the first instalment of tuition fee before programme commencement to minimise the wastage of places. From 2012/13 to 2015/16, the enrolment deposits and tuition fees forfeited every year ranged from \$21 million to \$26 million (paras. 4.2 to 4.5, 4.7, 4.15 and 4.16).

## Executive Summary

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10. ***Way forward for the government assistance schemes.*** The number of students enrolled in full-time locally-accredited self-financing post-secondary programmes dropped by 9% from 84,157 in 2012/13 to 76,801 in 2014/15. According to a forecast made by the EDB in August 2015, the number of secondary school graduates would continue to decrease until 2022/23. The forecast also indicated that starting from 2017/18, the number of post-secondary education places would exceed the entire population of secondary school graduates. Due to insufficient student enrolment, an SFI was closed down in 2014 while the management of another SFI was taken over by a third SFI in 2016. Audit analysis of the rate of intake (i.e. the actual number of first year student intake divided by the number of places available) of 27 SFIs also indicated that from 2012/13 to 2014/15, the rate of intake of six of them was consistently lower than 50% (paras. 4.23 and 4.24).

### **Audit recommendations**

11. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Secretary for Education should:**

#### ***Processing of LGS applications***

- (a) **take measures to ensure that applications for LGS land sites/premises are duly approved by the Secretary for Education (para. 2.6(a));**
- (b) **in dealing with LGS matters of a significant nature (e.g. change of user of LGS land sites/premises), seek advice from the Vetting Committee and seek approval by the Secretary for Education where necessary (para. 2.6(b));**
- (c) **in LGS cases involving a change of user, enter into legally binding agreements with the new user (para. 2.6(c));**

## Executive Summary

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### *Renewal of LGS grants*

- (d) issue guidelines promulgating circumstances under which the advice of the Vetting Committee should be sought in assessing LGS renewal applications to ensure that renewals are properly granted (para. 2.10(a));

### *Unspent SLS loan balances*

- (e) take measures to ensure the accuracy of the project costs reported by SLS borrowers (para. 2.15(b));

### *Administration of the SPEF*

- (f) ascertain why some SFPPs have not participated in the QESS and take measures to encourage SFPPs to apply for QESS funding (para. 3.23(a) and (b));
- (g) provide feedback to unsuccessful QESS applicants on ways to improve so as to facilitate their future applications (para. 3.23(c));
- (h) review why so many students had not participated in the required outreaching activities of the Reaching Out Award and instigate appropriate action to address the issue (para. 3.23(h) and (i));

### *Administration of the MGS*

- (i) explore more effective ways to assist institutions other than the UGC-funded universities to secure MGS grants (para. 3.31);

### *Latest development of the self-financing post-secondary education sector*

- (j) consider ways to encourage SFPPs to disclose on their websites the information stipulated in the Code of Good Practices as far as possible and to help SFPPs improve their disclosure of information (para. 4.19(a)(ii) and (iii));



## Executive Summary

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- (k) examine the feasibility of enhancing E-APP to become a unified platform for application and admission of post-secondary programmes (para. 4.19(d));
- (l) endeavour to facilitate the convergence of JUPAS and E-APP (para. 4.19(e)); and

### *Way forward for the government assistance schemes*

- (m) consider conducting a review of the effectiveness of the government assistance schemes in promoting the healthy and sustainable development of the self-financing post-secondary education sector to determine the way forward for the schemes in aligning with the development of the sector (para. 4.27(a)).
12. Audit has *recommended* that the Secretary-General, University Grants Committee should:
- (a) follow up with the SFI that has not submitted the auditor's report (para. 3.32(a)); and
  - (b) in collaboration with the Secretary for Education, establish a mechanism to verify that MGS grants are spent by institutions in a cost-effective manner (para. 3.32(b)).

## Response from the Government

13. The Government agrees with the audit recommendations.



## PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

### Background

#### *Assistance schemes for self-financing post-secondary education institutions*

1.2 In his 2000 Policy Address, the Chief Executive of the Hong Kong Special Administrative Region announced that within ten years, 60% of senior secondary school leavers should have access to post-secondary education to meet the needs of a knowledge-based economy. To this end, the Government has adopted a two-pronged strategy of promoting the development of self-financing post-secondary education sector as well as the publicly-funded sector, thereby providing more education opportunities and choices for school leavers.

1.3 Since 2001, to promote the healthy and sustainable development and to enhance the quality of the self-financing post-secondary education sector, the Government has implemented various assistance schemes (see para. 1.5) for self-financing post-secondary education institutions (Note 1).

1.4 To be eligible for the government assistance schemes, a self-financing post-secondary education institution must be either a self-accredited local institution or an institution that has been accredited by the Hong Kong Council for

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**Note 1:** *The Government also provides assistance to students pursuing self-financing post-secondary programmes. Examples include the Financial Assistance Scheme for Post-secondary Students and the Non-means-tested Loan Scheme for Post-secondary Students. These schemes are administered by the Working Family and Student Financial Assistance Agency.*

## Introduction

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Accreditation of Academic and Vocational Qualifications (HKCAAVQ — Note 2). As at 30 June 2016, there were 28 self-financing post-secondary education institutions (hereinafter these institutions are referred to as SFIs) eligible for the government assistance schemes. These institutions provide self-financing post-secondary programmes, which comprise sub-degree (i.e. associate degree and higher diploma) and undergraduate programmes, covering a wide range of disciplines (Note 3). Some of these 28 SFIs provide self-financing post-secondary programmes direct while others through their extension arms. If counting the extension arms separately apart from their mother institutions, altogether there were 40 institutions/extension arms offering self-financing post-secondary programmes. These institutions/extension arms are hereinafter referred to as self-financing programme providers (SFPPs). The grouping of the 28 SFIs (operating as 40 SFPPs) are as follows:

- (a) 8 universities funded by the University Grants Committee (UGC) (operating as 16 SFPPs) providing self-financing locally-accredited post-secondary programmes;
- (b) 9 approved post-secondary colleges registered under the Post Secondary Colleges Ordinance (Cap. 320) (operating as 9 SFPPs) providing self-financing locally-accredited post-secondary programmes;
- (c) 7 institutions registered under the Education Ordinance (Cap. 279) (operating as 7 SFPPs) providing self-financing locally-accredited post-secondary programmes;
- (d) 3 statutory institutions or their subsidiaries (operating as 7 SFPPs) providing self-financing locally-accredited post-secondary programmes; and
- (e) 1 institution (operating as 1 SFPP) providing self-financing locally-accredited non-local undergraduate programmes.

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**Note 2:** *The HKCAAVQ is an independent statutory body providing quality assurance and qualifications assessment services to education and training institutions, course providers and the general public.*

**Note 3:** *The self-financing post-secondary programmes cover various disciplines, for example, Education, Humanities, Law, Sciences and Social Sciences.*

A list of these 28 SFIs (operating as 40 SFPPs) can be found at Appendix A.

1.5 The government assistance schemes for SFIs are administered by the Education Bureau (EDB) or the UGC. They comprise:

*Assistance schemes administered by the EDB*

- (a) **Land Grant Scheme (LGS).** The LGS provides land sites at nominal premium or vacant premises at nominal rent to SFPPs. From the launch of the LGS in May 2002 to March 2016, 11 land sites and six vacant premises were granted (see Photograph 1 for an example). A list of the 17 land sites/premises granted is shown at Appendix B;

**Photograph 1**

**A premises granted under LGS**



*Source: Photograph taken by Audit*

## Introduction

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- (b) ***Start-up Loan Scheme (SLS).*** The SLS provides interest-free loans to SFPPs to support the development of college premises and student hostels, reprovisioning of existing premises operating in sub-optimal environment and enhancement of teaching and learning facilities. There is no limit on the amount that an SFPP can borrow from the SLS. From the establishment of the SLS in July 2001 to March 2016, 39 loans amounting to \$7.3 billion were granted. The amounts of individual loans ranged from \$2.5 million (for renovation of campuses) to \$800 million (for construction of an academic and administrative building, a sports and student amenities centre and student hostels);
- (c) ***Self-financing Post-secondary Education Fund (SPEF).*** The SPEF supports worthwhile non-works projects to enhance the quality of education provided by SFPPs. The funding limits for theme-based and non-theme-based projects are \$90 million and \$4 million respectively. The SPEF also aims to provide scholarships/awards to outstanding students nominated by SFPPs. The amounts of scholarships/awards range from \$10,000 to \$80,000. From its establishment in August 2011 to March 2016, \$136 million was granted to 30 approved projects and \$308 million of scholarships/awards was granted to some 16,100 students;
- (d) ***Qualifications Framework Support Schemes.*** These Schemes were launched in May 2008. They assist SFPPs in seeking accreditation of their programmes by the HKCAAVQ and registering programmes and qualifications in the Qualifications Register maintained by the HKCAAVQ. They also support SFPPs' initiatives relating to the development of the Qualifications Framework (Note 4) administered by the EDB. The Schemes may reimburse up to 100% of the accreditation fees incurred by SFPPs. As at 31 March 2016, funding of \$135 million for some 4,400 programmes/initiatives had been granted. The Schemes have been incorporated into the Designated Support Schemes for Qualifications Framework under the Qualifications Framework Fund since

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**Note 4:** *The EDB launched the Qualifications Framework in May 2008. It is a seven-level hierarchy covering qualifications in the academic, vocational and professional as well as continuing education sectors to promote and support lifelong learning with a view to continuously enhancing the quality, professionalism and competitiveness of the workforce in an increasingly globalised and knowledge-based economy.*

the Fund's establishment in September 2014 (see (e) below). The balance of \$73 million (as at 31 March 2016) of the Schemes would be used to meet the cash flow requirements of the various initiatives supported by the Fund (Note 5);

- (e) ***Qualifications Framework Fund.*** This Fund was established in September 2014 with a commitment of \$1 billion. It supports various initiatives for Qualifications Framework development, Qualifications Framework-related studies/projects and public education. The Fund may reimburse up to 100% of the accreditation fees incurred by SFPPs. The income generated from the investment of the Fund will start to be used when the balance of the Qualifications Framework Support Schemes is exhausted;

### ***Assistance schemes administered by the UGC***

- (f) ***Matching Grant Scheme (MGS).*** The MGS was launched in July 2003 to match private donations secured by the post-secondary education institutions. The MGS helps institutions secure more funds for better quality education. It enhances institutions' dialogues with other sectors of the community and helps foster a philanthropic culture over time. The MGS was originally available for the eight UGC-funded universities only. It had gradually expanded to cover the publicly-funded Hong Kong Academy for Performing Arts and eight specified SFIs, namely six of the nine SFIs in paragraph 1.4(b) and two of the three SFIs in paragraph 1.4(d) (Note 6). From July 2003 to July 2014, six rounds of MGS

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**Note 5:** *Education and training providers that operate self-financing programmes (including but not limited to undergraduate and sub-degree programmes) are eligible for subsidies under the Qualifications Framework Support Schemes (and the Qualifications Framework Fund). The 4,400 programmes/initiatives and the expenditure of \$135 million included the programmes/initiatives of and the funding provided to these education and training providers. The EDB does not maintain breakdowns for different levels of programmes.*

**Note 6:** *The specified SFIs are listed in the Note to Table 8 in paragraph 3.27.*

funding were conducted and a total of \$7.4 billion was granted. Of the \$7.4 billion, \$6.8 billion had been granted to the eight UGC-funded universities and the Academy, and \$0.6 billion had been granted to eight specified SFIs. Funding limits of the MGS varied from round to round. For the sixth round, the limit was \$600 million;

- (g) **Research Endowment Fund.** In 2009, to provide stable funding to support research in the UGC-funded universities, the Government set up the Fund with an endowment of \$18 billion. In 2012, the Government injected another \$5 billion into the Fund bringing the endowment to \$23 billion. The Fund also extended its funding scope to include eligible local self-financing degree awarding institutions (Note 7). Of the \$23 billion, \$20 billion is designated for the UGC-funded universities while \$3 billion is designated for the eligible local self-financing degree awarding institutions. Income from the investment of \$20 billion and \$3 billion are disbursed as research grants to the universities and the local self-financing degree awarding institutions respectively. There are three funding schemes (two have no funding limit while one has funding ceilings — Note 8) available for the eligible local self-financing degree awarding institutions. As at 31 March 2016, \$189 million had been granted for 126 approved projects to the eligible local self-financing degree awarding institutions; and

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**Note 7:** *Among the 40 SFPPs in Appendix A, 13 are eligible for the three competitive research funding schemes under the Research Endowment Fund, namely the Caritas Institute of Higher Education, the Centennial College, the Chu Hai College of Higher Education, the Hang Seng Management College, the Hong Kong Shue Yan University, The Open University of Hong Kong, the Tung Wah College, the HKCT Institute of Higher Education, the Hong Kong Nang Yan College of Higher Education, the School of Continuing Education of the Hong Kong Baptist University, the School of Professional Education and Executive Development of The Hong Kong Polytechnic University, the Technological and Higher Education Institute of Hong Kong of the Vocational Training Council and the Gratia Christian College.*

**Note 8:** *There are four different funding ceilings of \$3 million, \$6 million, \$8 million and \$14 million depending on the number of full-time academic staff and full-time students of the local self-financing degree awarding institutions.*



### *Assistance scheme administered by the EDB and the UGC*

- (h) ***Reimbursement of rates and government rent.*** This assistance scheme was introduced in 1972. Under the scheme, SFIs can apply for reimbursement of rates and government rent if the premises concerned are occupied for educational purposes. For the five financial years from 2011-12 to 2015-2016, SFIs were reimbursed a total of \$174 million.

1.6 Table 1 summarises the financial commitment, source of funding, the number of approved cases and the approved amount of various assistance schemes as at 31 March 2016.

## Introduction

**Table 1**  
**Assistance schemes for SFPPs**  
**(31 March 2016)**

Scheme	Financial commitment	Source of funding	No. of cases approved	Approved amount
Administered by the EDB				
LGS	N.A.	N.A.	11 land sites and 6 premises	N.A.
SLS	\$9 billion	Loan Fund	39 loans (26 loans outstanding)	\$7.3 billion (\$4.2 billion outstanding)
SPEF	\$3.52 billion	(Note 1)	30 projects	\$136 million
			16,100 scholarships/ awards	\$308 million
Qualifications Framework Support Schemes	\$208 million	General Revenue Account of the Government	4,400 programmes and other initiatives (Note 2)	\$135 million (Note 2)
Qualifications Framework Fund	\$1 billion	(Note 1)	Nil (Note 3)	
Administered by the UGC				
MGS	\$7.5 billion	General Revenue Account of the Government	17 institutions (Note 4)	\$7.4 billion (Note 4)
Research Endowment Fund	\$3 billion for local self-financing degree awarding institutions	(Note 1)	126 projects	\$189 million
Administered by the EDB and the UGC				
Reimbursement of rates and government rent	N.A.	General Revenue Account of the Government	14 SFIs	\$174 million (2011-12 to 2015-16)

Source: EDB records

*Note 1: The SPEF, the Qualifications Framework Fund and the Research Endowment Fund were set up under the Permanent Secretary for Education Incorporated, which acts as the trustee of the funds. Each fund is managed in accordance with a trust deed that stipulated the framework and salient features concerning the fund's management and administration. The amount injected by the Government into each fund is used as seed money to generate investment returns to cover the fund's expenditure.*

*Note 2: The 4,400 approved cases and the approved amount of \$135 million included the programmes/initiatives of and the approved amount for other education providers (see Note 5 in para 1.5(d)).*

*Note 3: The income generated from investment of the Fund's commitment of \$1 billion will start to be used when the balance of the Qualifications Framework Support Schemes is exhausted.*

*Note 4: The 17 institutions included eight UGC-funded universities, the Hong Kong Academy for Performing Arts and eight specified SFIs. Of the \$7.4 billion, \$6.8 billion was granted to the universities and the Academy while \$0.6 billion was granted to the SFIs.*

1.7 For the academic year 2014/15 (Note 9), there were 76,801 students enrolled in 627 full-time post-secondary programmes provided by SFIs.

### Audit review

1.8 In April 2016, the Audit Commission (Audit) commenced a review of the provision of assistance schemes for SFIs. The audit has focused on the following areas:

- (a) administration of the LGS and the SLS (PART 2);
- (b) administration of the SPEF and the MGS (PART 3); and
- (c) way forward (PART 4).

Audit has found room for improvement in the above areas and has made a number of recommendations to address the issues.

1.9 In examining the administration of assistance schemes, this review does not cover:

- (a) the Research Endowment Fund. This Fund has been separately covered in the review of “Funding of academic research projects by Research Grants Council” (see Chapter 6 of the Director of Audit’s Report No. 67);
- (b) the Qualifications Framework Support Schemes and reimbursement of rates and government rent, owing to their lower materiality; and
- (c) the Qualifications Framework Fund as the Fund’s monies were yet to be used.

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**Note 9:** *Unless otherwise stated, all years mentioned in this Audit Report refer to academic years starting in September of a year and ending in August of the following year.*

## **Introduction**

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### **Acknowledgement**

1.10      Audit would like to acknowledge with gratitude the full cooperation of the staff of the EDB and UGC Secretariat during the course of the audit review.

## **PART 2: ADMINISTRATION OF LAND GRANT SCHEME AND START-UP LOAN SCHEME**

2.1 This PART examines the administration of the LGS and the SLS. Audit found room for improvement in the following areas:

- (a) processing of LGS and SLS applications (paras. 2.2 to 2.7);
- (b) renewal of LGS grants (paras. 2.8 to 2.11); and
- (c) unspent SLS loan balances (paras. 2.12 to 2.16).

### **Processing of LGS and SLS applications**

2.2 SFPPs are eligible to apply for land sites/premises under the LGS and loans under the SLS. When a land site/premises is available for granting to the SFPPs (Note 10), the EDB will invite applications from the SFPPs through open tendering. At the same time, the EDB will open the SLS for applications by the SFPPs (Note 11). The SFPPs may apply for either the LGS land sites/premises or the SLS loans, or both. In making applications, the SFPPs need to submit documents including:

- (a) ***Educational Development Proposal.*** The Educational Development Proposal is required for applying for LGS land sites/premises and SLS loans. It contains information such as the programmes to be offered and the projected student enrolment; and

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**Note 10:** *According to the EDB, having regard to the demand of the self-financing post-secondary education sector for campus development, the EDB would earmark and launch land sites or vacant government premises for post-secondary education use under the LGS from time to time subject to their availability as advised by relevant government departments, such as the Planning Department, the Lands Department and the Government Property Agency.*

**Note 11:** *According to the EDB, having regard to the demand of the self-financing post-secondary education sector for start-up loans for financing campus development on land sites/premises obtained via channels other than the LGS, the EDB also separately invites SFPPs to apply for SLS loans under stand-alone application exercises from time to time.*

## Administration of Land Grant Scheme and Start-up Loan Scheme

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- (b) ***Site Development Proposal/Site Utilisation Proposal.*** The Site Development Proposal is required for applying for LGS land sites and SLS loans for construction works while the Site Utilisation Proposal is required for applying for LGS premises and SLS loans for refurbishment works. The proposals contain information such as the proposed layout plan and the estimated construction/refurbishment cost.

2.3 Applications for LGS land sites/premises and SLS loans are assessed by the Vetting Committee for the Allocation of Sites and Start-up Loan for Post-secondary Education Providers (Vetting Committee — Note 12). Based on the Vetting Committee's recommendations, the Secretary for Education approves the LGS applications and SLS applications for loan amount not exceeding \$15 million. For SLS loans with an amount over \$15 million, the Secretary endorses the applications and submits them to the Finance Committee of the Legislative Council (LegCo) for approval. When approval from relevant authorities is obtained, the grantees/the borrowers and the Government will enter into the following legally binding agreements:

### ***LGS***

- (a) ***Service Agreement.*** The Service Agreement sets out the obligations of the grantee such as implementation of the Educational Development Proposal and the Site Development Proposal/Site Utilisation Proposal, and the requirement to submit an Annual Progress Report to the EDB for performance reporting purpose. A land site/premises is granted to the grantee for a period of ten years. The grant may be renewed every ten years. Upon every renewal, the grantee and the Government need to enter into a new Service Agreement;

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**Note 12:** *As at 1 September 2016, the Vetting Committee comprised a non-official chairman, seven non-official members from various professional backgrounds and one official member (a Principal Assistant Secretary of the EDB). Its terms of reference are: (a) to examine and assess applications under the LGS and the SLS and advise and make recommendations to the Secretary for Education; and (b) to advise the Secretary for Education on any other matters that may be referred to the Committee by the EDB concerning the criteria for selection, the selection process, as well as the policy and execution of the LGS and the SLS. The Committee has been set up since September 2012. Before that, LGS and SLS applications were vetted by two separate committees. For simplicity, the committees are referred to as the Vetting Committee in this Audit Report.*

- (b) ***Conditions of Grant/Tenancy Agreement.*** The Conditions of Grant (for granting of land sites) is issued by the Lands Department to require the grantee to build and maintain upon the land site a building with facilities approved by the EDB and to regulate the land use by the grantee. The Tenancy Agreement (for granting of premises) sets out the terms of using the premises. The Conditions of Grant and the Tenancy Agreement are co-terminus with the Service Agreement (i.e. the Service Agreement and the Conditions of Grant/Tenancy Agreement are renewable at the same time); and

### ***SLS***

- (c) ***Loan Agreement.*** The Loan Agreement sets out the obligations of the borrower such as repaying the loan according to the repayment terms and submission of an Annual Progress Report. Under the Loan Agreement, the borrower is required to repay the loan interest-free within ten years by equal annual instalments from the date of final drawdown of the loan. Since May 2008, the SLS has been modified to allow the borrower to apply for repayment extension of up to 20 years. Interest is charged on the outstanding loan balance after the first ten years.

2.4 Up to 31 March 2016, 17 land sites/premises and 39 loans had been granted under the LGS and the SLS respectively. Of the 39 SLS loans, 13 were fully repaid and 26 were outstanding (a list of the 26 outstanding loans is shown at Appendix C). Of the 26 outstanding loans, 23 were over \$15 million (ranged from \$22.7 million to \$800 million) and three were below \$15 million (ranged from \$2.5 million to \$11 million). There were no default loan cases and there was only one incident of late repayment by four days.

### *Need to ensure that applications for LGS land sites/premises are duly evaluated and approved*

2.5 In examining the applications of the LGS land sites/premises, Audit noted that there were inadequacies in the application approval processes (see Case 1).

#### Case 1

1. In December 2008, SFPP A (operating under the aegis of a UGC-funded university) applied for the use of an LGS premises for operating sub-degree programmes by SFPP B (a division of SFPP A). SFPP A stated in the application that the premises would be used as a new campus for SFPP B to relocate some of its students who were attending classes in commercial premises and suffering from sub-optimal learning environment.

2. In September 2009, following the Vetting Committee's recommendation, the Permanent Secretary for Education approved (together with two other applications in the same batch) the granting of the premises to the university for use by SFPP B (Note). To fund the refurbishment of the premises, SFPP A applied for an SLS loan amounting to some \$40 million. Following the Vetting Committee's recommendation, the Secretary for Education's endorsement and the approval by the Finance Committee (as the loan was above \$15 million), the loan was granted to the university in January 2010 (Note). In July 2011, the refurbishment works were completed. In January 2012, approval was obtained from the Buildings Department to use the premises.

3. However, in December 2011 (one month before the approval was given by the Buildings Department to use the premises), with the consent of SFPP A, SFPP C (registered under the Post Secondary Colleges Ordinance and controlled by the UGC-funded university) submitted an application to the EDB for temporary use of the premises for providing self-financing undergraduate programmes for three years until the end of 2014/15. After studying SFPP C's Educational Development Proposal and given that SFPP C was eligible for the LGS, and taking into consideration that SFPP B had at the time already extended its lease on the commercial premises to accommodate its students, the Permanent Secretary for Education approved, as a transitional arrangement, the temporary use of the premises by SFPP C up to 31 August 2015. The EDB did not enter into any legally binding agreements (see para. 2.3) with SFPP C.



### Case 1 (Cont'd)

4. In February 2012 and May 2013, SFPP C applied for other land sites under the LGS. Its applications were however not recommended by the Vetting Committee. In January 2015 (seven months before the expiry of the temporary use of the premises), with the support of SFPP A, SFPP C applied to the EDB for extension of the use of the premises for another three years up to 31 August 2018. In June 2015, to minimise the disturbance to the existing students of SFPPs B and C, a Deputy Secretary for Education approved the extension.

5. In May 2016, owing to operational difficulties, the management of SFPP C was taken over by SFPP A.

#### *Audit comments*

6. Audit found room for improvement in the approval process:

- (a) contrary to the EDB's established approval practice, SFPP A's application for use of the premises by SFPP B in December 2008 (together with two other LGS applications in the same batch) was only approved by the Permanent Secretary for Education. In accordance with EDB's established approval practice, applications for LGS land sites/premises should be approved by the Secretary for Education (see para. 2.3);
- (b) the change of the user of the premises from SFPP B operating sub-degree programmes to SFPP C operating undergraduate programmes in December 2011, albeit temporary, was also approved by the Permanent Secretary for Education. Given that the change of user of the premises is fundamental and significant, it would be advisable to refer the change to the Vetting Committee for advice; and
- (c) the application for further extension of the temporary use of the premises by SFPP C in January 2015 for a period of another three years was approved by a Deputy Secretary for Education. Again, despite the significant nature of the extension, no advice had been sought from the Committee.

In Audit's view, all applications for LGS land sites/premises, being valuable resources, should be approved by the Secretary for Education, and advice from the Vetting Committee should be sought in dealing with LGS matters of a significant nature.

### Case 1 (Cont'd)

7. For performance monitoring purpose, it is stipulated in the Service Agreement (see para. 2.3(a)) that LGS grantees are required to submit an Annual Progress Report to the EDB. The Report would contain information such as the academic programmes operated, the enrolment of students and the financial position of the grantee. As no legally binding agreements had been signed between SFPP C and the Government (see para. 3 above), SFPP C was not required to submit and had not submitted any such Reports.

8. Audit considers that the EDB needs to:

- (a) take measures to ensure that applications for LGS land sites/premises are duly approved by the Secretary for Education;
- (b) in dealing with LGS matters of a significant nature (e.g. change of user of LGS land sites/premises), seek advice from the Vetting Committee and seek approval by the Secretary for Education where necessary; and
- (c) in cases involving a change of user, enter into legally binding agreements with the new user.

*Source: Audit analysis of EDB records*

*Note: According to the EDB, to better protect the Government's interest, for successful LGS/SLS applications of SFPPs operating under the aegis of UGC-funded universities, the Government will grant the land sites/premises/loans to the universities for use by the SFPPs and enter into legally binding agreements with the universities (instead of the SFPPs). Furthermore, some of the SFPPs of the UGC-funded universities are not separate legal entities and could not enter into legal agreements with the Government.*

## Audit recommendations

**2.6 Audit has recommended that the Secretary for Education should:**

- (a) take measures to ensure that applications for LGS land sites/premises are duly approved by the Secretary for Education;**

- (b) **in dealing with LGS matters of a significant nature (e.g. change of user of LGS land sites/premises), seek advice from the Vetting Committee and seek approval by the Secretary for Education where necessary; and**
- (c) **in LGS cases involving a change of user, enter into legally binding agreements with the new user.**

### **Response from the Government**

2.7 The Secretary for Education agrees with the audit recommendations. He has said that:

- (a) the EDB will seek advice from the Vetting Committee where necessary in dealing with LGS matters of a significant nature (e.g. change of user of LGS land sites/premises), and ensure that applications for LGS land sites/premises are duly approved by the Secretary for Education; and
- (b) in LGS cases involving a change of user, the EDB will consider entering into legally binding agreements with the new user where appropriate.

### **Renewal of LGS grants**

2.8 In applying for renewal of a grant of land site/premises under the LGS, the grantee is required to:

- (a) apply to the EDB for the renewal at least 15 months before the expiry of the existing Service Agreement;
- (b) submit a new Educational Development Proposal to the satisfaction of the EDB; and
- (c) submit a performance report to the EDB covering the period of the Service Agreement to provide information such as the number of student enrolment and the academic programmes operated.

### *Need to promulgate guidelines on seeking advice from the Vetting Committee*

2.9 As at 31 July 2016, of the 17 land sites/premises granted, the grants of five land sites had expired. Prior to the expiry of the grants, the grantees had applied for renewal of the grants. Audit examined the renewal applications of these five grants and found that under the existing practice, renewal applications were only assessed and approved by a responsible Principal Assistant Secretary of the EDB. In Audit's view, this is not entirely satisfactory. To ensure that land sites/premises, which are a valuable resource, are granted to the most suitable institutions, there might be circumstances under which the advice of the Vetting Committee needs to be sought in assessing renewal applications to ensure that renewals are properly granted. For example:

- (a) in a renewal application of November 2014, the SFPP's actual student enrolment of the locally-accredited sub-degree programmes (Note 13) showed a trend of falling short of the expected number in recent years (see Table 2). The responsible Principal Assistant Secretary approved the renewal application on the grounds that the EDB was satisfied with the new Educational Development Proposal submitted by the SFPP. In this renewal case, advice from the Vetting Committee could have been sought before approving the renewal application; and

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**Note 13:** *In addition to the locally-accredited sub-degree programmes, the EDB also approved the SFPP to operate thereat other programmes which were not considered compulsory.*

**Table 2**

**Variance between expected and actual number  
of student enrolment of the locally-accredited  
sub-degree programmes of an SFPP**

<b>Year</b>	<b>No. of student enrolment</b>		
	<b>Expected</b>	<b>Actual</b>	<b>Shortfall</b>
2009/10	1,434	1,172	262 (18%)
2010/11	1,434	1,626	– 192 (– 13%)
2011/12	1,434	1,295	139 (10%)
2012/13	1,434	1,283	151 (11%)
2013/14	1,434	1,192	242 (17%)
2014/15	1,434	1,039	395 (28%)

*Source: EDB records*

*Remarks: The SFPP commenced operation in 2009/10.*

- (b) in another renewal application of August 2013, the Lands Department identified breaches of the Conditions of Grant by the SFPP whereby the gross floor area (16,663 square metres) of the premises exceeded the allowable area (15,577 square metres) as stated in the Conditions of Grant by 1,086 square metres and there was under-provision of car park spaces. The SFPP therefore proposed a lease modification. The responsible Principal Assistant Secretary supported the proposal. As at 31 July 2016, the Lands Department was reviewing the case. In this renewal case, advice from the Vetting Committee could have been sought before giving the support.

### **Audit recommendations**

- 2.10      **Audit has *recommended* that the Secretary for Education should:**
- (a)      **issue guidelines promulgating circumstances under which the advice of the Vetting Committee should be sought in assessing LGS renewal applications to ensure that renewals are properly granted; and**
  - (b)      **seek the advice of the Vetting Committee in assessing LGS renewal applications where circumstances warrant.**

### **Response from the Government**

2.11      The Secretary for Education agrees with the audit recommendations. He has said that the EDB will prepare guidelines specifying circumstances under which the advice of the Vetting Committee should be sought in assessing renewal applications and seek the advice of the Vetting Committee on such cases.

### **Unspent SLS loan balances**

2.12      Prior to July 2006, there was no provision in the SLS Loan Agreement that the borrower was required to return, after the completion of a project (e.g. for refurbishment of a premises), unspent loan balance to the Government in a lump sum. Borrowers were only required to continue to repay their loans by instalments until the full amounts of the loans were settled. In July 2006, the EDB revised the Loan Agreement to require the borrowers to repay the Government on demand, in a lump sum, unspent loan balances two years after the final drawdown of the loans.

#### ***Need to ascertain the actual project costs***

2.13      To identify SLS loans with unspent balances, the EDB compares the amount of loan granted with the actual project cost, which is required to be reported by borrowers in their Annual Progress Reports (see para. 2.3). As at 31 March 2016, of the 26 outstanding SLS loans, 18 Loan Agreements were executed in or after July 2006 and therefore were required to return any unspent loan balances. Audit examination of these 18 loans revealed that:

## **Administration of Land Grant Scheme and Start-up Loan Scheme**

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- (a) the EDB identified unspent loan balance in one of 16 loans. The borrower returned the unspent amount of \$8.8 million to the Government in May 2016. For the other 15 loans, the EDB did not identify any unspent loan balances; and
- (b) in the remaining two loans, the EDB could not identify whether there were any unspent loan balances due to the following reasons:
  - (i) in one loan amounting to \$32 million, although the borrower signed the Loan Agreement after July 2006 (in February 2007), the borrower was not required to submit the Annual Progress Report (the requirement for the submission of the Report for SLS loans has only been added since May 2012). The EDB, therefore, was unable to ascertain whether there was any unspent loan balance; and
  - (ii) in the other loan amounting to \$40 million for the refurbishment of a premises granted under the LGS, as the Government did not enter into any legally binding agreements with SFPP C (see para. 7 of Case 1 in para. 2.5), SFPP C was not required to submit the Annual Progress Report and therefore the EDB could not ascertain the actual cost of the project to identify whether there was any unspent loan balance.

### ***Need to ensure the accuracy of reported project costs***

2.14 The EDB mainly relies on the project costs reported in the Annual Progress Reports provided by borrowers to identify unspent loan balances. The EDB did not require borrowers to submit certified accounts for their projects. It was, therefore, uncertain whether the project costs as reported in the Annual Progress Reports were accurate. In fact, Audit noted that in one SLS loan, the borrower reported that the project cost was \$3.8 million to the EDB. However, eight months later, upon EDB's follow-up enquiries, the borrower informed the EDB that the cost should be \$2 million.

## **Audit recommendations**

- 2.15      **Audit has *recommended* that the Secretary for Education should:**
- (a)      **for all SLS borrowers, ascertain whether there are any unspent loan balances that should be returned to the Government; and**
  - (b)      **take measures to ensure the accuracy of the project costs reported by SLS borrowers.**

## **Response from the Government**

2.16      The Secretary for Education agrees with the audit recommendations. He has said that:

- (a)      all SLS borrowers have been requested to submit final accounts (either certified by the borrowing institutions or their project consultants) in relation to the concerned construction/renovation projects upon completion so as to ascertain whether there are any unspent loan balances. The two SLS borrowers as quoted by Audit under paragraph 2.13(b) had already submitted to the EDB in August and September 2016 the final accounts in relation to their concerned construction/renovation projects. The EDB has ascertained the actual total project costs for comparison with the loan amounts and confirmed that there were no unspent loan balances; and
- (b)      while SLS borrowers should ensure that the information provided under the Annual Progress Reports/final accounts is true and accurate, and the EDB has been following up on suspected cases (the case quoted under paragraph 2.14 is an example), the EDB will take further measures to ensure the accuracy of the project costs reported by SLS borrowers.



## **PART 3: ADMINISTRATION OF SELF-FINANCING POST-SECONDARY EDUCATION FUND AND MATCHING GRANT SCHEME**

3.1 This PART examines the SPEF and the MGS. Audit found room for improvement in the following areas:

- (a) administration of the SPEF (paras. 3.2 to 3.24); and
- (b) administration of the MGS (paras. 3.25 to 3.34).

### **Administration of the SPEF**

3.2 The SPEF was set up under the Permanent Secretary for Education Incorporated (see Note 1 in Table 1 in para. 1.6). The SPEF Steering Committee (Note 14) advises the Secretary for Education on the overall strategy for making use of the SPEF to enhance the quality of self-financing post-secondary education. The Committee also advises him on the strategy, scope and parameters of the two funding schemes that operate under the SPEF:

- (a) *the Quality Enhancement Support Scheme (QESS)*. The QESS provides funding support for SFPPs' non-works projects aiming at enhancing the quality of self-financing post-secondary education. Three bodies related to the self-financing post-secondary education sector, namely the HKCAAVQ, the Joint Quality Review Committee (JQRC — see para. 4.9(c)) and the Federation for Self-financing Tertiary Education (FSTE — Note 15) are also eligible to apply for QESS funding; and

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**Note 14:** *As at 1 September 2016, the SPEF Steering Committee comprised one non-official chairman, six non-official members and one official member (the Principal Assistant Secretary (Further Education) of the EDB).*

**Note 15:** *The FSTE was established in 1994. It is a coalition of non-profit making self-financing tertiary education institutions in Hong Kong. It aims to advance the quality and standards of sub-degree and degree education as well as continuing and professional studies in Hong Kong.*

- (b) *the Self-financing Post-secondary Scholarship Scheme (SPSS).* The SPSS offers scholarships/awards to outstanding local and non-local students pursuing full-time locally-accredited self-financing sub-degree or undergraduate programmes at SFPPs.

### ***Applications for QESS funding***

3.3 In October or November every year, the EDB invites the SFPPs, the HKCAAVQ, the JQRC and the FSTE to apply for QESS funding. From the inception of the QESS in November 2012, four rounds of applications had been invited. The latest round was carried out in October 2015. The QESS sub-committee comprising members drawn from the SPEF Steering Committee assesses applications and makes recommendations to the Permanent Secretary for Education for funding approval.

3.4 The QESS funds three types of projects:

- (a) *theme-based projects.* For these projects, themes (e.g. initiatives for improving teaching methodology and learning environment for students with special educational needs or non-Chinese speaking students) are set by the SPEF Steering Committee in each round of application. To achieve cost-effectiveness and to benefit the self-financing post-secondary education sector as far as possible, theme-based projects are normally carried out by more than one SFPP (for example, the development of an online collection-sharing and information discovery system by five SFPPs that enabled their faculty members and students to find and access library and e-book collections through a one-stop search interface). For each successful application, a maximum of \$30 million may be granted for each academic year up to three years. A project should normally be completed within three years from the date of receipt of the grant;

## Administration of Self-financing Post-secondary Education Fund and Matching Grant Scheme

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- (b) *non-theme-based projects.* These projects should fall within the scope of the QESS (Note 16). For each successful application, a maximum of \$2 million (for individual project) or \$4 million (for joint/sector-wide project) may be granted. A project should normally be completed within three years from the date of receipt of the grant; and
- (c) *industrial attachment projects.* Funding for industrial attachment projects was introduced in January 2016. These projects aim to source more internship opportunities for students or to enhance relevant institutional support to students. There is no limit on the amount of grant. Successful projects may be funded for up to three years.

3.5 From the inception of the QESS in November 2012 to March 2016, three rounds of applications (from 2012/13 to 2014/15) were completed. Of the 93 applications, 30 projects amounting to \$136 million were approved (see Table 3).

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**Note 16:** *The scope of the QESS includes: (a) improvement to the overall learning experience and language proficiency of students; (b) development and improvement of teaching methodology and practices, including development of assessment strategies; (c) strengthening and improvement of quality assurance and related measures; and (d) enhancing student support and career guidance services, including support for students with special educational needs and non-Chinese speaking students.*

**Administration of Self-financing Post-secondary  
Education Fund and Matching Grant Scheme**

**Table 3**  
**Approved QESS projects**  
**(31 March 2016)**

Grantee	No. of projects (Amount of funding granted)		
	Theme-based projects	Non-theme- based projects	Total
SFPPs operating under the aegis of the eight UGC-funded universities (see para. 1.4(a))	Nil	Nil	Nil
SFPPs registered under the Post Secondary Colleges Ordinance (see para. 1.4(b))	Nil	15 (\$26 million)	15 (\$26 million)
SFPPs registered under the Education Ordinance (see para. 1.4(c))	Nil	2 (\$3 million)	2 (\$3 million)
SFPPs that are statutory institutions or their subsidiaries (see para. 1.4(d))	Nil	3 (\$5 million)	3 (\$5 million)
SFPP providing self-financing locally-accredited non-local undergraduate programmes (see para. 1.4(e))	Nil	Nil	Nil
Joint institution projects (see para. 3.4(a))	4 (\$82 million)	Nil	4 (\$82 million)
HKCAAVQ, JQRC and FSTE (see para. 3.2(a))	Nil	6 (\$20 million)	6 (\$20 million)
Total	4 (\$82 million)	26 (\$54 million)	30 (\$136 million)

*Source: EDB records*

*Remarks: As funding for industrial attachment projects was only introduced in January 2016, no such projects had been approved as at 31 March 2016.*

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***Need to encourage applications from more SFPPs***

3.6 Since 2012/13, the EDB has provided briefing sessions to SFPPs to facilitate their preparation of QESS applications. With effect from 2015/16, successful applicants have been invited to share their experience during such sessions. Audit analysed the number of QESS applications received in the period from 2012/13 to 2015/16. Audit found that the number dropped from 39 applications in 2012/13 to 28 in 2014/15 but rose to 32 (excluding 12 applications for industrial attachment projects introduced in January 2016) in 2015/16 (see Table 4).

**Table 4**  
**Applications for QESS funding**  
**(2012/13 to 2015/16)**

Year	No. of applications (Amount of funding applied)			
	Theme-based projects	Non-theme-based projects	Industrial attachment projects	Total
2012/13	5 (\$91 million)	34 (\$70 million)	N.A. (Note)	39 (\$161 million)
2013/14	2 (\$95 million)	24 (\$51 million)		26 (\$146 million)
2014/15	4 (\$81 million)	24 (\$48 million)		28 (\$129 million)
2015/16	4 (\$110 million)	28 (\$58 million)	12 (\$78 million)	44 (\$246 million)
Total	15 (\$377 million)	110 (\$227 million)	12 (\$78 million)	137 (\$682 million)

*Source: EDB records*

*Note: Industrial attachment projects were introduced in January 2016 (see para. 3.4(c)).*

3.7 In response to Audit's enquiry, the EDB informed Audit that application for the QESS is completely voluntary and the EDB has been actively promoting the QESS through talks, letters and press release, etc. Before 2015, most SFPPs under the aegis of UGC-funded universities did not apply mainly because the QESS required them to sign an undertaking to join the external quality assurance audit on their sub-degree operations (see para. 4.12(a)). Since 2015/16, the EDB has removed such an undertaking requirement because the universities generally agreed to subject their sub-degree operations to periodic external quality assurance audits (see para. 4.13). Six SFPPs under the aegis of the universities submitted applications in 2015/16. Nevertheless, Audit noted that from 2012/13 to 2015/16, 11 (28%) of the 40 SFPPs had never submitted QESS applications (Note 17). To enhance the quality of self-financing post-secondary education, Audit considers that the EDB needs to encourage applications from the SFPPs that had not submitted applications.

***Need to provide support to unsuccessful applicants***

3.8 In the period from 2012/13 to 2014/15, of the 89 QESS applications (Note 18), 59 (66%) had not been successful (see Table 5 — Note 19). Audit noted that in 2012/13, the EDB had notified unsuccessful applicants the areas in which improvements could be made. However, for the subsequent years, the EDB only informed the unsuccessful applicants that their applications were not successful. Audit considers that the EDB needs to provide feedback to unsuccessful QESS applicants on ways to improve so as to facilitate their future applications.

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**Note 17:** *Of the 11 SFPPs, two started operation in 2014/15 and one in 2015/16.*

**Note 18:** *The 89 QESS applications excluded three applications that were withdrawn before the QESS sub-committee's assessment and one approved application that was subsequently withdrawn.*

**Note 19:** *Up to 31 July 2016, decisions on 2015/16 QESS applications had not yet been finalised.*

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**Table 5**

**Successful and unsuccessful QESS applications  
(2012/13 to 2014/15)**

<b>Year</b>	<b>Successful applications</b>		<b>Unsuccessful applications</b>	
	<b>No.</b>	<b>Percentage</b>	<b>No.</b>	<b>Percentage</b>
2012/13	11	30%	26	70%
2013/14	11	44%	14	56%
2014/15	8	30%	19	70%
Overall	30	34%	59	66%

*Source: EDB records*

***Monitoring of QESS projects***

3.9 According to the QESS application guidelines and project agreements, grantees of QESS funding are required to submit the following to the EDB:

- (a) progress reports every six months. The progress report should include information on progress of project implementation and attainment of project milestones and deliverables;
- (b) a final evaluation report within three months after the project completion. The final evaluation report should include information on project outcomes and deliverables, and self-evaluation of project effectiveness; and
- (c) audited accounts of the project within three months after the project completion.

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***Need to ensure timely submission of progress reports  
and final evaluation reports***

3.10 As at 31 May 2016, of the 30 approved QESS projects (see Table 5 in para. 3.8), two projects had just commenced and one project had not yet commenced. Therefore, their progress reports were not yet due. For the remaining 27 projects, 74 progress reports and six final evaluation reports were due for submission. Audit found that there were delays (see Table 6) in the submission of:

- (a) 40 (54%) of the 74 progress reports. The delays ranged from one day to 196 days (averaging 37 days); and
- (b) four (67%) of the six final evaluation reports. The delays ranged from four days to 92 days (averaging 40 days).

**Table 6**

**Submission of progress reports and final evaluation reports by QESS grantees  
(31 May 2016)**

Delay	Progress report		Final evaluation report	
	No.	Percentage	No.	Percentage
No delay	34	46 %	2	33 %
≤ 1 month	24	32 %	2	33 %
> 1 month to 3 months	13	18 %	1	17 %
> 3 months to 6 months	2	3 %	1	17 %
> 6 months to 12 months	1	1 %	N.A.	N.A.
Total	74	100 %	6	100 %

*Source: Audit analysis of EDB records*

3.11 According to the EDB, some grantees submitted their reports late because they chose to submit after achieving the relevant project milestones. For proper and timely monitoring of QESS projects, the EDB needs to take measures to ensure that progress reports and final evaluation reports are submitted by grantees in accordance with the QESS application guidelines and project agreements.



***Need to enhance the quality of progress reports  
and final evaluation reports***

3.12 Audit further examined 10 of the 27 projects (see para. 3.10) involving 27 progress reports and five final evaluation reports. Audit noted that 22 (81%) of the 27 progress reports and all the three final evaluation reports required resubmission (the other two final evaluation reports were overdue and not yet received up to 31 May 2016).

3.13 Resubmission of progress reports and final evaluation reports increases the workload of grantees and the EDB. Furthermore, it delays the disbursement of QESS funds to grantees because apart from the upfront payment made upon acceptance of grants, subsequent funds are only disbursed after the reports have been accepted by the EDB. While recognising the EDB's efforts in ensuring up-to-standard reports, Audit considers that the EDB needs to take measures to help grantees improve the quality of their reports to minimise rework (e.g. by issuing guidelines and organising workshops for them).

***Unspent funds not returned in a timely manner***

3.14 According to the QESS application guidelines, grantees should return unspent QESS funds to the EDB within three months after the completion of projects. As at 31 May 2016, of the 30 approved QESS projects, four were completed with the final evaluation reports and audited accounts submitted to the EDB. Of these four projects, two (50%) had unspent funds of \$65,871 and \$173,404 respectively. Audit noted that the return of unspent fund (\$65,871) by the grantee of one of the projects was delayed. The delay was 140 days. The EDB needs to take measures to ensure that grantees return unspent QESS funds in a timely manner (e.g. issuing reminders to the grantees).

***Administration of the SPSS***

3.15 The SPSS aims to give recognition to students with outstanding academic performance or achievements/talents in non-academic fields. It also aims to attract outstanding students to pursue studies in self-financing post-secondary education programmes. Every year, the EDB invites SFPPs to nominate students for SPSS scholarships/awards. Nominations are considered by a sub-committee for

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SPSS comprising members of the SPEF Steering Committee and submitted to the Permanent Secretary for Education for funding approval based on the sub-committee's recommendations. As at 31 March 2016, some 16,100 scholarships/awards amounting to \$308 million (averaging \$19,000 per scholarship/award) had been granted.

3.16 Under the SPSS, there are five kinds of scholarships/awards:

- (a) ***Outstanding Performance Scholarship.*** This scholarship has been introduced since 2011/12 for students with outstanding academic achievements;
- (b) ***Best Progress Award.*** This award has been introduced since 2011/12 to encourage and recognise students with significant academic progress and improvement;
- (c) ***Talent Development Scholarship.*** This scholarship has been provided since 2012/13 to students who have demonstrated achievements or talent in non-academic fields (e.g. music and performing arts, sports and games);
- (d) ***Reaching Out Award (ROA).*** This award has been introduced since 2012/13 to support meritorious students who are nominated by SFPPs to participate in outreaching activities conducted outside Hong Kong. Activities include participation in learning, internship or service programmes, or national, regional and international events and competitions; and
- (e) ***Endeavour Scholarship.*** This scholarship has been introduced since 2013/14 to give recognition to deserving post-secondary students with special educational needs in their pursuit of excellence in academic and other fields.

3.17 For the Outstanding Performance Scholarship, the amounts of scholarships for local and non-local students pursuing an undergraduate degree are set at \$40,000 and \$80,000 respectively, while the amount is set at \$30,000 for both local and non-local students pursuing a sub-degree. For the other four Scholarships/Awards, the amount is set at \$10,000 for both local and non-local students pursuing an undergraduate or sub-degree programme.

***Need to review periodically the amounts and attractiveness  
of scholarships/awards***

3.18 In the period from 2011 (year of inception of the SPSS) to 2015, the Composite Consumer Price Index rose by 17%. Audit, however, found that since the introduction of the various Scholarships/Awards, the EDB has not conducted any reviews on the amounts of Scholarships/Awards. The SPSS aims to attract outstanding students to pursue studies in self-financing post-secondary education programmes (see para. 3.15) and enrolment of students in the programmes has been on the decrease (see para. 4.23). In order to maintain the attractiveness of the Scholarships/Awards, the EDB needs to review periodically the amounts and the attractiveness of the Scholarships/Awards. In response to Audit's enquiry, the EDB said that there has been an established mechanism for reviewing the amounts of SPSS Scholarships/Awards, i.e. by consulting the SPEF Steering Committee. It had consulted the SPEF Steering Committee on the amounts of SPSS Scholarships/Awards at the committee meeting on 2 September 2016 and members considered that the status quo should be maintained. The level of scholarship monies was agreed by the SPEF Steering Committee with reference to the investment returns of the Fund and amount of scholarships in other similar government funds.

***Need to review the reasons for failing to fulfil ROA requirements***

3.19 The amounts of Scholarships/Awards are disbursed by the EDB to SFIs/SFPPs, which will then be paid to the students. Audit noted that there were cases where the amounts could not be paid to the students because they had left the SFIs/SFPPs and could not be contacted, or the students had not participated in outreaching activities outside Hong Kong as required by the ROA. The unpaid amounts were retained by the SFIs/SFPPs and would be used to offset the amounts of Scholarships/Awards to be disbursed by the EDB to the SFIs/SFPPs in the next SPSS funding year.

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3.20 The unpaid amounts retained by SFIs/SFPPs had increased by 466%, from \$680,000 in 2012/13 to \$3,850,000 in 2014/15. Audit conducted an analysis of the unpaid amounts and found that of the \$3,850,000, \$3,750,000 (97%) (Note 20) was designated for awards to 375 (23% of the 1,635 awardees) students under the ROA but was retained by SFIs/SFPPs as the students had not fulfilled the aforesaid participation requirement. Audit considers that the EDB needs to:

- (a) review the reasons why so many students had not participated in the outreaching activities; and
- (b) in the light of the results of the review, instigate appropriate action to address the issue.

### ***Need to monitor the investment returns of the SPEF and endeavour to achieve the target investment return***

3.21 Since the establishment of the SPEF in August 2011, the Government has injected \$3.52 billion into the Fund (Note 21). This amount is used as capital to generate investment returns to provide on-going and sustainable funding for the operation of the QESS and the SPSS. Investment plans are formulated by the SPEF Investment Committee (Note 22) and approved by the Permanent Secretary for Education. A long-term target investment return of 5% has been set for the SPEF.

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**Note 20:** *The remaining \$100,000 (3% of the amount of \$3,850,000) comprised scholarships of \$60,000 and \$40,000 to be granted to students under the Outstanding Performance Scholarship and the Talent Development Scholarship respectively.*

**Note 21:** *The Government injected \$2.5 billion in November 2011 followed by \$1 billion in August 2012 and \$20 million in August 2013.*

**Note 22:** *The SPEF Investment Committee comprises the Secretary for Education or his representative as the chairman, three non-official members and two official members (the Permanent Secretary for Education or her representative, and the Director of Accounting Services or his representative). It is responsible for setting the policies for and monitoring the investment of the SPEF, and advising on the appointment of investment managers.*

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3.22 Audit noted that for the four years from the establishment of the SPEF in August 2011 to August 2015 (financial year ends on 31 August), the annual return of the SPEF ranged from  $-2.5\%$  to  $8.9\%$ . The annualised return for the four-year period was  $2.1\%$ , which was lower than the long-term target investment return of  $5\%$  (see Table 7). Moreover, as at 31 August 2015, after cumulative grant payments of \$289 million since establishment, the fund balance of the SPEF decreased by \$11 million as compared to the injected capital. According to the EDB:

- (a) the decrease was mainly due to changes in the fair value of the financial assets;
- (b) while the long-term target of investment return is set at  $5\%$ , the actual investment performance in any particular year would depend much on the conditions of investment markets;
- (c) there has been an established mechanism for reviewing the investment strategy of the SPEF and monitoring the investment of the Fund, i.e. by consulting the SPEF Investment Committee from time to time; and
- (d) changes had been made to the investment strategy in the past by taking into account the latest circumstances.

Audit considers that the EDB needs to continue to monitor the investment returns of the SPEF and endeavour to achieve the target investment return as far as possible.

**Table 7**

**Achievement of target rate of investment return (5%) by the SPEF  
(August 2011 to August 2015)**

<b>Year</b>	<b>Investment return</b>	<b>Achievement of target</b>
August 2011 to August 2012	1.1%	No
September 2012 to August 2013	1.2%	No
September 2013 to August 2014	8.9%	Yes
September 2014 to August 2015	-2.5%	No
Annualised return	2.1%	No

*Source: Audit analysis of EDB records*

*Remarks: Two equity investment managers were appointed in June 2013 and one bond investment manager was appointed in August 2014. Prior to the appointments of the managers in June 2013, the seed money of the SPEF was placed in bank deposits.*

## **Audit recommendations**

**3.23 Audit has recommended that the Secretary for Education should:**

- (a) **ascertain why some SFPPs have not participated in the QESS;**
- (b) **take measures to encourage SFPPs to apply for QESS funding;**
- (c) **provide feedback to unsuccessful QESS applicants on ways to improve so as to facilitate their future applications;**
- (d) **take measures to ensure that progress reports and final evaluation reports are submitted by QESS grantees in accordance with the QESS application guidelines and project agreements;**
- (e) **take measures to help QESS grantees improve the quality of their progress reports and final evaluation reports;**

- (f) **take measures to ensure that grantees return unspent QESS funds in a timely manner;**
- (g) **review periodically the amounts of SPSS Scholarships/Awards to maintain the attractiveness of the Scholarships/Awards;**
- (h) **review why so many students had not participated in the required outreaching activities of the ROA;**
- (i) **in the light of the results of the review, instigate appropriate action to address the issue; and**
- (j) **continue to monitor the investment returns of the SPEF and endeavour to achieve the target rate of return.**

## **Response from the Government**

3.24 The Secretary for Education agrees with the audit recommendations. He has said that:

- (a) while students of non-participating SFPPs may also benefit from projects approved for other SFPPs, in particular those with the same mother SFI, the EDB will communicate with SFPPs about their views on participation in the QESS, and will continue to actively promote the QESS through various means;
- (b) the EDB will indicate the areas in which improvements could be made to all unsuccessful QESS applicants to supplement the current approach of direct conversation between both parties;
- (c) the EDB will continue to issue reminders to QESS grantees for late submissions of progress reports and final evaluation reports, and follow up on delays in implementation progress while being mindful that timeliness in submission of reports should not compromise proper execution of the approved projects to achieve the agreed milestones;

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- (d) while the EDB has been closely communicating with QESS grantees individually to ensure the progress reports and final evaluation reports meet the relevant requirements given the varying contents and scopes of approved projects, the EDB will cover the submission of reports in the annual briefing on the QESS for SFPPs;
- (e) although the QESS guidelines specify that unspent funds have to be returned to the EDB within three months after project completion, i.e. the same deadline for submitting final evaluation reports, it is the practice that refund cheques for unspent QESS funds will not be processed immediately upon receipt until the amounts have been verified and confirmed after acceptance of the final evaluation reports by the EDB. The EDB has revised the QESS guidelines in October 2016 to the effect that any unspent funds should be returned within one month after acceptance of the final evaluation reports;
- (f) the EDB will continue to consult the SPEF Steering Committee from time to time on the amount of SPSS Scholarships/Awards alongside other parameters of the SPSS;
- (g) the EDB will look into ways to work with SFPPs so that they would assist their awardees to complete the activities, while noting that outreaching activities to be completed by awardees of the ROA are planned in advance and subject to changes as allowed upon request under the SPSS guidelines; and
- (h) the EDB will continue to follow the established mechanism to consult the SPEF Investment Committee from time to time on reviewing the investment strategy for the SPEF, including the target rate of return.



## **Administration of the MGS**

3.25 The MGS is not a recurrent exercise. Since July 2003, six rounds of MGS funding have been launched. Through the six rounds, a total of \$7.4 billion had been granted to 17 institutions (see Note 4 in Table 1 in para. 1.6) to match against a total of \$14.8 billion of private donations secured by the institutions. The latest round (the sixth round) of funding was conducted from August 2012 to July 2014. In the latest round, the Government granted \$1 for every \$1 of private donation, up to \$60 million. Beyond the \$60 million, the Government granted \$1 for every \$2 of private donation, subject to a maximum of \$600 million of grant per institution.

### ***Need to enhance assistance to institutions other than the UGC-funded universities***

3.26 In May 2006, in deliberating the third round of MGS funding, members of the Panel on Education of the LegCo raised concern that reputable institutions with a long history were more capable of raising funds than those with a shorter history and urged the Government to ensure a fair distribution of MGS grants among institutions. The EDB responded that fund-raising capabilities were not related to the size and age of the institutions but would depend on the support from the stakeholders and the community. The EDB had instigated measures aiming at giving the smaller and younger institutions a better chance of securing MGS grants. The measures comprised imposing a “ceiling” and a “floor” for the MGS grants. “Ceiling” was the upper limit of grant receivable by an institution. “Floor” was the minimum amount of grant set aside for matching by an institution for a stipulated period beyond which the unmatched amount would be opened up for other institutions on a first-come-first-served basis. For the sixth round of MGS funding, the “ceiling” and the “floor” were set at \$600 million and \$60 million respectively.

3.27 Audit analysed the private donations and the MGS grants received by the institutions in the sixth round of MGS funding. Audit found that, despite the measures, the majority of the MGS grants were allocated to the eight UGC-funded universities (see Table 8). There is a need for the EDB to explore more effective ways to assist other institutions to secure MGS grants, if a new round of MGS funding is launched in future.

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**Table 8**

**Private donations and MGS grants received by institutions  
(Sixth round of MGS funding)**

Institutions	Private donation (\$ million)	MGS grant		
		Publicly- funded operations (\$ million)	Self- financing operations (\$ million)	Total (\$ million)
Eight UGC-funded universities	5,012 (90%)	2,036	18	2,054 (82%)
Nine non-UGC-funded institutions (see para. 1.5(f) — Note)	529 (10%)	75	369	444 (18%)
Total	5,539 (100%)	2,500 (100%)		

*Source: UGC records*

*Note: The nine institutions comprised the Caritas Institute of Higher Education, the Centennial College, the Chu Hai College of Higher Education, the Hang Seng Management College, The Hong Kong Academy for Performing Arts, the Hong Kong Shue Yan University, The Open University of Hong Kong, the Tung Wah College and the Vocational Training Council.*

*Remarks: Figures may not add up due to rounding.*

***Need to improve the monitoring of MGS grants***

3.28 For accountability and transparency purposes, in seeking approval for the sixth round of MGS funding by the Finance Committee in June 2012, the EDB informed the Committee that:

- (a) institutions receiving MGS grants were required to disclose to the UGC information on private donations, and the use of MGS grants and private donations. For publicly-funded institutions, private donations and MGS grants for publicly-funded and self-financing operations should be segregated for accounting purpose;

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- (b) the use of private donations and MGS grants would be subject to audit assurance. On an annual basis, auditors would confirm to the UGC in their auditors' reports that the conditions of the MGS grants were met; and
- (c) institutions would ensure the cost-effectiveness of the MGS grants to be spent.

Audit found room for improvement in complying with the above requirements by institutions, as detailed in paragraphs 3.29 and 3.30.

**3.29 *Submission of auditors' reports.*** Audit examined the submission of auditors' reports for 2014/15 by the 17 institutions (see para. 3.25). Audit found that, as at 31 July 2016, 15 institutions had submitted auditors' reports certifying that the institutions had complied with the conditions of the MGS grants. However, the auditors' reports of two SFIs remained outstanding (the auditor's report of one SFI was subsequently submitted in August 2016). In addition, Audit noted that the MGS operating guide has not specified a deadline for submitting auditors' reports by institutions. The UGC needs to follow up with the SFI concerned for submission of the auditor's report. Furthermore, it needs to specify a deadline for the submission if a new round of MGS funding is launched in future.

**3.30 *Cost-effectiveness of MGS grants.*** Institutions receiving MGS grants would need to ensure the cost-effectiveness of the grants to be spent (see para. 3.28(c)). Audit, however, noted that there was no mechanism in place to verify that the institutions had done so. The UGC, in collaboration with the EDB, needs to establish a verification mechanism to ensure that MGS grants are spent by institutions in a cost-effective manner if a new round of MGS funding is launched.

### **Audit recommendations**

**3.31** Audit has *recommended* that the Secretary for Education should explore more effective ways to assist institutions other than the UGC-funded universities to secure MGS grants in future rounds of MGS funding, if launched.

**3.32      Audit has *recommended* that the Secretary-General, University Grants Committee should:**

- (a)      follow up with the SFI that has not submitted the auditor's report; and**
- (b)      if a new round of MGS funding is launched, in collaboration with the Secretary for Education, specify a deadline for submission of auditors' reports and establish a mechanism to verify that MGS grants are spent by institutions in a cost-effective manner.**

## **Response from the Government**

**3.33      The Secretary for Education agrees with the audit recommendations.**

**3.34      The Secretary-General, University Grants Committee agrees with the audit recommendations. He has said that:**

- (a)      the UGC Secretariat has followed up with the SFI which has not yet submitted the auditor's report, and was advised that assurance reports for the years ended 31 August 2015 and 2016 would be ready for submission in December 2016; and**
- (b)      the role of the UGC Secretariat in the MGS is to assist the EDB in administering the Scheme, which mainly includes processing of applications, handling disbursements of grants to participating institutions, etc. If a new round of MGS funding is launched and if invited by the EDB, the UGC Secretariat will continue to assist in administering the Scheme in accordance with the rules and guidelines drawn up by the EDB, including following up on the submission of auditors' reports by participating institutions in accordance with prescribed deadlines.**

## PART 4: WAY FORWARD

4.1 This PART examines the way forward for the government assistance schemes for self-financing post-secondary education sector.

### Latest development of the self-financing post-secondary education sector

#### *Implementation of the Code of Good Practices on Governance and Quality Assurance*

4.2 In a panel paper submitted by the EDB to the LegCo Panel on Education in June 2015, it was stated that as the Government has implemented assistance schemes to support the healthy and sustainable development of the self-financing post-secondary education sector, there is an expectation in the community for SFIs to be transparent and accountable to the public. Based on this rationale, the Committee of Self-financing Post-secondary Education (CSPE — Note 23) was given the mandate to develop the Code of Good Practices on Governance and Quality Assurance (Code of Good Practices) for self-financing post-secondary education sector. As the SFIs do not receive recurrent subvention from the Government save for the funding provided by the assistance schemes, in developing the Code of Good Practices, the focus was placed on safeguarding quality assurance, good governance and the interest of students.

4.3 In early June 2015, the Code of Good Practices was developed by the CSPE and submitted to the EDB for consideration. The Code of Good Practices contained a total of 27 individual good practices covering the realms of institutional governance, programme design and delivery, and staff, other resources and student support. Examples of the good practices are as follows:

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**Note 23:** *In April 2012, the Government established the CSPE to advise the Government on the development of the self-financing post-secondary education sector from macro and strategic perspectives and serve as a platform for discussing strategic issues of common interest to the sector. As at 1 September 2016, the CSPE comprised a chairman, five non-official members and nine ex-officio members. Members mainly include representatives from the education sector, and one representative from each of the EDB, the HKCAAVQ and the UGC.*

## Way forward

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### *Institutional governance*

- (a) abstracts of the strategic and operational plans which contain high level expected goals and performance outcomes should be published periodically;
- (b) institutions should compile and publish annual reports containing, among others, a review of activities undertaken during the year and the performance of the institutions against their strategic and operational plans;
- (c) institutions should make available relevant financial information in a way that is transparent and accessible to current students and the general public;

### *Programme design and delivery*

- (d) institutions should publish outcomes of their quality assurance and programme reviews periodically in a manner that is clear and readily accessible to stakeholders such as staff, students and employers; and

### *Staff, other resources and student support*

- (e) institutions should publish annually information on staffing and learning and teaching facilities available to support programme delivery and student admission targets.

A complete list of the 27 good practices is available on the CSPE's website (<http://www.cspe.edu.hk/GetFile.aspx?databaseimageid=5250-0>).

4.4 In late June 2015, the Code of Good Practices developed by the CSPE was accepted by the EDB and promulgated by the CSPE for implementation by SFIs on a voluntary basis (as SFIs do not receive recurrent funding from the Government). Nevertheless, the CSPE and the EDB encourage SFIs to follow the Code of Good Practices and monitor the progress of implementation. As at 30 June 2016, the EDB has engaged the HKCAAVQ to conduct an implementation study of sector-wide compliance with the Code of Good Practices by the 28 SFIs (or 40 SFPPs — see para. 1.4).

*Need to encourage SFPPs to disclose information on their websites*

4.5 The Code of Good Practices aims to enhance transparency in operation and accountability of SFIs to the public. Many of the good practices set out in the Code stated that the SFIs should make available information to the students and the general public. For instance, it was stipulated in the Code that institutions should make available relevant financial information in a way that is transparent and accessible to current students and the general public. Nonetheless, the Code does not explain how the information should be made available. Audit considers that an effective way to make information available to the general public is to publish on the websites of the SFIs. In early August 2016, Audit checked whether the information stipulated in the aforesaid five good practices (see para. 4.3(a) to (e)) had been disclosed by the 40 SFPPs on their websites. Audit found that, while the information on staffing and facilities had been disclosed on most SFPPs' websites, less than one-fourth of the 40 SFPPs disclosed on their websites their strategic and operational plans, annual reports, financial information, and outcomes of quality assurance and programme reviews (see Table 9).

**Table 9**

**Disclosure of information stipulated in five good practices of the  
Code of Good Practices on 40 SFPPs' websites**

Good Practices	SFPP disclosing stipulated information on website		SFPP not disclosing stipulated information on website	
	Number	Percentage	Number	Percentage
Abstracts of the strategic and operational plans should be published periodically	7	18%	33	82%
Institutions should compile and publish annual reports	9	23%	31	77%
Institutions should make available financial information to current students and general public	8	20%	32	80%
Institutions should publish outcomes of their quality assurance and programme reviews	4	10%	36	90%
Institutions should publish information on staffing and learning and teaching facilities	39	98%	1	2%

*Source: Audit research of the websites of 40 SFPPs*



4.6 As mentioned in paragraph 4.4, the EDB has engaged the HKCAAVQ to conduct an implementation study of sector-wide compliance with the Code of Good Practices, which was expected to be completed in end 2016. In the study, the HKCAAVQ issues questionnaires, retrieves relevant documents/reports from the Companies Registry, conducts face-to-face interview, conducts online research, etc. to ascertain the extent that the Code has been implemented. The EDB needs to take into account the results of the implementation study and take measures to encourage more SFPPs to implement the Code of Good Practices. It also needs to monitor the progress of implementation. Furthermore, as the websites of the SFPPs are an important source where the public can access information on the SFPPs, Audit considers that the EDB needs to encourage the SFPPs to disclose on their websites the information stipulated in the Code of Good Practices as far as possible.

### ***The extent of information disclosure varied significantly***

4.7 To illustrate the information to be disclosed as stipulated in the Code of Good Practices, the EDB has appended a “Frequently Asked Questions” to the Code of Good Practices. However, Audit still found that the extent of information disclosure varied significantly. Some SFPPs disclosed more detailed information than others (see Figures 1 and 2).

Figure 1

Financial information disclosed by an SFPP on its website

Statements of comprehensive income AS AT 31ST MARCH 2015		
	Group	The University
	2015	2015
	\$'000	\$'000
<b>OPERATING ACTIVITIES</b>		
<b>OPERATING INCOME</b>		
Tuition fee income	777,749	777,749
Consultancy fee income	8,357	—
Miscellaneous income	15,371	14,052
<b>Total operating income</b>	<b>801,477</b>	<b>791,801</b>
<b>OPERATING EXPENDITURE</b>		
<b>Academic expenditure</b>		
Course materials	13,177	12,721
Tutors' costs	55,579	55,579
Direct student costs	24,917	24,681
Staff costs	290,805	290,805
General expenses	5,499	5,499
	<b>389,977</b>	<b>389,285</b>
<b>Administrative expenditure</b>		
Staff costs	225,117	223,741
General expenses	141,508	138,700
Depreciation charge	56,170	55,566
	<b>422,795</b>	<b>418,007</b>
<b>Total operating expenditure</b>	<b>812,772</b>	<b>807,292</b>
<b>OPERATING RESULT</b>	<b>(11,295)</b>	<b>(15,491)</b>

Source: SFPP's website

Figure 2

## Financial information disclosed by another SFPP on its website

<b>A summary of the consolidated operating income and expenditure in 2014-2015</b>	
<b>Income</b>	
Rental Income	2%
Matching Grant and Other Grants	4%
Donation Income	7%
Investment Return	12%
Tuition and Other Fees	75%
<b>Total</b>	<b>100%</b>
<b>Expenditure</b>	
Scholarships and Student Activities	3%
Other Activities	5%
Library, Computing and Supporting Services	8%
Management General	19%
Premises and Related Expenses	24%
Academic	41%
<b>Total</b>	<b>100%</b>

Source: SFPP's website

4.8 Audit considers that the EDB needs to provide more guidance (e.g. illustrative examples) to SFPPs to help them enhance the transparency and comparability of their information disclosure.

### ***Establishment of a single quality assurance body***

4.9 There are three quality assurance bodies responsible for monitoring the quality of programmes provided by the post-secondary education institutions. They are:

## Way forward

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- (a) ***Quality Assurance Council (QAC)***. Operating under the aegis of the UGC, the Council conducts quality assurance audits covering self-financing and publicly-funded undergraduate degree or above programmes offered by the UGC-funded universities;
- (b) ***HKCAAVQ***. It is responsible for the quality assurance of programmes at all levels offered by post-secondary institutions except for those of the UGC-funded universities that are self-accredited; and
- (c) ***JQRC***. It is formed by the eight UGC-funded universities to provide peer reviews of the quality assurance processes of self-financing sub-degree programmes of these institutions.

### ***Need to determine the way forward for establishing a single quality assurance body***

4.10 In 2009, the UGC conducted a review of the post-secondary education sector in Hong Kong with a view to offering recommendations on strategies for the future development of the sector. In December 2010, the UGC submitted a report entitled “Aspirations for the Higher Education System in Hong Kong” (2010 Report) to the EDB. The 2010 Report recommended that there should be a single quality assurance body for the whole post-secondary system, which should integrate the methods and approaches of quality assessment, validation and accreditation across the system. As mentioned in the 2010 Report, the merits of such a body include:

- (a) it should help rationalise the functions currently performed by different quality assurance bodies to achieve regulatory consistency in quality assurance amidst the anticipated growth in the private sector;
- (b) it would provide a single locus for the development and execution of quality assurance policies, underpinning and reinforcing the impact of the Qualifications Framework, participation in international activities, and the development of a comprehensive communication strategy to turn the work of the body into useful and practical information for stakeholders’ reference; and

- (c) it would promote interconnection and partnership amongst different education providers, which would help the development of a more comprehensive Credit Accumulation and Transfer System, and in turn facilitate sub-degree graduates articulating to undergraduate programmes across different institutions.

4.11 In November 2011, in response to the 2010 Report's recommendation of establishing a single quality assurance body, the EDB undertook to explore the possibility of setting up such body. Over the years, the Government has taken the following administrative measures to strengthen the quality assurance mechanism for the post-secondary education sector and ensure consistency in practices among all quality assurance bodies:

- (a) establishing in 2012 the Liaison Committee on Quality Assurance (comprising representatives of the HKCAAVQ, the QAC, the JQRC and the EDB) to promote sharing of good practices among all quality assurance bodies, and to enhance consistency and transparency so as to enhance accountability;
- (b) appointing individuals with knowledge of the work of quality assurance in the post-secondary education sector of Hong Kong to the QAC, with a view to promoting clearer and closer understanding in quality assurance practices between different quality assurance bodies as far as possible; and
- (c) planning for external quality assurance audits of sub-degree operations of UGC-funded universities since 2014, with the first round of audits expected to be implemented in late 2016.

According to the EDB, given the difference in maturity of institutions in the publicly-funded and self-financing post-secondary education sector, it does not see an imminent need to pursue a single quality assurance body for the time being. Nevertheless, Audit considers that the EDB needs to keep the matter under regular review and revisit the issue when necessary.

## Way forward

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4.12 Audit also noted that in responding to the recommendation of establishing a single quality assurance body, the Government stated that it considered that periodic external quality assurance audits should be conducted on the sub-degree operations (including self-financing and publicly-funded operations — Note 24) of the UGC-funded universities. To this end:

- (a) the Government stipulated under the sixth round of the MGS launched in August 2012 that UGC-funded universities would need to undertake that their sub-degree operations benefitting from the MGS should be subject to such audits by the HKCAAVQ. Starting from mid-2012, UGC-funded universities participating in the LGS, the SLS and the QESS would also be required to make a similar undertaking; and
- (b) in December 2013, a working group comprising representatives from the UGC, the UGC-funded universities and the HKCAAVQ, with a representative from the EDB as an observer, was formed to plan for and oversee the implementation of such audits.

4.13 Audit, however, noted that up to 30 June 2016, no external quality assurance audit had been carried out by the HKCAAVQ because:

- (a) it was only in April 2015 that the working group completed its tasks and in June 2015 made recommendations to the EDB on the audit framework and mechanism;
- (b) it was only in September 2015 that the EDB endorsed the working group's recommendation that the UGC would be the overseeing body of the audits and the QAC would be the audit operator with participation of the HKCAAVQ in the formulation of the audit manual and nomination of members of the audit panels; and
- (c) as at 30 June 2016, the audit manual was yet to be finalised and the first round of audits was expected to be conducted in end 2016 and completed in 2019.

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**Note 24:** *As at 30 June 2016, there were 22 full-time publicly-funded sub-degree programmes operated by three UGC-funded universities, namely the City University of Hong Kong, The Education University of Hong Kong and The Hong Kong Polytechnic University.*

4.14 Audit considers that the EDB needs to take measures to ensure that periodic external quality assurance audits on the sub-degree operations of the UGC-funded universities are carried out as planned without delay.

### ***Arrangements for admission of students to SFIs***

4.15 Before February 2012, SFIs administered their own arrangements for receiving admission applications from students and for admitting students. Students had to approach individual institutions and submit multiple applications. In February 2012, the EDB launched the Electronic Advance Application System for Post-secondary Programmes (E-APP). This Internet-based system facilitates candidates of the Hong Kong Diploma of Secondary Education Examination (HKDSEE) to lodge advance applications for post-secondary programmes not covered by the Joint University Programmes Admissions System (JUPAS — Note 25). Under E-APP, students only need to submit one application. SFIs will process E-APP applications and may give eligible candidates conditional offers before the announcement of the HKDSEE results.

### ***Need to improve the arrangements for admission of students to SFIs***

4.16 However, unlike under JUPAS where institutions are interlinked and the system operates as a unified platform for receiving applications and admitting students, thereby avoiding the offering of more than one place to students, E-APP is only a system for SFIs to receive applications. As a result, it is common that applicants are offered multiple places. Besides, JUPAS offers are only made in August while offers from SFIs are made in July or before. In the circumstances, SFIs charge an enrolment deposit to minimise the wastage of places. The deadline for payment of enrolment deposits is usually set at several days after the date of the release of HKDSEE results. Furthermore, SFIs usually require students to settle the first instalment of tuition fee before the commencement of programme. The enrolment deposit and first instalment of tuition fee will be forfeited if a student does not enroll in the programme. For the period from 2012/13 to 2015/16, the enrolment deposits and first instalment of tuition fees forfeited every year ranged from \$21 million to \$26 million (see Table 10).

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**Note 25:** *There are nine institutions participating in JUPAS, namely the eight UGC-funded universities and The Open University of Hong Kong.*

Table 10

**Enrolment deposits and first instalment of tuition fees forfeited  
(2012/13 to 2015/16)**

Year	Amount forfeited for		
	Enrolment deposits	First instalment of tuition fees	Total
	(a)	(b)	(c) = (a) + (b)
	(\$)	(\$)	(\$)
2012/13	24,461,625	1,700,220	26,161,845
2013/14	20,749,502	1,487,403	22,236,905
2014/15	20,414,808	1,649,695	22,064,503
2015/16	18,992,772	1,940,425	20,933,197
Total	84,618,707	6,777,743	91,396,450

Source: EDB records

4.17 In a paper submitted by the EDB to the LegCo Panel on Education in January 2013, the EDB undertook to examine the feasibility of enhancing E-APP to become a unified platform for application and admission of programmes with eventual convergence with JUPAS. According to the EDB, the convergence of the two systems would allow students to make one instead of two sets of applications (i.e. for entrance to the institutions covered by JUPAS and to SFIs). Furthermore, overlapping of places offered between JUPAS and E-APP as well as within E-APP would be diminished, thereby minimising the forfeiture of enrolment deposits and first instalment of tuition fees. In response to Audit's enquiry, the EDB informed Audit that JUPAS is not a government system and the JUPAS Office is not a government unit, and consensus with the JUPAS Office and the self-financing post-secondary education sector is required before the convergence of E-APP and JUPAS can be pursued. The EDB had initiated discussions with the JUPAS Office in 2014 and secured its agreement on allowing programmes subsidised under the



Study Subsidy Scheme for Designated Professions/Sectors (Note 26) starting from 2015/16 to have places allocated under JUPAS. The Government is now reviewing the Scheme and shall await the review outcome before considering further discussion with the self-financing post-secondary education sector and the JUPAS Office regarding the convergence of E-APP and JUPAS.

4.18 Audit considers that the EDB needs to examine the feasibility of enhancing E-APP to become a unified platform for application and admission of post-secondary programmes, and endeavour to facilitate the convergence of JUPAS and E-APP.

## Audit recommendations

- 4.19 **Audit has *recommended* that the Secretary for Education should:**
- (a) **in the light of the results of the implementation study of the Code of Good Practices, consider ways to:**
    - (i) **encourage more SFPPs to adopt the Code of Good Practices;**
    - (ii) **encourage SFPPs to disclose on their websites the information stipulated in the Code of Good Practices as far as possible; and**
    - (iii) **help (e.g. provide illustrative examples) SFPPs improve their disclosure of information with a view to enhancing transparency and comparability;**
  - (b) **keep in view the latest development for the need to set up a single quality assurance body and revisit the issue when necessary;**

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**Note 26:** *The Study Subsidy Scheme for Designated Professions/Sectors was introduced starting from 2015/16 to subsidise about 1,000 students per cohort to pursue designated full-time locally-accredited self-financing undergraduate programmes in selected disciplines to nurture talents to meet Hong Kong's social and economic needs.*

## Way forward

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- (c) **take measures to ensure that periodic external quality assurance audits on the sub-degree operations of the UGC-funded universities are carried out as planned without delay;**
- (d) **examine the feasibility of enhancing E-APP to become a unified platform for application and admission of post-secondary programmes; and**
- (e) **endeavour to facilitate the convergence of JUPAS and E-APP.**

## Response from the Government

4.20 The Secretary for Education agrees with the audit recommendations. He has said that:

- (a) the Code of Good Practices has been promulgated for one year only and its compliance is voluntary. The EDB has engaged the HKCAAVQ to conduct an implementation study of sector-wide compliance with the Code and will review the results of the implementation study to consider whether and how SFIs/SFPPs should be further encouraged to adopt the Code and enhance their disclosure of information;
- (b) the EDB will continue to keep in view the need to set up a single quality assurance body and revisit the issue when necessary;
- (c) the EDB will ensure that periodic external quality assurance audits on the sub-degree operations of the UGC-funded universities are carried out as planned; and
- (d) the EDB will examine the feasibility of enhancing E-APP to become a unified platform for application and admission of post-secondary programmes, and explore the convergence with JUPAS subject to consensus by relevant parties after the review of the Study Subsidy Scheme for Designated Professions/Sectors.

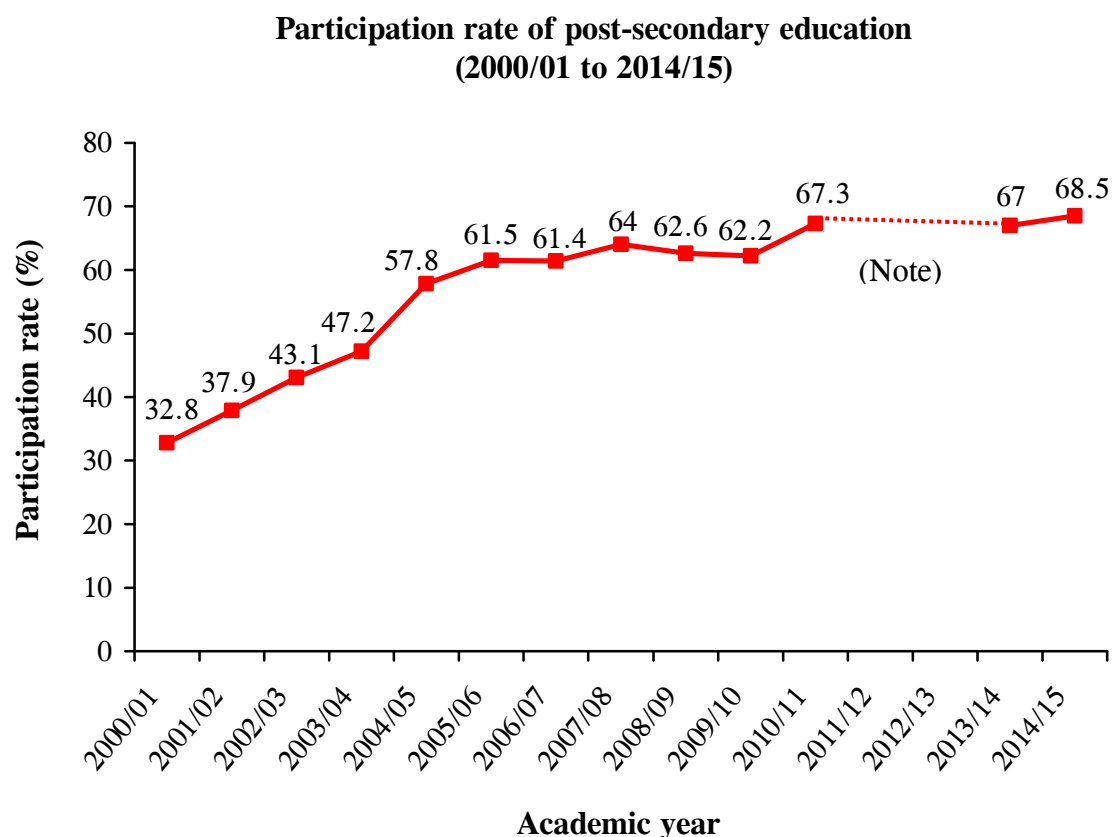
4.21 The Secretary-General, University Grants Committee agrees with the audit recommendation set out in paragraph 4.19(c). He has said that:

- (a) upon the EDB's endorsement of the working group's recommendation in September 2015, the UGC and the QAC have agreed to taking on the responsibility and begun the preparation for the conduct of the external quality assurance audit, including formulation of the audit manual, right away. In the process of formulation of the draft audit manual, two rounds of consultations of stakeholders (including the UGC-funded universities, the HKCAAVQ and the JQRC) were held in April and July 2016 respectively. The QAC had considered and endorsed the draft audit manual in September 2016; and
- (b) the Secretariat is now preparing for the publication of the audit manual, and the audit cycle will commence with promulgation of the audit manual by end 2016. In accordance with the plan, the last audit of the cycle will be completed in 2019.

## Way forward for the government assistance schemes

4.22 Through the development of the self-financing education sector, the target post-secondary education participation rate of 60% as set out in the 2000 Policy Address (see para. 1.2) was achieved in 2005/06. The participation rate increased from 32.8% in the 2000/01 to 61.5% in 2005/06. In 2014/15, the rate was 68.5% (see Figure 3).

Figure 3



Source: EDB records

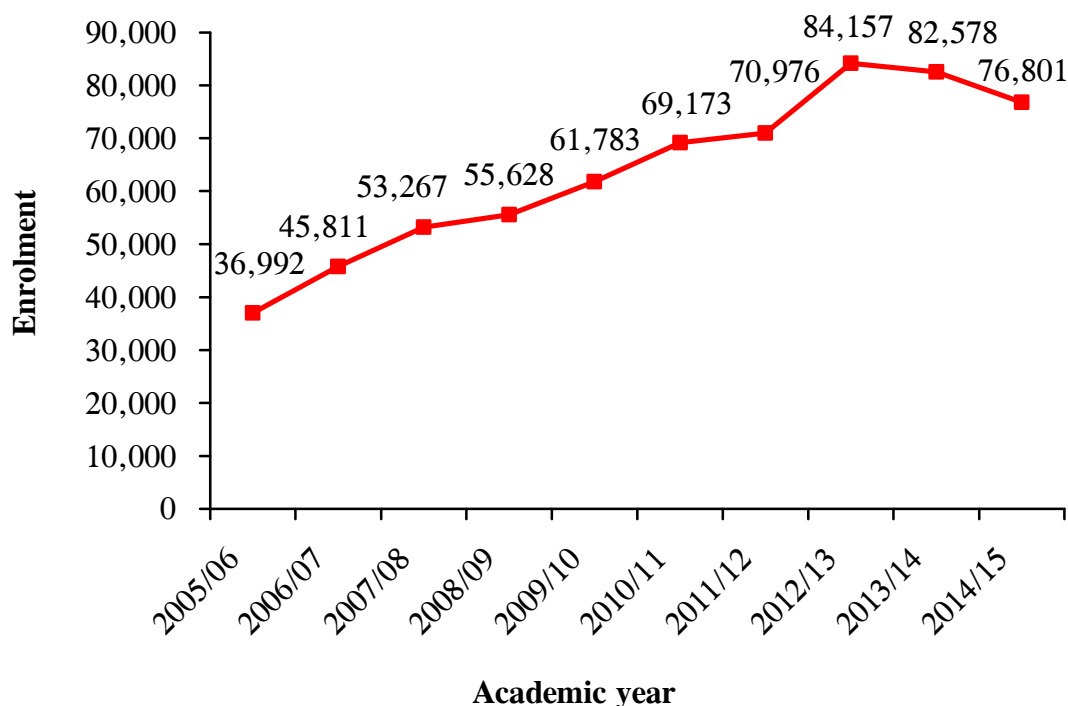
Note: The EDB did not calculate the participation rates for 2011/12 and 2012/13. This was to avoid inaccuracies in calculation as 2011/12 was a gap year where there were no secondary five graduates and 2012/13 was a double cohort year where the number of publicly-funded first-year-first-degree places offered was doubled to cater for two cohorts of senior secondary students graduating in the same year.

### ***Decrease in enrolment of students***

4.23 The self-financing post-secondary education sector underwent robust development over the past years. In the ten-year period from 2005/06 to 2014/15, the number of full-time locally-accredited self-financing post-secondary programmes offered by SFIs increased by 130% from 273 to 627, and the number of students enrolled in these programmes increased by 108% from 36,922 to 76,801. However, the enrolment of students dropped by 9% from 84,157 in 2012/13 to 76,801 in 2014/15 (see Figure 4).

Figure 4

**Enrolment of full-time locally-accredited  
self-financing post-secondary programmes  
(2005/06 to 2014/15)**



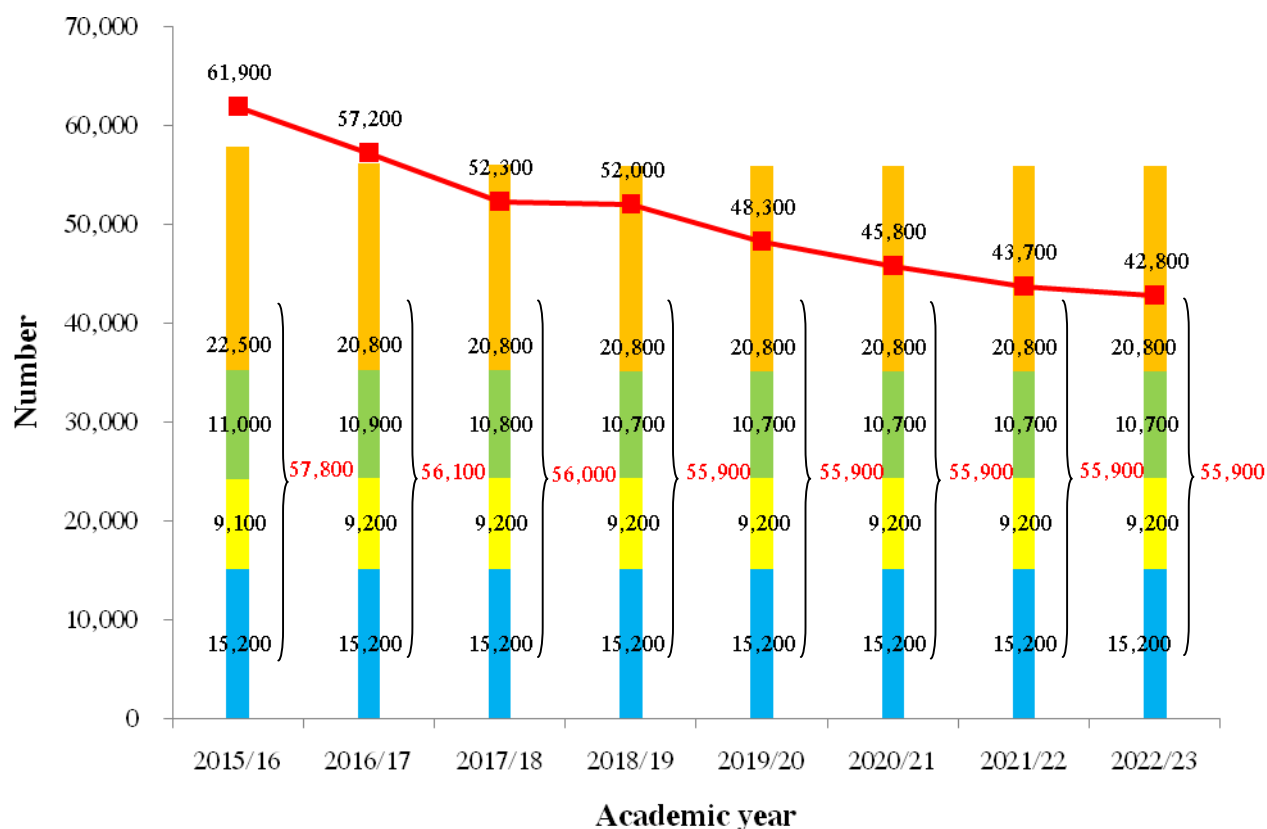
Source: EDB records

4.24 According to a forecast made by the EDB in August 2015, owing to demographic changes, the decrease in the number of secondary school graduates would continue until 2022/23. The forecast also indicated that starting from 2017/18, the number of post-secondary education places would exceed the entire population of secondary school graduates regardless of their HKDSEE results (see Figure 5). Due to insufficient student enrolment, an SFI was closed down in 2014 while the management of another SFI was taken over by a third SFI in 2016. Audit analysis of the rate of intake (the actual number of first year student intake divided by the number of places available) of 27 SFIs (Note 27) also indicated that in the three years from 2012/13 to 2014/15, the rate of intake of six of them was consistently lower than 50% (ranged from 4% to 46%).

**Note 27:** Of the 28 SFIs, one SFI had been excluded from the analysis because it was established only in July 2015.

Figure 5

**EDB's forecast in August 2015 of the supply and demand of local post-secondary education places (2015/16 to 2022/23)**



**Legend:**

- Number of places of self-financing sub-degree programmes
- Number of places of publicly-funded sub-degree programmes
- Number of places of self-financing undergraduate programmes
- Number of places of publicly-funded undergraduate programmes
- Number of secondary school graduates

Source: EDB records

*Need to determine the way forward  
for the government assistance schemes*

4.25 According to the EDB, owing to the decrease in student enrolment, it has given repeated reminders to the SFIs on the need to take due account of the demographic changes in planning their operation and to undergo consolidation in both programme quantity and quality. In June 2016, to help SFIs cope with the decline in secondary school student population, the FSTE submitted three recommendations to the LegCo Panel on Education. These recommendations are:

- (a) the introduction of an education voucher system;
- (b) relaxing local SFIs' current intake ceiling of 10% for Mainland students; and
- (c) improving the loan terms (e.g. extending the interest-free period and loan forgiveness) of the SLS.

4.26 The self-financing post-secondary education sector has been developing for more than 15 years since 2001. To promote the healthy and sustainable development and to enhance the quality of the sector, the Government has implemented various assistance schemes for SFIs. Audit noted that the then Education and Manpower Bureau (Note 28) initiated a two-phase Review of the Post-secondary Education Sector in 2005 to take stock of the development of the post-secondary education sector and map out future directions for development. The two-phase Review was overseen by a Steering Committee chaired by the Bureau and comprised representatives of service providers, quality assurance agencies and the business community, and was completed in 2006 and 2008 respectively. In view of the long time elapsed and demographic changes, the EDB needs to consider conducting a review of the effectiveness of the assistance schemes in promoting the healthy and sustainable development of the self-financing post-secondary education sector so as to determine the way forward for the schemes in aligning with the sector's development.

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**Note 28:** *In January 2003, the Education Department was merged with the then Education and Manpower Bureau. In July 2007, the Bureau was renamed the EDB upon the reorganisation of the Government Secretariat.*

### Audit recommendations

- 4.27      **Audit has *recommended* that the Secretary for Education should:**
- (a)      **consider conducting a review of the effectiveness of the government assistance schemes in promoting the healthy and sustainable development of the self-financing post-secondary education sector to determine the way forward for the schemes in aligning with the development of the sector; and**
  - (b)      **in conducting the review, take into account the audit findings in this Audit Report.**

### Response from the Government

4.28      The Secretary for Education agrees with the audit recommendations. He has said that the EDB has already been reviewing the development of the sector and the corresponding assistance schemes from time to time. This is evidenced by the many new measures implemented in recent years, such as the new SPEF in 2011, the sixth round of MGS funding in 2012, the new research funding support for the local self-financing degree awarding institutions from 2013, the new Study Subsidy Scheme for Designated Professions/Sectors starting from 2015/16, and the introduction of funding for industrial attachment projects under the QESS since January 2016, etc. Given the fast changing nature of the self-financing sector, ongoing review should be much more efficient and the audit findings in this Audit Report will be taken into account as appropriate.



**Appendix A**  
(para. 1.4 and Note 7  
to para. 1.5(g) refer)

**SFPPs eligible for government assistance schemes  
(30 June 2016)**

	SFI		SFPP
<i>Self-financing continuing and professional education institutions operating under the aegis of the UGC-funded universities</i>			
1	City University of Hong Kong	1	City University of Hong Kong
		2	Community College of City University
		3	School of Continuing and Professional Education
2	Hong Kong Baptist University	4	Hong Kong Baptist University
		5	College of International Education
		6	School of Continuing Education
3	Lingnan University	7	The Community College at Lingnan University
		8	Lingnan Institute of Further Education
4	The Chinese University of Hong Kong	9	School of Continuing and Professional Studies
5	The Education University of Hong Kong	10	The Education University of Hong Kong
6	The Hong Kong Polytechnic University	11	The Hong Kong Polytechnic University
		12	Hong Kong Community College
		13	School of Professional Education and Executive Development
7	The Hong Kong University of Science and Technology	14	The Hong Kong University of Science and Technology
8	The University of Hong Kong	15	HKU SPACE Community College
		16	HKU School of Professional and Continuing Education

**Appendix A**  
(Cont'd)  
(para. 1.4 and Note 7  
to para. 1.5(g) refer)

	<b>SFI</b>		<b>SFPP</b>
<b><i>Approved post-secondary colleges registered under the Post Secondary Colleges Ordinance</i></b>			
9	Caritas Institute of Higher Education	17	Caritas Institute of Higher Education
10	Centennial College (managed by the HKU School of Professional and Continuing Education since May 2016)	18	Centennial College
11	Chu Hai College of Higher Education	19	Chu Hai College of Higher Education
12	Gratia Christian College	20	Gratia Christian College
13	Hang Seng Management College	21	Hang Seng Management College
14	HKCT Institute of Higher Education	22	HKCT Institute of Higher Education
15	Hong Kong Nang Yan College of Higher Education	23	Hong Kong Nang Yan College of Higher Education
16	Hong Kong Shue Yan University	24	Hong Kong Shue Yan University
17	Tung Wah College	25	Tung Wah College
<b><i>Institutions registered under the Education Ordinance</i></b>			
18	Caritas Bianchi College of Careers	26	Caritas Bianchi College of Careers
19	Caritas Institute of Community Education	27	Caritas Institute of Community Education
20	HKU SPACE Po Leung Kuk Stanley Ho Community College	28	HKU SPACE Po Leung Kuk Stanley Ho Community College
21	Hong Kong College of Technology	29	Hong Kong College of Technology
22	Hong Kong Institute of Technology	30	Hong Kong Institute of Technology
23	Yew Chung Community College	31	Yew Chung Community College
24	YMCA College of Careers	32	YMCA College of Careers

**Appendix A**  
(Cont'd)  
(para. 1.4 and Note 7  
to para. 1.5(g) refer)

	SFI		SFPP
Statutory institutions or their subsidiaries			
25	Hong Kong Art School	33	Hong Kong Art School
26	The Open University of Hong Kong	34	The Open University of Hong Kong
		35	Li Ka Shing Institute of Professional and Continuing Education
27	Vocational Training Council	36	Hong Kong Design Institute
		37	Hong Kong Institute of Vocational Education
		38	School for Higher and Professional Education
		39	Technological and Higher Education Institute of Hong Kong
Institution providing self-financing locally-accredited non-local undergraduate programmes			
28	SCAD Foundation (Hong Kong) Limited / Savannah College of Art and Design	40	SCAD Foundation (Hong Kong) Limited / Savannah College of Art and Design

Source: EDB records

**Appendix B**  
(para. 1.5(a) refers)

**List of land sites/government premises granted/allocated under the LGS  
(31 March 2016)**

	<b>SFPP</b>	<b>Address</b>	<b>Site area (square metres)</b>	<b>Academic year of operation at the address</b>
<b><i>Land sites</i></b>				
1	Caritas Bianchi College of Careers	18 Chui Ling Road, Tseung Kwan O, New Territories	4,870	2009/10
2	Caritas Institute of Higher Education	Tseung Kwan O Town Lot No. 97, Area 73B, New Territories	7,366	(Note 1)
3	Chu Hai College of Higher Education	Tuen Mun Town Lot No. 489, New Territories	16,928	2016/17
4	College of International Education and School of Continuing Education	8 On Muk Street, Shek Mun, Shatin, New Territories	6,524	2006/07
5	Hang Seng Management College	Hang Shin Link, Siu Lek Yuen, Shatin, New Territories	5,650	2012/13
6	HKU SPACE Community College	28 Wang Hoi Road, Kowloon Bay, Kowloon	2,077	2006/07
7	Hong Kong Community College	8 Hung Lok Road, Hung Hom, Kowloon	4,386	2007/08
8		9 Hoi Ting Road, Yau Ma Tei, Kowloon	3,962	2008/09
9	Technological and Higher Education Institute of Hong Kong	Chai Wan Inland Lot No. 182, Hong Kong	9,933	(Note 1)
10	The Open University of Hong Kong	81 Chung Hau Street, Ho Man Tin, Kowloon	4,283	2013/14
11	The University of Chicago Booth School of Business in Hong Kong (Note 2)	Ex-Victoria Road Detention Centre site, Mount Davis, Hong Kong	6,430	(Note 1)

**Appendix B**  
(Cont'd)  
(para. 1.5(a) refers)

	<b>SFPP</b>	<b>Address</b>	<b>Site area (square metres)</b>	<b>Academic year of operation at the address</b>
<b><i>Government premises</i></b>				
12	HKU SPACE Community College/Centennial College	Ex-premises of Kwong Yuet Tong Excel Foundation Primary School, 3 Wah Lam Path, Pokfulam, Hong Kong	2,467	2012/13
13	Hong Kong Art School	Ex-premises of Po Leung Kuk Ho To Shui Hing Primary School, 8 Tam Kung Temple Road, Shau Kei Wan, Hong Kong	480	2009/10
14	Hong Kong College of Technology	Ex-premises of Ho Fai Primary School, Yiu On Estate, Ma On Shan, Shatin, New Territories	863	2010/11
15	Hong Kong College of Technology and HKCT Institute of Higher Education	Ex-premises of FDBWA Mrs Fung Ping Shan Primary School, 2 On Shing Street, Ma On Shan, Shatin, New Territories	5,484	2015/16
16	Hong Kong Institute of Technology	Ex-premises of St. Thomas Primary School, 213 Nam Cheong Street, Sham Shui Po, Kowloon	450	2014/15
17	School of Continuing and Professional Studies	Ex-premises of HKTA Tong Tang Sook Fong Memorial School Estate Primary School, No. 2, Phase II, Tsui Lam Estate, Tseung Kwan O, New Territories	4,520 (Note 3)	2012/13

*Source: EDB records*

*Note 1: The SFPP had not yet commenced operation at the address as at 1 September 2016 because construction was still in progress.*

*Note 2: The grantee will provide self-financing locally-accredited Master's degree programmes at the land site. To support the EDB's policy objective of developing Hong Kong as a regional education hub, the LGS accepts applications from overseas institutions providing self-financing full-time and/or part-time locally-accredited post-secondary programmes leading to a qualification at or above the level of sub-degree.*

*Note 3: The figure refers to the internal floor area. The site area of this government premises is not available.*

**Appendix C**  
(para. 2.4 refers)

**List of 26 outstanding loans approved under the SLS  
(31 March 2016)**

<b>Loan</b>	<b>SFPP</b>	<b>Purpose</b>	<b>Approved loan amount (\$)</b>	<b>Date of approval</b>
1	Caritas Bianchi College of Careers	Constructing a new campus in Tseung Kwan O	188,000,000	27 June 2003
2	Caritas Institute of Higher Education	Constructing a new campus in Tseung Kwan O	300,000,000	13 July 2012
3	Chu Hai College of Higher Education	Constructing a new campus in Tuen Mun	350,000,000	19 June 2009
4		Support the new design for Tuen Mun Campus	250,000,000	20 March 2015
5	Hang Seng Management College	Constructing a new building in the Siu Lek Yuen campus	32,400,000	24 March 2006
6		Constructing a new building in the Siu Lek Yuen campus	308,000,000	28 January 2011
7		Constructing an academic and administrative building, a sports and student amenities centre and student hostels in the Siu Lek Yuen campus	800,000,000	21 June 2013
8	HKU School of Professional and Continuing Education	Renovating a vacant government premises in Pok Fu Lam	40,344,000	19 June 2009
9		Purchasing and renovating a commercial premises in North Point	176,124,000	7 December 2001
10		Constructing a new campus in Kowloon Bay	279,256,000	27 June 2003

**Appendix C**  
(Cont'd)  
(para. 2.4 refers)

<b>Loan</b>	<b>SFPP</b>	<b>Purpose</b>	<b>Approved loan amount (\$)</b>	<b>Date of approval</b>
11	HKU SPACE Po Leung Kuk Stanley Ho Community College	Constructing new buildings in the Headquarters in Causeway Bay	254,000,000	24 June 2005
12	Hong Kong Art School	Renovating campuses in Chai Wan and Shau Kei Wan	2,500,000	2 May 2013
13		Renovating a vacant government premises in Shau Kei Wan	5,500,000	16 February 2009
14	Hong Kong College of Technology	Renovating a vacant government premises in Ma On Shan	29,000,000	19 June 2009
15	Hong Kong College of Technology and HKCT Institute of Higher Education	Renovating a vacant government premises in Ma On Shan	30,000,000	7 February 2014
16	Hong Kong Community College	Constructing a new campus in Hung Hom	424,714,000	27 June 2003
17		Constructing a new campus in West Kowloon	458,100,000	4 March 2005
18	Hong Kong Institute of Technology	Renovating a vacant government premises in Sham Shui Po	11,000,000	21 February 2011
19	School of Continuing and Professional Studies	Renting and renovating a commercial premises in Central	22,743,000	24 March 2006
20		Renovating a vacant government premises in Tseung Kwan O	40,000,000	11 May 2012

**Appendix C**  
(Cont'd)  
(para. 2.4 refers)

<b>Loan</b>	<b>SFPP</b>	<b>Purpose</b>	<b>Approved loan amount (\$)</b>	<b>Date of approval</b>
21	School of Continuing Education	Constructing a new campus in Shek Mun	359,200,000	27 June 2003
22	Technological and Higher Education Institute of Hong Kong	Constructing a new campus in Chai Wan	670,000,000	13 July 2012
23	The Community College at Lingnan University	Constructing new buildings in the Tuen Mun campus	205,735,000	7 December 2001
24	The Open University of Hong Kong	Constructing new buildings in the Ho Man Tin campus	120,000,000	24 June 2005
25		Constructing a new campus in Ho Man Tin	317,000,000	28 January 2011
26	Tung Wah College	Constructing a new campus in Mong Kok	346,050,000	5 December 2003

Source: EDB records



**Acronyms and abbreviations**

Audit	Audit Commission
Code of Good Practices	Code of Good Practices on Governance and Quality Assurance
CSPE	Committee of Self-financing Post-secondary Education
E-APP	Electronic Advance Application System for Post-secondary Programmes
EDB	Education Bureau
FSTE	Federation for Self-financing Tertiary Education
HKCAAVQ	Hong Kong Council for Accreditation of Academic and Vocational Qualifications
HKDSEE	Hong Kong Diploma of Secondary Education Examination
JQRC	Joint Quality Review Committee
JUPAS	Joint University Programmes Admissions System
LegCo	Legislative Council
LGS	Land Grant Scheme
MGS	Matching Grant Scheme
QAC	Quality Assurance Council
QESS	Quality Enhancement Support Scheme
ROA	Reaching Out Award
SFI	Self-financing post-secondary education institution
SFPP	Self-financing programme provider
SLS	Start-up Loan Scheme
SPEF	Self-financing Post-secondary Education Fund
SPSS	Self-financing Post-secondary Scholarship Scheme
UGC	University Grants Committee
Vetting Committee	Vetting Committee for the Allocation of Sites and Start-up Loan for Post-secondary Education Providers

# **CHAPTER 8**

**Environment Bureau  
Environmental Protection Department  
Drainage Services Department**

**Sewerage systems in rural areas**

**Audit Commission  
Hong Kong  
28 October 2016**

*This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.*

Report No. 67 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

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# SEWERAGE SYSTEMS IN RURAL AREAS

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# SEWERAGE SYSTEMS IN RURAL AREAS

## Executive Summary

1. According to the Environmental Protection Department (EPD), as of April 2016, about 510,000 population in Hong Kong were residing in village houses, squatters and private housing developments (mostly located in the New Territories) not being provided with public sewerage facilities. Of the 510,000 population, 115,000 (23%) were residing in areas being installed with private on-site sewage treatment plants and the remaining 395,000 (77%) population mainly relied on septic-tank-and-soakaway (STS) systems for treating their sewage or dry-weather-flow interceptors for reducing pollution caused by untreated sewage. Unsatisfactory installation and maintenance of STS systems would cause pollution to the environment and potential health hazards to people in the vicinity.

2. Under the Water Pollution Control Ordinance (Cap. 358 — WPC Ordinance), the EPD is responsible for monitoring the water quality of rivers and coastal areas and controlling pollution of these water bodies. Water Quality Objectives (WQOs) are established under the WPC Ordinance to lay down water quality requirements for a water body. Various WQOs expressed in numerical or narrative forms have been established, including the WQOs on *Escherichia coli* (*E. coli*), which is used as an indicator of faecal contamination and pollution. The EPD has also formulated 16 Sewerage Master Plans (SMPs) which set out at regional/district level sewage collection, treatment and disposal programmes, including programmes for the provision of public sewerage systems for unsewered rural villages (hereinafter referred to as village sewerage programmes (VS programmes)).

3. Under the VS programmes, as of January 2015, of the 970 rural villages covered under the 16 SMP areas in Hong Kong, public sewerage works for 170 (17.5%) villages had been completed, 340 (35%) villages were under construction or included in the Public Works Programme, 170 (17.5%) villages were under planning and 290 (30%) villages would not be carried out due to their remoteness and difficult site topography. From 1989-90 to 2015-16, the Government's expenditures on implementation of the VS programmes and related works totalled \$8.2 billion and the estimated expenditures from 2016-17 to 2025-26

## Executive Summary

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totalled \$2.7 billion. The Drainage Services Department is responsible for implementing works under the VS programmes. The Audit Commission (Audit) has recently conducted a review to examine the sewerage systems in rural areas.

### Pollution control in unsewered areas

4. ***High *E. coli* levels at many water control subzones.*** *E. coli* is a bacterium that is commonly found in the intestine and faeces of humans and other warm-blooded animals, and the level of *E. coli* in a water body is used as an indicator of faecal contamination and pollution. According to the EPD, WQOs on *E. coli* were established to protect the public from the risk of exposure to disease-causing microorganisms, and could be used to assess and monitor the effectiveness of environmental improvement measures as well as to signal the need for further actions to improve water quality. Of the 71 river monitoring stations situated in water control subzones where WQOs on *E. coli* had been established, Audit examination revealed that the average levels of *E. coli* found at 63 (89%) stations had exceeded the corresponding statutory WQOs in 2015. For Yuen Long District and North District which had a large number of unsewered villages, in 2015, while the statutory WQOs established for the water control subzones located in the two districts ranged from 0 to 1,000 *E. coli* per 100 millilitres (mL) of water, the average levels of *E. coli* at 14 (58%) of the pertinent 24 river monitoring stations exceeded 10,000 *E. coli* per 100 mL of water, indicating that sewage discharged from unsewered villages in these areas could have caused faecal contamination and pollution to rivers in the areas (paras. 1.6, 1.9, 2.5 and 2.7(a)).

5. ***Lack of effective means to prevent STS systems from causing pollution.*** According to the EPD, many village sites located in flood plains (e.g. in Yuen Long, Kam Tin, North District and Tai Po areas) were not suitable for the operation of STS systems, the systems installed in some unsewered areas were generally ineffective and sewage from these areas was a source of pollution to nearby watercourses and marine waters. For the purpose of ameliorating the problems, the EPD has implemented works projects under the VS programmes to install public sewerage systems for unsewered villages. In the meantime, many of the 70,000 unsewered village houses rely on STS systems for treating their sewage, and some of the 84,000 unsewered residential squatters rely on dry-weather-flow interceptors for reducing pollution caused by the untreated sewage (paras. 1.2, 1.4, 1.10, 2.19 and 2.22(a)).

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6. According to the then Planning, Environment and Lands Branch of the Government Secretariat, a licensing scheme for STS systems would be the best and the only way through which the Government and the community could make real progress in improving the environment of the New Territories. From 1993, an owner of an STS system might apply to the EPD for issuance of a perpetual licence under the WPC Ordinance for his STS system, which specified the related operational and maintenance requirements. However, Audit examination revealed that, as of August 2016, of the 70,000 village houses and 84,000 residential squatters, only 1,912 had been issued with licences for STS systems. According to the EPD, licensing of STS systems was not mandatory under the WPC Ordinance. Moreover, the EPD did not conduct periodic inspections of STS systems installed for unsewered houses, nor maintain a database for such systems, adversely affecting the effectiveness of its monitoring and enforcement actions on these systems (paras. 2.16 and 2.21 to 2.30).

7. ***Requirements for some STS systems not on par with EPD practice note.*** According to the EPD, an STS system having been designed, constructed and maintained in accordance with a practice note issued by it in 1993 would help achieve the intended sewage treatment function of the system and prevent related sewage discharge from polluting the environment. EPD practice note specified that an STS system should be located at least 100 metres from the boundaries of gazetted beaches, and percolation tests should be carried out for the system irrespective of the number of houses to be served and the distance of the system from sensitive water bodies. However, the certificate of exemption issued by the Lands Department for pertinent drainage works in the New Territories specified differently, by stating that an STS system should only be located beyond 30 metres from beaches, and percolation tests need not be carried out if an STS system served a single village house and was located beyond 30 metres from streams, springs, wells and beaches (paras. 2.36 and 2.37).

8. ***No licences issued for desludging of septic tanks and disposal of excretal matter.*** Under the Waste Disposal Ordinance (Cap. 354 — WD Ordinance), on the condition that the EPD and the Food and Environmental Hygiene Department (FEHD) provide any services for desludging of septic tanks and disposal of excretal matter from such tanks, or any person is permitted to provide such services under a licence issued by the EPD and the FEHD, any person who provides such services without obtaining a licence from the EPD and the FEHD commits an offence. As of



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April 2016, 78 private desludging operators (having a total of 317 desludging vehicles) were involved in the provision of related services. Audit noted that, as of October 2016, none of the 78 desludging operators had been issued licences under the WD Ordinance from the EPD or the FEHD for provision of the desludging and related disposal services (paras. 2.45 to 2.47).

### **Planning and implementation of village sewerage programmes**

9. *Need to prevent uncontrolled discharge of untreated sewage from residential squatters.* As of December 2015, 84,000 residential squatters were located in 791 areas. According to the EPD: (a) STS systems were generally not installed for squatter areas and untreated sewage generated from the squatters was mostly directly discharged into the nearby rivers or other water bodies, causing water pollution and environmental problems; and (b) dry-weather-flow interceptors had been installed for some squatter areas to help ameliorate the pollution problem. However, the EPD did not have readily available information on the squatter areas having been installed with dry-weather-flow interceptors. Furthermore, Audit noted that, for a project having an Approved Project Estimate (APE) of \$33 million for installing public sewers for a squatter area in Tuen Mun completed in May 2011, up to June 2016, only 112 (41%) of the 270 squatters in the area had been connected to public sewers (paras. 3.4 to 3.9).

10. *Delays in implementing the VS programmes.* In May 2001, the EPD informed the Legislative Council (LegCo) that village sewerage works for 8 of the 16 SMP areas were targeted for completion between 2004 and 2009. Moreover, in May 2009, the EPD informed LegCo that the target completion dates had been extended to between 2013-14 and 2017-18. However, Audit examination revealed that these time targets could not be met. As of June 2016, of the total 662 villages covered under the VS programmes for the eight SMP areas, public sewerage works for 178 (27%) villages had been completed, 10 sewerage projects involving 77 (12%) villages were in progress, 24 sewerage projects involving 238 (36%) villages were under planning and sewerage projects under the Public Works Programme had not been created for the remaining 169 (25%) villages (paras. 3.15 and 3.16).

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11. ***Slippages in implementing village sewerage projects.*** For a village sewerage project in Sha Tin and Tai Po having an APE of \$381.4 million, mainly owing to objections on private land resumption, there was a slippage of 25 months in completing the works. In another project in Tuen Mun having an APE of \$1,340 million, mainly due to the need to divert unrecorded underground utilities and a delay to seek legal advice on adopting appropriate procedures for road closure related to the works, the project was delayed by 17 months (paras. 3.23 to 3.28 and 3.31).

### **Sewer connection of village houses**

12. Under the Government's policy, public sewers would only be constructed up to the lot boundaries of private land as far as practicable, and village-house owners need to carry out works at their own cost to connect their sewerage systems with public sewers. According to the EPD, as of June 2016, 14,710 village houses located at 178 villages in the eight SMP areas were covered by public sewers. However, 4,531 (31%) houses had not been connected to the public sewers, which comprised: (a) 3,168 houses not being ready for sewer connection or having technical problems for the connection; and (b) 1,363 houses where the house owners did not take required sewer-connection actions (paras. 4.2 and 4.6).

13. ***Inadequate actions taken to cause house owners to carry out sewer-connection works.*** According to the EPD, the majority of sewer-connection works would be completed by village-house owners between 2 and 5 years after completion of public-sewer works. However, Audit examination of the progress of sewer connections at 5 villages and 1 squatter area (having a total of 385 houses suitable for sewer connection) revealed that, as of June 2016, while the related public sewerage works had been completed 5 to 15 years ago, only 144 (37%) houses had been connected to public sewers. In one case involving public sewerage works having an APE of \$2.7 million being carried out for 2 elderly homes and a village comprising 56 houses in Yuen Long, owing to objections of village representatives of 49 houses, public sewerage works for these 49 houses were not carried out. Public sewerage works for the remaining 7 houses were completed in December 2000. However, up to June 2016, none of the 7 houses had been connected to public sewers. In another case involving public sewerage works having an APE of \$125.1 million for 8 unsewered areas, which included a village comprising 62 houses in North District where the works were completed in June 2006, up to June 2016, only 12 (19%) houses had been connected to public sewers (paras. 4.7 and 4.11).

## Executive Summary

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### Audit recommendations

14. Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Government should:

#### *Pollution control in unsewered areas*

- (a) consider periodically conducting assessments of the extent of pollution of major rivers caused by village sewage discharge, and publishing the results of assessments (para. 2.12);
- (b) explore ways and means to strengthen control over high-risk STS systems (para. 2.40);
- (c) review and revise the Lands Department's requirements for STS systems specified in the certificate of exemption such that they are in line with the EPD's practice note as far as practicable (para. 2.41);
- (d) explore ways and means to strengthen controls over desludging operations (para. 2.54(a));

#### *Planning and implementation of village sewerage programmes*

- (e) take measures to ascertain the extent and effectiveness of dry-weather-flow interceptors in reducing pollution caused by untreated sewage generated from unsewered residential squatters (para. 3.13(c));
- (f) periodically inform LegCo of the progress of implementing the VS programmes, with comparisons with the time targets set for implementing the programmes (para. 3.39(a));

## **Executive Summary**

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### ***Sewer connection of village houses***

- (g) take effective measures to ensure that houses suitable for sewer connection are connected to public sewers within a reasonable time after completion of public sewer works (para. 4.19(a)); and
- (h) periodically publish the progress of sewer-connection works of individual villages (para. 4.19(g)).

## **Response from the Government**

15. The Government agrees with the audit recommendations.



## PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

### Background

1.2 According to the Environmental Protection Department (EPD), as of April 2016, about 93% of the 7.3-million population in Hong Kong were residing in areas being provided with public sewerage facilities. For the remaining 7% (510,000) population, they were residing in unsewered premises, comprising 70,000 village houses, 84,000 residential squatters and some private housing developments (mostly located in the New Territories). The EPD had estimated that 115,000 (23%) of the 510,000 population were residing in areas being provided with private on-site sewage treatment plants, and the remaining 395,000 (77%) population mainly relied on septic-tank-and-soakaway (STS) systems (Note 1) for treating their sewage or dry-weather-flow interceptors (DWFIs — Note 2) for reducing pollution caused by untreated sewage.

1.3 As of June 2016, 189 on-site sewage treatment plants had been installed at residential developments. According to the EPD:

- (a) all the 189 treatment plants had been issued with five-year renewable licences under the Water Pollution Control Ordinance (Cap. 358 — WPC Ordinance); and
- (b) the EPD conducted inspections of these plants four times a year to ensure compliance with the licence conditions.

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**Note 1:** *A septic tank is a device used for the collection, storage and treatment of sewage, in which the sewage is partially decomposed. Furthermore, under a soakaway system, effluent from the septic tank would filter through gravel and the pollutants would be decomposed by bacteria in the surrounding soil.*

**Note 2:** *According to the EPD, DWFIs are short-term measures installed in stormwater drains to intercept pollutants contained in the water flow in dry seasons to minimise the pollutants flowing into nearby rivers and streams. The intercepted pollutants would be conveyed through public sewers to the nearby sewage treatment plants for proper treatment.*

## Introduction

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1.4 STS systems are normally installed in unsewered rural areas for treating sewage before it is discharged into the surrounding areas. According to the EPD:

- (a) an STS system is an internationally acceptable system for treating sewage. The performance of an STS system would be affected by factors such as local conditions, development density, and its design, operation and maintenance;
- (b) under normal circumstances, sewage flow from village houses is small, and as long as STS systems are properly designed and operated with its effluent being soaked into the ground, individual STS systems would not become a significant pollution source to water bodies; and
- (c) unsatisfactory installation and maintenance of STS systems would at times lead to overflow of effluent, causing pollution to the environment and water bodies, as well as potential health hazards to people in the vicinity.

1.5 According to the WPC Ordinance, the EPD shall exercise and perform its powers, functions and duties under the Ordinance with the aim of achieving the relevant Water Quality Objectives (WQOs) as soon as is reasonably practicable and thereafter maintaining the quality so achieved. Various WQOs in numerical or narrative form have been established under the WPC Ordinance to describe the water quality that should be achieved and maintained in order to promote the conservation and best use of Hong Kong waters. Compliance with WQOs is based on the attainment of certain levels of parameters, including dissolved oxygen, suspended solids, pH values (Note 3), 5-day biochemical oxygen demand (Note 4), chemical oxygen demand (Note 5) and *Escherichia coli* (*E. coli*).

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**Note 3:** *The pH is an expression of concentration of hydrogen ions present in water and is used to indicate the degree of alkalinity or acidity of a solution.*

**Note 4:** *The 5-day biochemical oxygen demand is a measure of the amount of oxygen consumed by microorganisms in the process of decomposing organic matter in 5 days. A high value of the parameter indicates that a water body has been polluted by a large quantity of organic matter.*

**Note 5:** *The chemical oxygen demand value indicates the amount of oxygen which is needed for the oxidation of organic substances in water. It is often used as a measurement of the strength of pollutants (mainly organic matter) in natural water and waste water.*

1.6 *E. coli* is one of the WQOs set under the WPC Ordinance for 62 of the 90 water control subzones in Hong Kong. According to the World Health Organisation (WHO — Note 6):

- (a) *E. coli* is a bacterium that is commonly found in the intestine and faeces of humans and other warm-blooded animals, and the level of *E. coli* in a water body is used as an indicator of faecal contamination and pollution; and
- (b) while most of the *E. coli* bacteria are harmless, the presence of *E. coli* in water bodies indicates that the water may contain other disease-causing microorganisms.

1.7 In 2015, the average levels of *E. coli* at 63 (89%) of the 71 EPD river monitoring stations having WQOs on *E. coli* exceeded the WQO levels established under the WPC Ordinance (see Appendices A and B for details). According to the EPD, the level of *E. coli* at a river monitoring station exceeding 10,000 *E. coli* per 100 millilitres (mL) of water is most likely attributed to the following sources:

- (a) unsatisfactory STS systems installed for unsewered village houses;
- (b) illegal connections to stormwater drains by house owners for discharge of sewage into nearby rivers and streams; and
- (c) illegal discharge from livestock farms into nearby rivers and streams. As of June 2016, there were 72 livestock farms in Hong Kong.

1.8 Under the Public Health (Animals and Birds) Ordinance (Cap. 139), a livestock farm operator needs to apply and obtain a licence from the Agriculture, Fisheries and Conservation Department. Moreover, under the Waste Disposal Ordinance (Cap. 354 — WD Ordinance), the operator is required to install a waste water treatment system acceptable to the EPD. In 1987, the EPD implemented a Livestock Waste Control Scheme, under which the EPD would carry out inspections of each licensed farm at least twice a year to ensure that sewage treated by the waste water treatment system could achieve the minimum statutory effluent standard.

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**Note 6:** WHO is the directing and coordinating authority for health in the United Nations.



## Introduction

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In addition, to assist livestock farmers in disposing of the livestock waste in an environmentally acceptable manner, the EPD has offered a capital grant and low-interest loan to assist farmers for installation of waste treatment facilities, and provided free collection services for livestock waste.

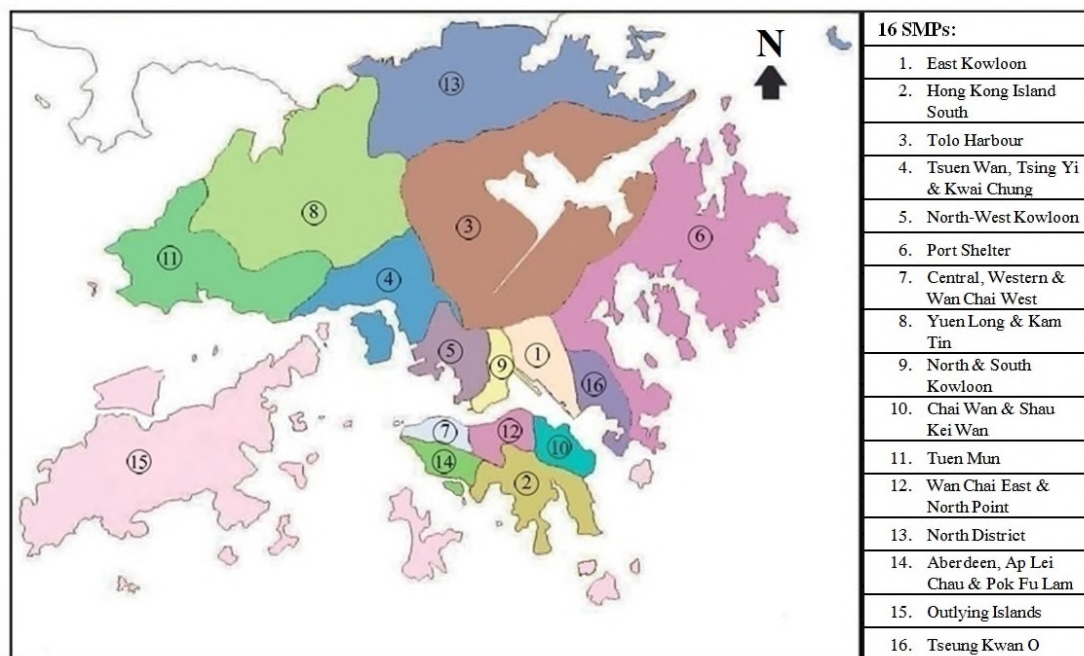
1.9 As revealed in Appendices A and B, of the 24 river monitoring stations situated in Yuen Long District and North District which have a large number of unsewered villages, in 2015, the average levels of *E. coli* at 14 (58% of 24) stations still exceeded 10,000 *E. coli* per 100 mL of water, indicating that sewage discharge from villages in these areas might be a source causing the high levels of *E. coli* in the pertinent rivers.

### *Village sewerage programmes*

1.10 According to the EPD and the Drainage Services Department (DSD), a proper sewerage network for collecting sewage from village houses for suitable treatment is the long-term solution to the water pollution problems in related areas. From 1989 to 1996, the EPD had formulated 16 Sewerage Master Plans (SMPs) for Hong Kong, which set out at the regional/district level sewage collection, treatment and disposal programmes on a catchment basis (see Figure 1) to meet the present and future development needs. The key objectives of the SMP studies were to assess the appropriateness of the prevailing sewerage networks, sewage pumping stations and sewage treatment facilities, and to make recommendations on measures to mitigate pollution problems or shortfalls in the sewerage systems. The SMPs included programmes of rehabilitation and construction of sewers, provision, expansion and upgrading of sewage treatment plants, construction of DWFIs, and provision of public sewerage systems for unsewered rural villages (hereinafter referred to as village sewerage programmes (VS programmes)).

Figure 1

## Sewage catchment areas under 16 SMPs



Source: EPD records

1.11 According to the EPD, the pollution load in most major river catchments had been reduced by up to 96% resulting from the provision of a comprehensive sewage catchment system under the SMPs over the past decades and enforcement actions taken against unlawful acts causing water pollution. From 1999 to 2010, the EPD also completed reviews of the SMPs by taking into account the updated population and development parameters. According to the EPD, its actions in recent years have led to the significant improvement in the overall water quality of Hong Kong. Details are shown in Appendix C.

## Introduction

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1.12 The objectives of the VS programmes included:

- (a) facilitating achievement of the statutory WQOs;
- (b) protecting public health, the ecosystem, rivers and coastal waters; and
- (c) reducing nuisance associated with deposition of unsightly food residues and toiletries contained in waste water, and spread of insects and malodour.

1.13 In March 2015, in response to the Legislative Council (LegCo) Members' requests, the EPD informed LegCo Public Works Subcommittee (PWSC) that, as of January 2015, of the 970 rural villages covered under the 16 SMP areas in Hong Kong, public sewerage works for:

- (a) 170 (17.5%) villages had been completed;
- (b) 340 (35%) villages were under construction or included in the Public Works Programme (PWP);
- (c) 170 (17.5%) villages had been planned for inclusion under the VS programmes in a later stage; and
- (d) 290 (30%) villages had not been included in the VS programmes due to reasons such as their remoteness and difficult site topography.

1.14 From 1989-90 to 2015-16, the Government's expenditure on the implementation of VS programmes and related works was \$8.2 billion, and the estimated expenditure from 2016-17 to 2025-26 is \$2.7 billion.

### ***Responsible government bureaux and departments***

1.15 The Environment Bureau (ENB — Note 7) is responsible for policy matters on improving the water quality of rivers and coastal areas. As the executive arm of the ENB, the EPD, through its Water Policy Division, is responsible for monitoring the water quality of rivers and coastal areas and planning the VS programmes and, through its Environmental Compliance Division, for enforcing compliance with the WPC Ordinance. Appendix D shows an extract of the organisation chart of the EPD. As the EPD's works agent, the DSD is responsible for implementing works under the VS programmes and for operating and maintaining public sewage treatment plants in Hong Kong.

1.16 Under the Public Health and Municipal Services Ordinance (Cap. 132 — PHMS Ordinance), the Food and Environmental Hygiene Department (FEHD) is vested with the authority to take enforcement actions on nuisances arising from STS systems in private premises. It also provides desludging services for STS systems and, under the WD Ordinance, may issue licences to operators for them to provide services for desludging and disposal of excretal matter.

### **Audit review**

1.17 In 2010, the Audit Commission (Audit) conducted a review of the Government's planning and administration of the VS programmes, focusing on the implementation of VS programmes in Yuen Long District and North District and the sewer connection of village houses. The results of the review were included in Chapter 9 of the Director of Audit's Report No. 55 of October 2010.

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**Note 7:** *In July 2007, the ENB was formed to take over the policy issues on environmental matters. Before July 2007, the policy responsibility had been taken up by the then Environment, Transport and Works Bureau (July 2002 to June 2007), the then Environment and Food Bureau (January 2000 to June 2002), the then Planning, Environment and Lands Bureau (July 1997 to December 1999) and the then Planning, Environment and Lands Branch (before July 1997).*

## **Introduction**

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1.18 In May 2016, Audit commenced a review to examine sewerage systems in rural areas. The review focuses on the following areas:

- (a) pollution control in unsewered areas (PART 2);
- (b) planning and implementation of village sewerage programmes (PART 3);  
and
- (c) sewer connection of village houses (PART 4).

Audit has found room for improvements in the above areas, and has made a number of recommendations to address the issues.

## **Acknowledgement**

1.19 Audit would like to acknowledge with gratitude the full cooperation of the staff of the ENB, the EPD, the DSD, the FEHD, the Lands Department (Lands D) and the Home Affairs Department (HAD) during the course of the audit review.

## **PART 2: POLLUTION CONTROL IN UNSEWERED AREAS**

2.1 This PART examines actions taken by the EPD to control pollution caused by unsewered villages and squatters, focusing on:

- (a) control and monitoring of compliance with WQOs on *E. coli* (see paras. 2.2 to 2.13);
- (b) control and monitoring of STS systems (see paras. 2.14 to 2.43); and
- (c) control and monitoring of desludging operations (see paras. 2.44 to 2.56).

### **Control and monitoring of compliance with Water Quality Objectives on *E. coli***

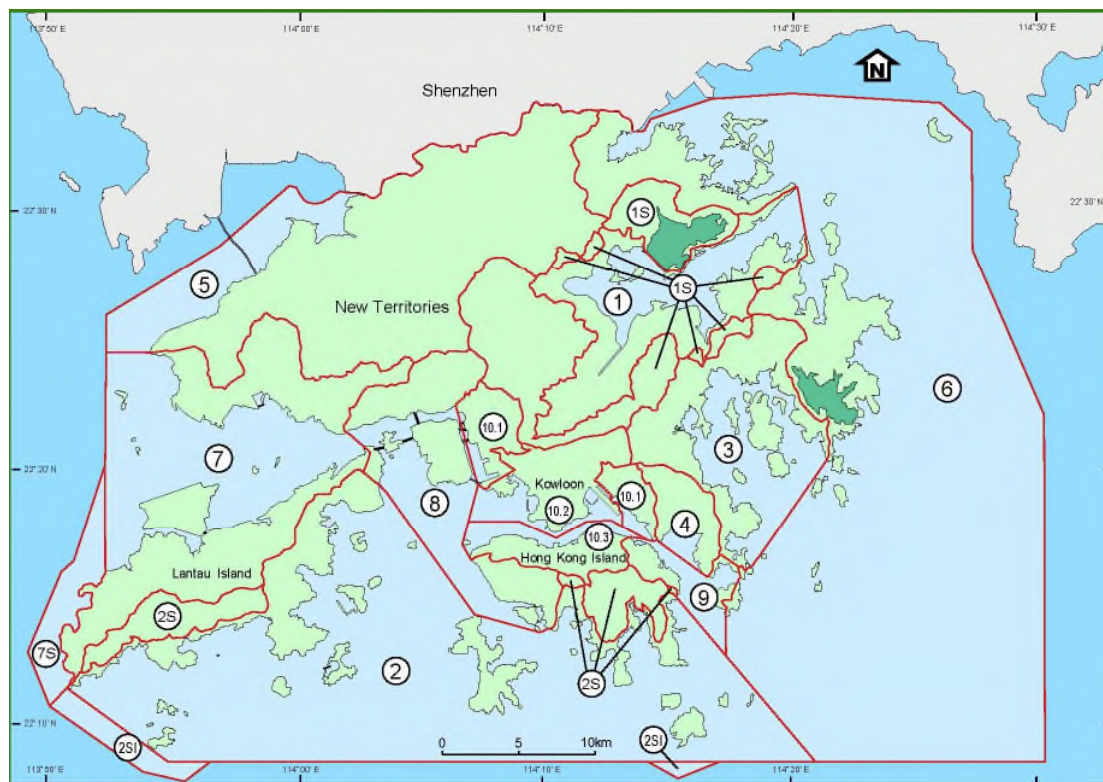
2.2 Under the WPC Ordinance:

- (a) the marine and inland waters (including rivers, lakes, and ponds) in Hong Kong are designated into 10 water control zones and 4 supplementary water control zones (see Figure 2). These water control zones comprise 48 subzones for inland waters and 42 subzones for marine waters (totalling 90 water control subzones);
- (b) different levels of WQO parameters, such as *E. coli* (see para. 1.6), pH value, suspended solids, dissolved oxygen, 5-day biochemical oxygen demand and chemical oxygen demand, have been established for different water control subzones; and
- (c) the EPD shall take actions with a view to achieving the relevant WQOs established for each water control subzone as soon as is reasonably practicable and thereafter maintaining the quality so achieved.

The objectives of the above statutory requirements are to promote the conservation and best use of marine and inland waters in the public interest.

**Figure 2**

### Water control zones in Hong Kong



- Legend:**
- |                                    |                                    |
|------------------------------------|------------------------------------|
| 1. Tolo Harbour and Channel        | 2. Southern                        |
| 3. Port Shelter                    | 4. Junk Bay                        |
| 5. Deep Bay                        | 6. Mirs Bay                        |
| 7. North Western                   | 8. Western Buffer                  |
| 9. Eastern Buffer                  | 10. Victoria Harbour (in 3 phases) |
| 1S. Tolo Harbour Supplementary     | 2S. Southern Supplementary         |
| 2SI. Second Southern Supplementary | 7S. North Western Supplementary    |

*Source: EPD records*

2.3 In order to assess the water quality of a river and its changes over time, the EPD has established 82 river monitoring stations along 30 major rivers in Hong Kong to collect water samples on a monthly basis. The EPD has published in its annual river-water quality reports details of the monitoring results obtained from its river monitoring programme, including summary statistics of water quality data, compliance rates of five WQO parameters (namely pH value, suspended solids, dissolved oxygen, 5-day biochemical oxygen demand and chemical oxygen demand) and Water Quality Index (WQI), whereas the WQI is not stipulated under the WPC Ordinance.

2.4 In September and October 2016, the EPD informed Audit that:

- (a) the WQI had been used since 1986 to indicate the general health of a river, which was based on assessment of 3 parameters, namely dissolved oxygen, 5-day biochemical oxygen demand and ammonia-nitrogen (Note 8), and similar indices were also used overseas. These parameters were relevant to conserving the primary beneficial use on maintenance of the aquatic life, and were collectively used to gauge the extent of organic pollution in a river. The WQI classified river-water quality into 5 gradings (namely “Excellent”, “Good”, “Fair”, “Bad” and “Very Bad”). A river having a WQI grading of “Good” or “Excellent” meant that it did not suffer from organic pollution and the water quality was good or excellent in terms of conserving the primary beneficial use on maintenance of the aquatic life. A river having a WQI grading of “Very Bad” meant that it was seriously polluted by organic waste and the water quality failed to support a healthy aquatic life;
- (b) while the WQI was not stipulated under the WPC Ordinance, based on the EPD’s 30 years of river-monitoring experience and professional judgement, the EPD considered the WQI as the most important and relevant index for assessing the river quality in Hong Kong;
- (c) in 2015, the overall compliance rate of Hong Kong’s rivers with the five WQOs on pH value, suspended solids, dissolved oxygen, 5-day biochemical oxygen demand and chemical oxygen demand was 89%, as compared with 49% in 1986. All beaches gazetted under the PHMS Ordinance had complied with the WQO on *E. coli* for six consecutive years from 2010 to 2015;
- (d) in 2015, based on the 3 WQI parameters (see (a) above), 48% of the river monitoring stations were graded “Excellent” and 34% were graded “Good”, as compared with only 8.5% being graded “Excellent” and 25.5% being graded “Good” in 1986. No stations were graded “Very Bad” in 2015, as compared with 26% in 1986. 82% of water samples

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**Note 8:** *Ammonia-nitrogen is a pollutant in water that mainly arises from decomposition of nitrogen-containing organic chemical matter by microorganisms. A high level of ammonia, if present in unionised form, may be harmful to human beings and aquatic lives such as fish.*



collected at river monitoring stations had achieved the grading of “Good” or above. The number of gazetted beaches being graded “Good” increased from 9 in 1986 to 25 in 2015; and

- (e) the above improvements were the results of the implementation of various pollution control measures, including provision of village sewerage facilities.

### ***High *E. coli* levels at many water control subzones***

2.5 According to the WHO, the level of *E. coli* in a water body is used as an indicator of faecal contamination and pollution, and the presence of *E. coli* indicates that the water may be contaminated by sewage which may contain other disease-causing microorganisms. According to the WPC Ordinance, after consultation with the Advisory Council on the Environment (Note 9), the ENB shall establish different levels of WQO parameters for different water control zones and subzones, and may amend any WQO from time to time. As of October 2016, for 39 (81%) of 48 inland water control subzones, WQOs on *E. coli* had been established as subsidiary legislations under the Ordinance. Water samples collected from river water monitoring stations should be representative of the inland water quality of the corresponding water control subzones. Of the 71 monitoring stations situating in water control subzones where WQOs on *E. coli* had been established, Audit examination revealed that the average levels of *E. coli* found at 63 (89%) of the 71 monitoring stations had exceeded the corresponding statutory WQOs in 2015. Details are shown in Appendices A and B.

2.6 In this connection, the EPD published the level of *E. coli* obtained from water samples collected from related river monitoring stations in the following five levels:

- (a) “very high” (100,001 or more *E. coli* per 100 mL of water);

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**Note 9:** *The Advisory Council on the Environment is the Government’s principal advisory body on matters relating to pollution control, environmental protection and nature conservation. It is chaired by an academic with members comprising academics, businessmen, professionals and representatives from major green groups, and trade and industrial associations.*

- (b) “high” (10,001 to 100,000 *E. coli* per 100 mL of water);
- (c) “moderate” (1,001 to 10,000 *E. coli* per 100 mL of water);
- (d) “moderately low” (611 to 1,000 *E. coli* per 100 mL of water); and
- (e) “low” (610 or less *E. coli* per 100 mL of water).

2.7 The EPD had expressed views on the following occasions related to *E. coli*:

- (a) in March 1995, the EPD informed LegCo Panel on Environmental Affairs that beneficial uses of inland waters (including rivers, lakes and ponds) included abstraction for potable-water supply, irrigation, pond fish culture, secondary-contact recreation activities, general amenity and provision of a habitat for marine life, and WQOs in line with those used in many other countries had been developed for the various water control zones in Hong Kong to protect the beneficial uses in these zones. WQOs on *E. coli* were established to protect the public from the risk of exposure to disease-causing microorganisms. WQOs could be used to indicate prevailing water quality and long-term water-quality trends, to assess and monitor the effectiveness of environmental improvement measures, and to signal the need for further actions to improve water quality;
- (b) in May 2003, the EPD informed the then Environment, Transport and Works Bureau (ETWB — see Note 7 to para.1.15) that sewage pollution from unsewered developments was the main source of water quality deterioration at rivers in the territory, and all major rivers in the New Territories failed to meet the WQOs on *E. coli*; and
- (c) from 2008 to 2015, the EPD stated in its annual river water quality reports that sewage discharge from unsewered village houses was one of the sources contributing to the high *E. coli* levels at many rivers in the New Territories.

## Pollution control in unsewered areas

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2.8 In October 2016, the EPD informed Audit that:

- (a) WQOs on *E. coli* should only be established for water bodies having beneficial uses of potable-water abstraction, primary-contact (i.e. whole-body contact with water), secondary-contact recreational uses, aquaculture and mariculture purposes. The objective was to safeguard public health from infection risk due to human contact with contaminated water, and a higher *E. coli* count in the water bodies would indicate greater faecal contamination of the water and a higher health risk. Therefore, for inland water control subzones (e.g. watercourses in urban and semi-rural areas) not having the above beneficial uses, *E. coli* level was no longer a significant parameter and some of the existing WQOs on *E. coli* should be removed from the WPC Ordinance (details of the EPD's views are shown in Appendix E); and
- (b) the EPD would conduct a review of the WQOs for inland waters, which would cover the WQOs on *E. coli* and the need for monitoring compliance with related WQOs.

2.9 In Audit's view, the EPD needs to closely monitor the levels of *E. coli* of water control zones as high *E. coli* levels in the water would indicate a high level of faecal contamination.

2.10 Audit noted that, while the EPD published in the annual river-water quality reports the level (in terms of "low" to "very high") of *E. coli* obtained at related river monitoring stations, the EPD did not publish the actual values of *E. coli* in comparison with the related statutory WQO value for each water control subzone.

### ***Need to ascertain the extent of river pollution caused by village sewage discharge***

2.11 Audit noted that the EPD did not conduct periodic assessments of the extent of pollution of major rivers caused by village sewage discharge. In Audit's view, the EPD needs to consider periodically conducting such assessments and publishing the results of the assessments. These assessments would help the EPD

monitor and evaluate the effectiveness of its actions on village sewerage, and to focus its actions on areas having high water pollution caused by village sewage discharge.

### Audit recommendation

2.12      **Audit has *recommended* that the Director of Environmental Protection should consider periodically conducting assessments of the extent of pollution of major rivers caused by village sewage discharge, and publishing the results of the assessments.**

### Response from the Government

2.13      The Director of Environmental Protection agrees with the audit recommendation.

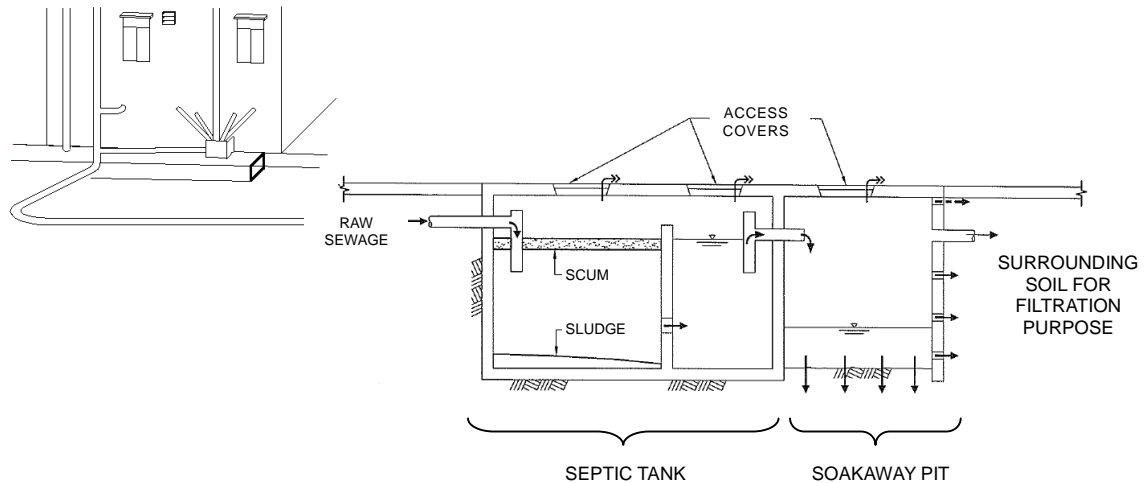
### Control and monitoring of septic-tank-and-soakaway systems

2.14      In areas where public sewerage is not provided, house owners normally install STS systems for treating sewage. An STS system (see Figure 3 for a typical layout) comprises the following three elements:

- (a)      ***Septic tank.*** In a septic tank (usually composing of two compartments), waste water is segregated into three layers (scum on the top, sludge at the bottom and effluent in the middle of the tank);
- (b)      ***Soakaway pit.*** Effluent discharged from a septic tank flows into a soakaway pit and then soaks into the surrounding soil; and
- (c)      ***Surrounding soil.*** Bacteria in the surrounding soil would decompose the polluting materials contained in the effluent.

Figure 3

### A typical STS system



Source: EPD records

2.15 According to the EPD, satisfactory operation of an STS system requires:

- (a) sufficient space for installing the system of an adequate size to handle sewage being discharged from an unsewered house;
- (b) suitable ground conditions for the effluent to filter into the ground and adequate underground distance for the effluent to travel for satisfactory decomposition of the polluting materials; and
- (c) regular maintenance of the septic tank to prevent blockage and effluent overflow.

Failure to meet the above requirements may lead to the effluent being discharged from the house causing pollution to the nearby rivers and environment.

### *Mechanisms to control STS systems*

2.16 Under the WPC Ordinance, since 1993, the EPD may issue a perpetual licence for an STS system requiring the pertinent owner to meet certain operational and maintenance conditions. The licence conditions include:

- (a) ***Regular maintenance.*** The septic tank shall be desludged regularly, the clogged soakaway pit shall be cleaned immediately and damage to the STS system shall be repaired promptly;
- (b) ***Proper sludge disposal.*** Sludge removed in the desludging process shall be handled and disposed of properly (e.g. disposal of at DSD sewage treatment plants by specialist desludging operators); and
- (c) ***Proper record keeping.*** Records of the desludging and disposal operations shall be maintained and made available for inspection by EPD officers.

Any person contravening the licence conditions commits an offence, and is liable on conviction to a fine of \$200,000 and to imprisonment of six months.

2.17 The EPD and the FEHD adopt a complaint-driven approach to tackle pollution problems and nuisances arising from STS systems. Upon receiving a pollution complaint by the EPD, its staff would conduct an inspection of the related STS systems and associated stormwater drains, and request the responsible persons to make improvements in accordance with the Guidance Notes on Discharges from Village Houses issued by the EPD in 1992 (hereinafter referred to as the 1992 Guidance Notes — Note 10). If the responsible persons do not carry out any improvement work, the EPD will consider taking prosecution actions against them. Moreover, upon receiving a pollution complaint by the FEHD, its staff would also conduct an inspection of the related STS systems and request the responsible person to abate the nuisances caused by the STS systems. The FEHD will consider taking enforcement actions if the responsible person fails to abate the nuisances.

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**Note 10:** *The 1992 Guidance Notes emphasised the principle of “Prevention is better than cure” and advised villagers of practical guidelines on the operation and maintenance of an STS system.*

2.18 Under the Buildings Ordinance (Application to the New Territories) Ordinance (Cap. 121), the Lands D may issue a Certificate of Exemption (CoE) for drainage works to an owner of a new or redeveloped village house in the New Territories meeting specified criteria (Note 11) to exempt him from complying with the drainage requirements under the Buildings Ordinance (Cap. 123) in carrying out drainage works for his house. A CoE for drainage works lays down some conditions for compliance, such as the minimum distance between the STS system and sensitive water bodies and the size and type of an allowable septic tank. The Lands D would check compliance with the CoE conditions before granting a certificate of compliance for the occupation of a village house, including the operation of an STS system.

### *Problems of STS systems*

2.19 The Government had identified various problems related to STS systems on the following occasions:

- (a) in July 1991, in a press release, the then Planning, Environment and Lands Branch (PEL Branch — see Note 7 to para. 1.15) of the Government Secretariat said that septic tanks were one of the major pollution sources in the New Territories;
- (b) the EPD informed the then ETWB in May 2003 that:
  - (i) many village sites located in flood plains (e.g. in Yuen Long, Kam Tin, North District and Tai Po areas) were not suitable for the operation of STS systems, as soakaway pits would not function properly in soil having high groundwater levels or a high clay content;
  - (ii) regular maintenance of septic tanks (e.g. desludging of the tanks) was not commonly practised;

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**Note 11:** *The specified criteria include a requirement that the pertinent building should not consist of more than three storeys and it:*

- (a) *has a roof area of not exceeding 65.03 square metres and a height of not exceeding 8.23 metres; or*
- (b) *has a roof area of not exceeding 92.90 square metres and a height of not exceeding 7.62 metres.*

- (iii) while the environmental impacts of septic tanks of individual village houses were small, the cumulative impacts arising from large village population, high density of village house developments and reliance on ineffective STS systems were a major concern; and
  - (iv) sewage pollution from unsewered developments was the main source of water quality deterioration at rivers in the territory, and all major rivers in the New Territories failed to meet the WQOs on *E. coli*;
- (c) from 2005 to 2015, when seeking funding approvals for 24 projects relating to the VS programmes (involving 172 villages with total Approved Project Estimates (APEs) of \$8 billion — Note 12), the then ETWB and the ENB informed LegCo Finance Committee (FC) that STS systems installed in the related unsewered areas were generally ineffective in removing pollutants due to their close proximity to watercourses and inadequate maintenance, and sewage from these unsewered areas was identified as a source of water pollution to nearby watercourses and the related marine waters; and
- (d) from 2008 to 2015, the EPD stated in its annual river water quality reports that sewage discharge from unsewered village houses was one of the sources contributing to the high *E. coli* levels at many rivers in the New Territories.

2.20 An EPD consultancy study in October 2001 (2001 Consultancy Study) had identified the following problems related to STS systems:

- (a) based on observations of the consultant and staff of the EPD's Regional Offices, the favourable site characteristics and proper design, operation and maintenance for the appropriate functioning of STS systems were found not being commonly met in practice;

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**Note 12:** *According to the DSD, the total APEs of \$8 billion also covered costs of works on trunk sewers, sewage pumping stations and sewage treatment plants, and it was not practicable for the DSD to provide the APE solely related to village sewerage works.*



## Pollution control in unsewered areas

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- (b) a septic tank for an 8-person village house having a volume of 2.3 cubic metres (m<sup>3</sup>) as required under a CoE issued by the Lands D did not have sufficient capacity to receive the full sewage flow, when compared with the size of 3 m<sup>3</sup> adopted in the Australia and New Zealand standards and that of 3.8 m<sup>3</sup> in the United States of America standards, representing under-capacity of 23% and 39% respectively (Note 13);
- (c) the soakaway capacity of STS systems of some village houses was uncertain because percolation tests were not normally performed;
- (d) the expected effective life of an STS system would be 10 to 20 years depending on the pollution loading of the surrounding soil;
- (e) site investigation, detailed monitoring and laboratory tests carried out on STS systems installed in two villages (located in Tai Po and Lantau Island respectively) revealed that there were problems associated with the operations of the related STS systems, where soakaway pits were connected to surface water drains and waste water from baths, showers and sinks was discharged into stormwater drains, causing pollution to the nearby environment and downstream rivers; and
- (f) although the study found little or nominal groundwater contamination that could be attributed to sewage discharge at the two villages, the study indicated that, if effluent discharged from village houses was not properly treated, it would lead to contamination of groundwater and nearby rivers.

2.21 With a view to tackling environmental problems arising from STS systems, the 2001 Consultancy Study, inter alia, made the following recommendations:

### *Short-term measures*

- (a) investigating the feasibility of installing DWFI at villages located near sensitive receivers;

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**Note 13:** *In October 2016, the EPD informed Audit that the volume of septic tanks was not considered a key issue of pollution caused by STS systems, and there was a practicality issue in the design of sewage treatment facilities in Hong Kong in view of space constraints.*

- (b) establishing a register of village premises and associated sewerage facilities at all villages in Hong Kong, and a map of villages showing areas associated with high risk of pollution caused by unsewered villages;
- (c) undertaking periodic inspections, and formulating monitoring and audit requirements for villages;

### *Long-term measures*

- (d) providing sewerage infrastructure for village houses (see paras. 3.16 to 3.18); and
- (e) investigating the adoption of small sewage treatment plants for individual village houses (see paras. 3.36 to 3.38).

2.22 Regarding the recommendations of the 2001 Consultancy Study, Audit examination and enquiries revealed that:

- (a) for paragraph 2.21(a), the EPD did not have readily available information on the number and conditions of all DWFIs being installed for unsewered village houses and squatters. Moreover, although the EPD had taken actions to assess the effectiveness of some DWFIs (e.g. those installed near Kai Tak River, Shing Mun River and Tuen Mun River), the EPD had not taken actions to comprehensively ascertain the extent and effectiveness of all DWFIs in controlling pollution caused by unsewered residential squatters (see para. 3.6);
- (b) for paragraph 2.21(b), the EPD had not taken action on this recommendation. In August and September 2016, the Lands D and the EPD informed Audit that they did not maintain statistics on the total number of village houses in Hong Kong that were installed with STS systems, nor the types and sizes of septic tanks installed for the houses (see paras. 2.29(e) and 2.30(d));
- (c) for paragraph 2.21(c), the EPD had not taken action on this issue (see paras. 2.32 to 2.35);

- (d) for paragraph 2.21(d), the EPD had implemented the VS programmes to address this issue. However, Audit noted that there had been long delays in implementing the VS programmes and there was no timeframe for completing the whole programmes (see paras. 3.16 to 3.18), and 290 villages were not included in the VS programmes due to their remoteness and difficult site topography (see para. 1.13(d)); and
- (e) for paragraph 2.21(e), the EPD had not taken action on this issue (see paras. 3.36 to 3.38).

### ***Lack of effective means to prevent STS systems from causing pollution***

2.23 According to the EPD, the WPC Ordinance was implemented in phases starting from 1987 and pre-existing discharges (i.e. sewerage facilities installed before 1987) were exempted from control under the Ordinance. From 1990 to 1993, an owner of an STS system might apply to the EPD for issuance of a renewable two-year licence for the system under the WPC Ordinance. In July 1991, the then PEL Branch informed the public that:

- (a) to avoid becoming a pollution source, septic tanks had to be constructed and maintained properly, and therefore a CoE issued by the Lands D (see para. 2.18) for regulating the construction of a septic tank did not on its own ensure that the effluent discharged by that septic tank was acceptable;
- (b) the maintenance of septic tanks would be a continuous responsibility and could not be dealt with by periodic publicity campaigns, and therefore there had to be some means of legal enforcement; and
- (c) for village houses in the New Territories, a licensing scheme for septic tanks would be the most suitable form of enforcement, as it defined the responsibilities of licensees and enforcement would be based on these responsibilities. The licensing scheme would be the best and the only way through which the Government and the community could make real progress in improving the environment of the New Territories.

2.24 In December 1990, the WPC Ordinance was amended where the control exemptions for pre-existing discharges (see para. 2.23) were discontinued. In 1990, when the Deep Bay and Mirs Bay Water Control Zones (covering the North and

Yuen Long Districts) were declared to be included under the Ordinance, all discharges from industrial, commercial, construction and institutional activities and discharges of domestic sewage in unsewered areas were brought into the licensing control regime. According to the EPD, the implementation of WPC Ordinance in the two Water Control Zones had encountered strong opposition from village representatives and they argued that the licensing system under the Ordinance should not be applicable to discharges of domestic sewage from village houses. In this connection, the then PEL Branch sought legal advice in December 1991 and subsequently informed village representatives in the New Territories in January 1992 that:

- (a) licensing under the WPC Ordinance was not a mandatory requirement and failure to obtain a licence was not an offence;
- (b) it was an offence under the WPC Ordinance to discharge any waste or polluting matter into any water control zone, and a licence issued under the Ordinance would provide a complete defence to the dischargers as long as the discharge was made in accordance with the licence conditions. Dischargers were therefore advised to obtain a licence under the Ordinance and comply with the licence conditions as this was the only certain way of avoiding conviction for causing pollution to the environment;
- (c) the EPD would initially concentrate its enforcement efforts on the potentially most harmful discharges, including septic tank discharges found to be particularly polluting in some environmentally sensitive areas, such as those locating near beaches and water gathering ground; and
- (d) the EPD would prepare and distribute guidance notes to the rural community on proper maintenance of septic tanks.

2.25 In 1992, the EPD published the 1992 Guidance Notes (see para. 2.17) to educate owners on how to properly operate and maintain STS systems. According to the EPD, the 1992 Guidance Notes covered all the operational and maintenance requirements that were included in a septic-tank licence, and inspections of STS systems installed at private premises might cause disturbance to the owners and a court warrant might be required for gaining entry to premises for conducting inspections.

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2.26 In 1993, amendments were made to the WPC Ordinance under which the EPD might issue a perpetual licence for an STS system. According to the EPD, this arrangement would reduce the administrative work and cost burden on villagers if they choose to apply for a licence for their STS systems.

2.27 In response to LegCo Members' enquiries, the then ETWB said in June 2003 that:

- (a) many septic tanks installed at village houses could not function properly and the pollution problem associated with village houses was long-standing;
- (b) of the 100,000 village houses in Hong Kong (Note 14), only 8,000 septic tanks had been licensed; and
- (c) the then ETWB hoped that village house owners could apply for licences for their septic tanks with a view to ameliorating the water pollution problem more effectively.

2.28 However, as of August 2016, of the about 70,000 village houses and 84,000 residential squatters, only 1,912 had been issued with valid licences for STS systems. According to EPD records:

- (a) of the 8,000 septic tanks that had been licensed (see para. 2.27(b)), the licences of 6,098 septic tanks had in fact expired and had not been renewed. Hence, only 1,902 (8,000 less 6,098) licences were in force as of June 2003;
- (b) from July 2003 to August 2008, only 10 STS-system owners had applied for and had been granted the licences;

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**Note 14:** *According to the EPD, of the 100,300 village houses as of June 2003, STS systems were adopted for 80,000 houses, private sewage treatment plants for 17,000 houses, and public sewers were connected for 3,300 houses.*

- (c) from September 2008 to August 2016, none of the STS-system owners had applied for the licences; and
- (d) as of August 2016, 1,912 (1,902 + 10) licences for STS systems were in force.

2.29 From August to October 2016, the EPD informed Audit that:

- (a) although owners of STS systems might choose not to apply for licences for their septic tanks (as licensing of septic tanks under the WPC Ordinance was not mandatory), the owners might run the risk of being prosecuted because they would have no defence for discharging any waste or polluting matter;
- (b) although sewage discharges from STS systems would soak into the ground and would not be visible under normal circumstances, problematic systems with overflow or leakage would affect the hygiene conditions of the owners' premises and they would have an incentive to rectify the problems in their own interests. The EPD would also take actions against the owners if they caused pollution to the water environment;
- (c) licensing for STS systems was not regarded as the only way of improving water quality in the New Territories over the years. In light of the legal constraints on implementing the licensing scheme for STS systems, cost-effectiveness consideration and the need to provide village sewerage as a long-term solution, the EPD would focus actions on the installation of DWFIs for village houses (see para. 2.22(a)) and planning and provision of sewerage infrastructure (see para. 2.22(d)). As a result, water pollutants had been substantially removed and sewage discharges from STS systems were only one of the pollution sources. There had been significant improvement in the river-water quality as compared with that in 1991;
- (d) there were practical difficulties in gaining access to private premises to ascertain the extent of compliance with the 1992 Guidance Notes for each STS system; and

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- (e) regarding the lack of a database on STS systems installed for unsewered village houses (see para. 2.22(b)), the EPD's enforcement experience had indicated that STS systems should have been installed for the vast majority (if not all) of village houses located in unsewered areas. On the other hand, the EPD had maintained records of village houses for planning VS programmes and taking enforcement actions against house owners. Each complaint on water pollution would be investigated and tackled individually, and there was no strong operational need to establish a database for such systems. The setting up of a database for STS systems of about 80,000 village houses would also involve very significant additional resources in collection, management and updating of data from time to time.

2.30 Audit considers it unsatisfactory that:

- (a) only a small percentage (Note 15) of STS systems were subject to licensing control and that licensing of the systems was not mandatory under the WPC Ordinance;
- (b) owing to the lack of survey and inspection of STS systems, there is no assurance that the 1992 Guidance Notes have been commonly complied with in STS system maintenance;
- (c) there is no indication that DWFIs have been effectively installed and operated to minimise pollution caused by unsewered villages because the EPD has not taken action to comprehensively ascertain the extent and effectiveness of all the DWFIs installed; and
- (d) the EPD and the Lands D have not maintained a database for STS systems installed for unsewered village houses, which may render it difficult for the two departments to carry out effective monitoring and enforcement actions on these systems.

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**Note 15:** *The EPD did not have the up-to-date number of STS systems. Based on the 80,000 STS systems as of June 2003, the 1,912 licences only accounted for 2% of the 80,000 STS systems.*

2.31 In Audit's view, the EPD needs to explore ways and means to strengthen control over high-risk STS systems to ensure that the operations would not cause pollution to the environment. The EPD also needs to consider implementing the recommendation of the 2001 Consultancy Study on establishing a register or a database for STS systems, particularly for the high-risk ones, installed for unsewered village houses (see para. 2.21(b)). The database could be used for:

- (a) keeping details of all STS systems highlighting the high-risk ones for monitoring and conducting inspections;
- (b) maintaining records of complaints, follow-up actions taken and rectification works carried out; and
- (c) registering details of inspections carried out and results of inspections.

### *Need to strengthen inspections of high-risk STS systems*

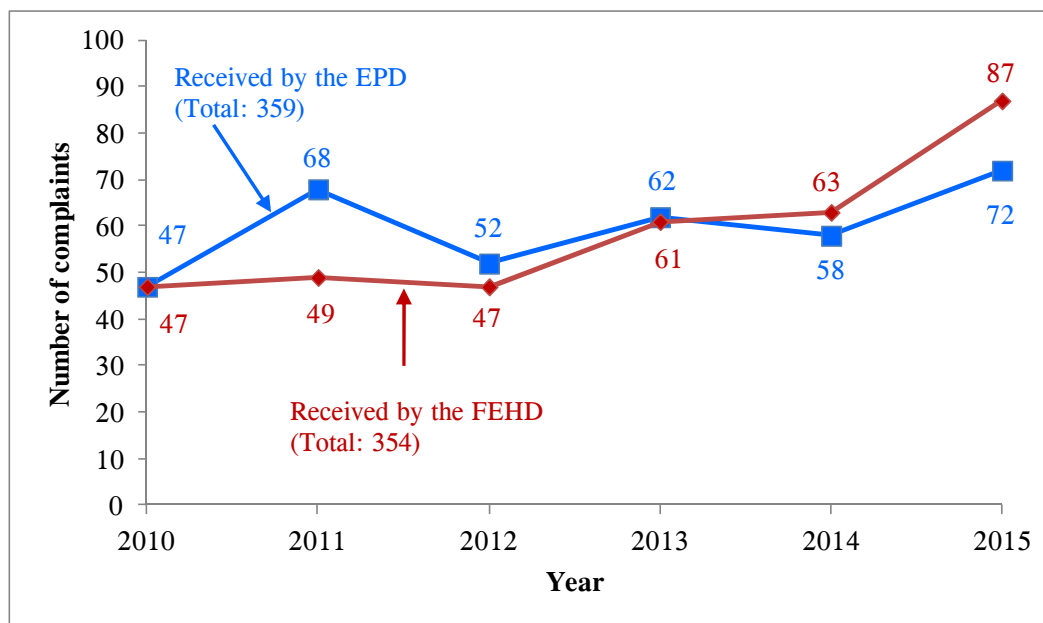
2.32 Before August 2002, the FEHD had conducted inspections of septic tanks installed for use by residents of unsewered houses at least once every three months. Since August 2002, the FEHD has ceased the regular-inspection arrangement. According to the FEHD, owing to rapidly increasing workload in terms of volume, complexity and variety of its district offices, a review conducted by the FEHD in 2002 concluded that other competing duties should take priority over regular inspections of septic tanks.

2.33 At present, the EPD and the FEHD adopt a complaint-driven approach to handle pollution problems and nuisances arising from STS systems (see para. 2.17). Figure 4 shows the number of complaints received on STS systems by the EPD and the FEHD from 2010 to 2015. As shown in Figure 4, the number of complaints on STS systems received by the EPD and the FEHD had increased from 94 (47 + 47) in 2010 to 159 (72 + 87) in 2015, representing a 69% increase. Regarding the total 713 (359 + 354) complaints received from 2010 to 2015, the EPD had issued 301 warning letters and the FEHD had issued 3 warning letters and 1 nuisance notice under the PHMS Ordinance to the STS-system owners concerned.



Figure 4

### Number of complaints on STS systems received by EPD and FEHD (2010 to 2015)



Source: EPD and FEHD records

2.34 From August to October 2016, the EPD and the FEHD informed Audit that:

#### **EPD**

- (a) in view of the EPD's available manpower resources, it had accorded a lower priority to taking surveillance or monitoring actions on STS systems of village houses and a higher priority on industrial and commercial premises, because discharges from the latter premises were potentially more polluting than those from village houses;
- (b) the pollution problem of discharges from village houses would be resolved most effectively through the progressive implementation of the VS programmes;

***FEHD***

- (c) the number of complaints on STS systems (see para. 2.33) only represented a very small fraction of the complaints related to environmental hygiene matters received by FEHD in the same period. For instance, in 2015, the FEHD received over 46,000 complaints relating to environmental hygiene matters, including complaints on STS systems. Only 3 warning letters and 1 nuisance notice were issued under the PHMS Ordinance for the 354 complaints on STS systems received from 2010 to 2015. The reasons of taking relatively small number of enforcement actions by the FEHD included: (i) nuisances arising from STS systems could be abated easily without enforcement actions, (ii) complaints on some STS systems received were unjustified, or (iii) complaints being outside the FEHD's jurisdiction had been referred to other relevant government departments for follow-up action; and
- (d) in view of priorities of other competing duties, manpower deployment and the very small number of complaint cases warranting the FEHD's enforcement actions, the FEHD considered it more cost-effective to continue with the complaint-driven approach in handling nuisances related to STS systems.

2.35 Audit noted that effluent discharged from STS systems may be soaked into the ground and nearby rivers which could not be detected and observed except by conducting a detailed monitoring and laboratory test (see para. 2.20(e)). In Audit's view, given the many problems associated with STS systems installed at unsewered village houses (see paras. 2.19 and 2.20), the EPD needs to strengthen actions in identifying and monitoring STS systems that pose a high risk of causing pollution to the environment, particularly those located close to streams and rivers.

### ***Requirements for some STS systems not on par with EPD practice note***

2.36 Under the Buildings Ordinance (Application to the New Territories) Ordinance, the Lands D may impose conditions relating to safety and health standards when issuing a CoE for drainage works. The CoE conditions related to STS systems included the minimum distances of the systems from various sensitive water bodies (e.g. streams, springs, wells and beaches) and the conduct of percolation tests. In 1993, the EPD issued a practice note entitled “Drainage Plans subject to comment by the EPD” (hereinafter referred to as the 1993 Practice Note) for reference by Authorised Persons for preparing drainage-plan submissions under the Buildings Ordinance. The 1993 Practice Note stipulated various technical requirements for an STS system, including the minimum distances of the system from various sensitive water bodies and the need for conducting percolation tests in all cases. According to the EPD, an STS system having been designed, constructed and maintained in accordance with the requirements of the 1993 Practice Note would help achieve the intended sewage treatment function and prevent sewage discharge from polluting the environment.

2.37 Audit examination revealed that some of the village-house sewerage requirements stipulated under a CoE issued by the Lands D were not on par with those stipulated under the EPD’s 1993 Practice Note. Details are shown in Table 1.

**Table 1**

**Key variances between EPD and Lands D requirements  
on STS systems**

<b>Aspect</b>	<b>EPD's 1993 Practice Note</b>	<b>Lands D's CoE conditions</b>
(a) Minimum horizontal distance from beaches and wells	An STS system should be located at least:  (i) 100 metres from the boundaries of beaches gazetted under the PHMS Ordinance; and  (ii) 50 metres from wells.	An STS system should be located beyond 30 metres from wells (used for drinking or domestic purposes) and beaches.
(b) Minimum vertical distance from underground water level	An STS system should be located at least 0.6 metres from underground water level.	There is no minimum distance requirement between an STS system and underground water level, if the system is located beyond 30 metres from streams, springs, wells and beaches.
(c) Conduct of percolation tests	Percolation tests should be carried out to determine the absorption capacity of the soil surrounding an STS system, irrespective of the number of houses to be served and the distance of the system from sensitive water bodies.	Percolation tests need not be carried out, if an STS system serves a single village house and is located beyond 30 metres from streams, springs, wells and beaches.

*Source: EPD and Lands D records*

2.38 In September and October 2016, the Lands D informed Audit that:

- (a) owing to site constraints, in most of the applications for redevelopment of village houses, the applicants had encountered practical difficulties to find suitable locations for construction of STS systems in line with the EPD's 1993 Practice Note; and

## Pollution control in unsewered areas

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- (b) in an attempt to achieve better control over the provision of sewerage systems for village houses in the New Territories, the Lands D and the EPD agreed that, starting from December 2014:
  - (i) the design and construction of STS systems for village houses located within country-park enclaves in three areas (namely Hoi Ha and Pak Lap in Sai Kung area, and So Lo Pun in North District) should be in line with the EPD's 1993 Practice Note irrespective of the distance from sensitive water bodies. Applicants for development/redevelopment of village houses in these three locations should submit percolation test results certified by building professionals to the Lands D for scrutiny at the application stage, which would circulate the related information to the EPD, the DSD, the Planning Department and the Agriculture, Fisheries and Conservation Department for comments; and
  - (ii) the EPD's 1993 Practice Note was applicable to village-house sites located outside existing "V" zones requiring planning approvals under the Town Planning Ordinance (Cap. 131) or located in new/newly enlarged "V" zone areas (Note 16).

2.39 As the adoption of the 1993 Practice Note would help prevent sewage discharge from polluting the environment (see para. 2.36), and given the variances between the requirements of the EPD and the Lands D on installation and monitoring of STS systems, the Lands D, in collaboration with the EPD, needs to review and revise the CoE conditions such that they are in line with the EPD's 1993 Practice Note as far as practicable.

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**Note 16:** *According to the Lands D:*

- (a) *a "V" zone is an area of land having been zoned for village-type developments on a statutory plan under the Town Planning Ordinance before 30 December 2014;*
- (b) *a new "V" zone is an area of land that has been zoned for village-type developments on a statutory plan under the Town Planning Ordinance since 30 December 2014; and*
- (c) *a newly enlarged "V" zone is an area of land that has been extended from the existing "V" zone since 30 December 2014.*

## Audit recommendations

2.40 Audit has *recommended* that, in controlling and monitoring STS systems, the Director of Environmental Protection should explore ways and means to strengthen control over high-risk STS systems, particularly those located close to streams and rivers, to ensure that the operations would not cause pollution to the environment.

2.41 Audit has also *recommended* that the Director of Lands, in collaboration with the Director of Environmental Protection, should review and revise the CoE conditions for STS systems such that they are in line with the EPD's 1993 Practice Note as far as practicable.

## Response from the Government

2.42 The Director of Environmental Protection agrees with the audit recommendations in paragraphs 2.40 and 2.41. He has said that:

- (a) the EPD will strengthen control over village-house developments with a high risk of pollution (i.e. those located in environmentally sensitive areas or next to rivers) to improve water quality and provide greater protection to the water environment;
- (b) starting from 2014, the EPD has required developers of new village houses located in environmentally sensitive areas (e.g. country-park enclaves) to carry out percolation tests for STS systems during the planning stage. In collaboration with the relevant government departments, the EPD will consider extending the percolation-test requirement to new village houses located in areas other than country-park enclaves (see para. 2.38(b)(i)) as far as practicable; and
- (c) the EPD and Lands D are exploring possible enhancements to the standard conditions issued under a CoE.

2.43 The Director of Lands agrees with the audit recommendation in paragraph 2.41. She has said that the Lands D welcomes the EPD's advice on the ways in which the CoE conditions for STS systems of village houses would further align with the EPD's 1993 Practice Note as far as practicable.

### **Control and monitoring of desludging operations**

2.44 According to the EPD guidelines, to ensure the proper functioning of an STS system, it should be desludged every six months and the sludge removed from the system should be transported by desludging operators to sewage treatment plants for proper disposal.

#### ***No licences issued for desludging of septic tanks and disposal of excretal matter***

2.45 Under the WD Ordinance:

- (a) the EPD and the FEHD (Note 17) may provide services for desludging of septic tanks and disposal of excretal matter from such tanks;
- (b) the EPD and the FEHD may issue a licence to permit any person to provide the services in (a) above. A licensee may be required to:
  - (i) comply with stipulated standards for the design, construction, labelling, maintenance, operation, cleansing and disinfection of any containers, equipment and vehicles used for waste collection and transportation;
  - (ii) produce and comply with an operation plan to provide assurance on the quality of operation and a satisfactory level of environmental hygiene and pollution control;

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**Note 17:** *Under the WD Ordinance, the EPD and the FEHD are designated as the "collection authority" for desludging of septic tanks and disposal of excretal matter.*

- (iii) formulate and implement pollution control precautions for preventing and mitigating any nuisance arising from waste collection and transportation;
  - (iv) draw up an emergency plan for dealing with emergency situations and reporting incidents to the EPD and the FEHD; and
  - (v) keep records for each consignment of waste and submit related trip tickets (Note 18) to the EPD and the FEHD; and
- (c) any person who provides services for desludging of septic tanks or disposal of excretal matter from such tanks without obtaining a licence from the EPD and the FEHD commits an offence and is, on conviction, liable to a fine of \$100,000, where:
- (i) the EPD and the FEHD provide any services for desludging of septic tanks and disposal of excretal matter from such tanks; or
  - (ii) any person is permitted to provide such services under a licence issued by the EPD and the FEHD.

2.46 Audit noted that, since 2000, the FEHD had advertised on its website the provision of desludging services. From 2000 to 2002, as requested by members of the public, the FEHD had provided desludging services on 34 occasions. The FEHD had not provided desludging services during the 13 years from January 2003 to August 2016 (Note 19). In September 2016, the FEHD informed Audit that it

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**Note 18:** *As an administrative arrangement, a trip ticket recording the details of a desludging operator and the date of each sludge disposal is collected at a sewage treatment plant by the DSD for charging purposes. The charge rate is \$11.7 per m<sup>3</sup> of sludge being disposed of at the plant.*

**Note 19:** *According to the FEHD, from 2003 to 2014, it had not received any request for desludging services from members of the general public. Two desludging service requests were received in October 2015 and January 2016 respectively. However, the desludging services were not provided due to the lack of parking space and working area at the desludging locations.*



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had not conducted a review of the reasons why the public had not requested desludging services of the FEHD in the past 13 years. As of August 2016, the FEHD managed five desludging vehicles (see Photograph 1) which provided desludging services mainly for public toilets under its management.

**Photograph 1**

**A desludging vehicle**



*Source: FEHD records*

2.47 The DSD has designated three sewage treatment plants (Note 20) for receiving excretal matter from private desludging operators. According to DSD records, as of April 2016, 78 private desludging operators (having a total of 317 desludging vehicles) were involved in the provision of related services. However, Audit noted that, as of October 2016, these 78 operators had not been issued with licences under the WD Ordinance from the EPD or the FEHD for provision of desludging and excretal-matter disposal services.

2.48 Audit noted that, when introducing the WD Ordinance in 1979, the Government informed LegCo that one of the objectives of the Ordinance was to ensure that the public would be adequately protected against any harmful effects of pollution caused by disposal of solid wastes.

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**Note 20:** *The three sewage treatment plants are the Ap Lei Chau Preliminary Treatment Works, the Pillar Point Sewage Treatment Works and the Sai Kung Sewage Treatment Works.*

2.49 In September and October 2016, the EPD and the FEHD informed Audit that:

***EPD***

- (a) under the WD Ordinance, chemical-waste and clinical-waste collection operators were required to obtain licences because they would impose immediate health hazards and significant impacts on the environment if their operations were not properly managed. To introduce a licensing scheme over a non-hazardous waste such as sludge from septic tanks, the EPD needed to have a firm basis and full justifications, and it would consult the related trade in this regard. The EPD would carefully review the above factors before deciding the way forward on whether a licensing scheme on the collection and disposal of septic-tank sludge should be introduced;

***FEHD***

- (b) in the past when limited desludging services were available in the private market, the FEHD had received requests from members of the public and provided the services to private premises subject to payment of the service cost and when its desludging team had spare capacity. With increasing supply of such services in the private market, the demand for the FEHD's desludging services had decreased, and the services were provided primarily to government venues as of October 2016; and
- (c) as a collection authority under the WD Ordinance, the FEHD would work with the EPD to review whether licensing control should be introduced on the collection of septic-tank sludge.

2.50 In Audit's view, owing to the potential impacts caused to the environment by improper provision of desludging and excretal-matter disposal services, the EPD and the FEHD need to take measures to ascertain whether or not desludging operators are statutorily required to obtain a licence for providing the related services (see para. 2.45(c)) and, if in the affirmative, take necessary actions to

ensure compliance with the WD Ordinance on this issue. In the event that private operators are not required to obtain a licence for providing desludging services, the EPD and the FEHD need to explore ways and means to strengthen controls over desludging operations. These measures would help minimise pollution caused by desludging operations.

### ***Ineffective action taken to prevent illegal dumping of excretal matter***

2.51 From 2010 to 2015, the EPD and the FEHD had received a total of 55 complaints on environmental problems related to desludging operations, of which 23 (42%) related to improper disposal of excretal matter at unauthorised locations and 32 (58%) related to the odour or noise emitted by desludging vehicles during their operations. Audit examination revealed that repeated complaints had been received on improper disposal of excretal matter at an illegal dumping blackspot in the North District.

2.52 From October 2013 to October 2014, in response to 14 complaints, the EPD and the FEHD found excretal matter having been illegally disposed of at a hill top in the North District on 8 occasions. However, their staff could not find any person related to the illegal waste disposal. In November 2014, as a preventive measure to avoid further illegal disposal of waste at the site, the EPD requested the Lands D to take action to block the access road leading to the blackspot location. In May 2015, in response to another complaint, the EPD found excretal matter being illegally disposed of at the same location but EPD staff again could not find any person related to the waste disposal.

2.53 In this connection, Audit noted that, from August 2015 to February 2016, the EPD had implemented a trial scheme on installing surveillance camera systems at blackspots for detecting illegal dumping of construction waste, and the systems captured images of 170 cases involving illegal dumping of construction waste by vehicles. The EPD subsequently took prosecution actions on 46 cases. As a result, the responsible persons of 11 cases had been issued with fixed penalty notices (each with a fine of \$1,500) and of 35 cases had been convicted with fines ranging from \$2,000 to \$15,000. Audit considers that the EPD and the FEHD need to consider installing surveillance camera systems at blackspots of illegal dumping of waste, including excretal matter.

## Audit recommendations

2.54 Audit has *recommended* that, in controlling and monitoring desludging operations, the Director of Environmental Protection and the Director of Food and Environmental Hygiene should:

- (a) explore ways and means to strengthen controls over desludging operations; and
- (b) consider installing surveillance camera systems at blackspots of illegal dumping of waste, including excretal matter.

## Response from the Government

2.55 The Director of Environmental Protection agrees with the audit recommendations.

2.56 The Director of Food and Environmental Hygiene agrees with the audit recommendations. She has said that:

- (a) to tackle the problem of illegal dumping of bagged refuse, the FEHD will implement a pilot scheme by the end of 2016 or early 2017 to install internet-protocol cameras at some hygiene blackspots so that effective enforcement action can be taken to catch culprits red-handed; and
- (b) depending on the effectiveness of the pilot scheme, consideration may be given to extending the scheme to cover more hygiene blackspots, and the relevant District Councils will be consulted on whether some blackspots involving illegal disposal of excretal matter should be selected for installation of surveillance cameras.

## **PART 3: PLANNING AND IMPLEMENTATION OF VILLAGE SEWERAGE PROGRAMMES**

3.1 This PART examines actions taken by the EPD and the DSD in planning and implementing the VS programmes, focusing on:

- (a) control of sewage discharge from unsewered squatters (see paras. 3.2 to 3.14); and
- (b) implementation of village sewerage programmes (see paras. 3.15 to 3.42).

### **Control of sewage discharge from unsewered squatters**

3.2 According to the EPD and the DSD, a proper sewerage infrastructure for collecting and treating sewage from village houses is the long-term solution to the water pollution problems. The DSD is the EPD's works agent for implementing VS programmes, which also cover residential squatters.

3.3 In 1982, the Government conducted a squatter control survey to record the locations, dimensions, height, building materials and usage of squatter structures. Under the Government's squatter control policy, these surveyed squatter structures are unauthorised and tolerated to remain on government land and private agricultural land on a temporary basis until they cease to exist or are involved in a clearance programme for development, environmental improvement or safety reasons. They are tolerated on the condition that their locations, dimensions, height, building materials and usage remain unchanged as compared with the 1982 survey records maintained by the Lands D. Most of the squatter areas are not provided with public sewerage systems. Since April 2006, the Lands D has taken over the squatter control responsibilities from the Housing Department.

### ***Need to prevent uncontrolled discharge of untreated sewage from residential squatters***

3.4 Audit noted that the EPD's SMPs (completed from 1989 to 1996) and its subsequent reviews (completed from 1999 to 2010) had conducted sewerage planning for some 100,000 village houses, including surveyed squatter structures.

According to Lands D records, as of December 2015, 84,000 residential squatters were located in 791 areas. However, Audit noted that the EPD had not taken action to ascertain the progress of implementing sewerage works for residential squatters in these 791 areas similar to that for rural villages (see para. 1.13). In Audit's view, the EPD needs to take measures to address this issue and inform LegCo of the progress of the related sewerage works.

3.5 According to the EPD's study reports on SMPs and the subsequent reviews, STS systems were generally not installed in squatter areas and untreated sewage generated from the squatters was mostly directly discharged into the nearby rivers or water bodies, causing water pollution and environmental problems. In Audit's view, the EPD needs to take measures to prevent untreated sewage generated from residential squatters from being directly discharged into nearby rivers or water bodies.

3.6 According to the EPD, many squatter areas were situated within existing villages or sewered areas, and DWFIs had been installed at pollution blackspots as first-aid measures under the SMPs to help intercept and convey sewage discharge from the squatters to public sewers. However, Audit noted that the EPD did not have readily available information on the squatter areas having been installed with DWFIs. In Audit's view, the EPD needs to take measures to ascertain the extent and effectiveness of DWFIs in reducing pollution caused by untreated sewage generated from unsewered residential squatters.

### ***Low sewer-connection rate in a squatter area***

3.7 Under the arrangement of VS programmes, the Government would generally install public sewers for selected unsewered areas up to the boundaries of private land, and house owners need to complete, at their own cost, works for connecting their sewerage systems to the public sewers (hereinafter referred to as sewer-connection works).

3.8 In November 2007, when seeking the FC's funding approval of \$33 million for implementing a sewerage project for a squatter area near the midstream of Tuen Mun River (Squatter Area A), the ENB said that:

## **Planning and implementation of village sewerage programmes**

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- (a) domestic sewage from Squatter Area A was mostly discharged directly into the open drainage channels without any treatment or having been treated by ineffective private treatment facilities (e.g. STS systems), causing hygiene problems and water pollution to nearby water bodies; and
- (b) the ENB expected that the sewerage works would be able to alleviate the water pollution problem in Tuen Mun and improve the hygiene condition in Squatter Area A.

3.9 According to EPD records, the public sewerage works were planned to cover 278 squatters (involving 1,100 residents) at Squatter Area A. Based on the experience gained in previous village sewerage projects, the EPD estimated that 80% of the squatters would be connected to the new sewerage system. In May 2011, public sewerage works at Squatter Area A were completed. However, up to June 2016, Audit noted that, of the 278 squatters, apart from 8 squatters which did not have any resident, only 112 (41%) of the remaining 270 squatters had been connected to public sewers.

3.10 Audit considers it unsatisfactory that, more than five years after completion of public sewerage works, only 41% of squatters in Squatter Area A had been connected to public sewers, which was much lower than the target connection rate of 80%.

3.11 According to the EPD:

- (a) the low sewer connection rate at Squatter Area A was attributed to the following:
  - (i) although the EPD might issue statutory notices under the WPC Ordinance to require the squatter residents to carry out sewer-connection works, after seeking legal advice and considering the temporary nature of squatter areas, the EPD had not issued any notice to residents of Squatter Area A requiring them to carry out the works; and
  - (ii) residents of Squatter Area A had expressed that they were very poor and they needed a longer time to complete the sewer connection works;

- (b) the EPD had taken continuous actions to persuade the residents of Squatter Area A to carry out sewer-connection works by organising briefing sessions, sending reminder letters, providing technical assistance and erecting promotion banners with a view to improving the sewer-connection rate; and
- (c) in order to control the pollution caused by waste water being discharged to the river near Squatter Area A, public toilets had been provided for use by squatter occupants and regular cleansing of the related surface stormwater drains had been conducted.

3.12 In Audit's view, the EPD needs to draw lessons from the sewerage project for Squatter Area A in implementing similar projects in future. The EPD also needs to take measures with a view to ensuring that sewage discharge from unsewered squatters in Squatter Area A would not cause pollution to the environment.

### **Audit recommendations**

3.13 **Audit has *recommended* that, in controlling sewage discharge from residential squatters, the Director of Environmental Protection should:**

- (a) **take measures to ascertain the progress of implementing sewerage works for residential squatters and inform LegCo of the progress;**
- (b) **take measures to prevent untreated sewage generated from residential squatters (including Squatter Area A) from being directly discharged into nearby rivers or water bodies;**
- (c) **take measures to ascertain the extent and effectiveness of DWFIs in reducing pollution caused by untreated sewage generated from unsewered residential squatters; and**
- (d) **draw lessons from the sewerage project for Squatter Area A in implementing similar projects in future.**



### Response from the Government

3.14 The Director of Environmental Protection agrees with the audit recommendations. He has said that, for paragraph 3.13(a), the EPD has requested the Lands D to provide information on the exact locations of squatter areas, and the Lands D is checking its records in this regard.

### Implementation of village sewerage programmes

3.15 In May 2001, November 2006 and May 2009, the then Environment and Food Bureau (EFB — see Note 7 to para.1.15) and the EPD informed LegCo of the indicative target completion dates of village sewerage works under 8 of the 16 SMPs. Details are shown in Table 2.

**Table 2**  
**Target completion dates of implementing VS programmes**  
**(May 2001 to May 2009)**

SMP area covered by VS programme (see Figure 1 in para. 1.10)	Indicative target completion date		
	As of May 2001	As of November 2006	As of May 2009
(a) Tuen Mun	2004 (Note)	2012 to 2013	2017-18
(b) Tsuen Wan, Tsing Yi and Kwai Chung	2005	2009	2013-14
(c) Tseung Kwan O	2006	Not mentioned	Not mentioned
(d) Outlying Islands	2007 (Note)	2010 to 2013	2017-18
(e) Port Shelter	2008	Not mentioned	2016-17
(f) Yuen Long and Kam Tin	2008	2012 to 2014	2016-17
(g) North District	2009	2012 to 2015	2016-17
(h) Tolo Harbour	2009	2010 to 2014 (for Sha Tin) 2011 to 2014 (for Tai Po)	2017-18

Source: EFB and EPD records

Note: VS programmes in Tuen Mun and Outlying Islands each comprised 2 stages of works. According to the EPD, since Stage 2 works for each area were under review as of May 2001, LegCo was only informed of the target completion dates of Stage 1 works of the two programmes.

***Delays in implementing VS programmes***

3.16 As shown in Table 2, from May 2001 to May 2009, the target time of completing VS programmes for eight SMP areas had been extended twice for a total of 8 to 9 years. Furthermore, for the up-to-date time targets set in May 2009 for completing the VS programmes from 2013-14 to 2017-18, Audit examination revealed that these time targets could not be met. As of June 2016, of the total 662 villages covered under the VS programmes for the eight SMP areas, public sewerage works for 178 (27%) villages had been completed, 10 sewerage projects involving 77 (12%) villages were in progress, 24 sewerage projects involving 238 (36%) villages were under planning and sewerage projects under the PWP had not been created for the remaining 169 (25%) villages. The progress of implementing works for 484 (77 + 238 + 169) villages is shown in Table 3.

**Table 3**

**Works progress of 484 villages under VS programmes  
(June 2016)**

<b>SMP area covered by VS programme (involving 484 villages)</b>	<b>Target completion date set in May 2009</b>	<b>Position as of June 2016</b>
(a) Tuen Mun (involving 36 villages)	2017-18	<ul style="list-style-type: none"> <li>– 1 project (involving 7 villages) was scheduled for completion in April 2019</li> <li>– 2 projects (involving 7 villages) were in Category B stage of the PWP (Note 1)</li> <li>– 4 projects (involving 22 villages) were in Category C stage of the PWP (Note 2)</li> </ul>
(b) Tsuen Wan, Tsing Yi and Kwai Chung (involving 26 villages)	2013-14	<ul style="list-style-type: none"> <li>– 2 projects (involving 26 villages) were in Category B stage of the PWP</li> </ul>
(c) Tseung Kwan O (involving 11 villages)	Not mentioned (2006 as set in May 2001)	<ul style="list-style-type: none"> <li>– 2 projects (involving 11 villages) were in Category B stage of the PWP</li> </ul>
(d) Outlying Islands (involving 65 villages)	2017-18	<ul style="list-style-type: none"> <li>– 2 projects (involving 15 villages) were scheduled for completion in August 2017 and July 2018 respectively</li> <li>– 5 projects (involving 42 villages) were in Category B stage of the PWP</li> <li>– 1 project (involving 8 villages) was in Category C stage of the PWP</li> </ul>

## Planning and implementation of village sewerage programmes

Table 3 (Cont'd)

SMP area covered by VS programme (involving 484 villages)	Target completion date set in May 2009	Position as of June 2016
(e) Port Shelter (involving 36 villages)	2016-17	<ul style="list-style-type: none"> <li>– 1 project (involving 11 villages) was scheduled for completion in January 2017</li> <li>– 2 projects (involving 25 villages) were in Category B stage of the PWP</li> </ul>
(f) Yuen Long and Kam Tin (involving 166 villages)	2016-17	<ul style="list-style-type: none"> <li>– 1 project (involving 6 villages) was scheduled for completion in August 2016</li> <li>– 2 projects (involving 27 villages) were in Category C stage of the PWP</li> <li>– PWP projects were not created for 133 villages</li> </ul>
(g) North District (involving 88 villages)	2016-17	<ul style="list-style-type: none"> <li>– 3 projects (involving 14 villages) were scheduled for completion from December 2015 to September 2017</li> <li>– 3 projects (involving 38 villages) were in Category B stage of the PWP</li> <li>– PWP projects were not created for 36 villages</li> </ul>
(h) Tolo Harbour (involving 56 villages)	2017-18	<ul style="list-style-type: none"> <li>– 2 projects (involving 24 villages) were scheduled for completion from December 2016 to September 2017</li> <li>– 1 project (involving 32 villages) was in Category B stage of the PWP</li> </ul>

Source: EPD and DSD records

*Note 1: For a Category B project under the PWP, the responsible works department has established the project's technical feasibility and it may undertake the necessary pre-construction work including planning, investigation and design to render the project ready in all aspects. Subject to resource availability, the responsible bureau and works department may proceed to seek the FC's funding approval for the project. When funding approval is granted by the FC, the project is upgraded to a Category A project. According to the Financial Services and the Treasury Bureau, whether a works project is ready for upgrading to Category A will depend on various factors including readiness, relative merits and urgency of the project versus other competing projects.*

*Note 2: For a Category C project under the PWP, the responsible works department may provide a conceptual design and a broad order of cost of the project.*

3.17 According to the EPD:

- (a) the main constraints for implementing the VS programmes included objections from the local communities, competition for resources among various environmental programmes, availability of funding for public works projects, as well as site constraints and technical issues identified during the works-implementation stage; and
- (b) most of the constraints in (a) above were beyond the control of the EPD and the DSD.

3.18 In Audit's view, the long delays in completing the VS programmes are undesirable which would defer improvements to village sewerage in rural areas and perpetuate the hygiene and environment problems caused by the less-than-satisfactory sewerage systems in these areas (see paras. 2.19 and 2.20). The EPD needs to periodically inform LegCo of the progress of implementing the VS programmes, with comparisons with the time targets set for implementing the programmes.

### ***Incomplete records for planning public sewerage works***

3.19 In March 2015, the EPD informed LegCo PWSC of the progress of implementing public sewerage works for 970 rural villages (see para. 1.13). However, Audit examination of records of the EPD, the DSD and the HAD revealed that, as of October 2016, 158 unsewered areas not being installed with approved on-site sewage treatment plants were not included in the 970 villages. The 158 unsewered areas comprised:

- (a) 151 unsewered areas (comprising 5,408 premises) based on the DSD's "List of sewered and unsewered areas" for billing of sewage charges (SC) under the Sewage Services Ordinance (Cap. 463); and
- (b) 7 unsewered areas (having 501 registered voters) based on the HAD's list of rural committees and villages under the Rural Representative Election Ordinance (Cap. 576). According to the HAD, the list of rural committees and villages may not include all the rural villages/areas in the New Territories.

## **Planning and implementation of village sewerage programmes**

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3.20 In August and October 2016, the EPD informed Audit that:

- (a) some of the unsewered areas only contained scattered structures and houses that should not be classified as “villages” under the VS programmes, which had been prepared and prioritised focusing on the sensitivity and value of the affected water bodies and extent of pollution. Hence, the HAD’s list of rural committees and villages was not considered when planning the VS programmes. The EPD did not have readily available information indicating whether the VS programmes had covered all the areas related to the HAD’s list of rural committees and villages; and
- (b) for some unsewered areas, no sewerage works were recommended under the SMPs (completed from 1989 to 1996) and their subsequent reviews (completed from 1999 to 2010) as the EPD did not identify pollution in these areas.

3.21 Audit considers that, with a view to ensuring that major unsewered areas are covered in the planning for implementing public sewerage works, the EPD needs to make reference to the DSD’s list of sewerage and unsewered areas and the HAD’s list of rural committees and villages in determining the total number of unsewered areas, and to formulate an appropriate strategy to address the sewage problems in each area.

### ***Delay in completing a project due to objections on land resumption***

3.22 From January 2011 to June 2016, works for 10 village sewerage projects had been substantially completed. Of these 10 projects, Audit found that the actual works completion dates of 2 projects were respectively 25 months (for Project A) and 17 months (for Project B) later than their scheduled completion dates.

3.23 Sewerage works under Project A having an APE of \$381.4 million mainly involved the construction of 31.2 kilometres (km) of sewers for 17 unsewered areas in Sha Tin and Tai Po. According to the paper submitted to the FC for funding approval in November 2008, the sewerage works would commence in January 2009 and were scheduled for completion in December 2012 (i.e. involving a works

duration of 47 months). However, the works were only substantially completed in January 2015, 25 months later than the target completion date.

3.24 For the purpose of laying sewers and related facilities for Project A, the DSD sought assistance from the Lands D to take actions under the Roads (Works, Use and Compensation) Ordinance (Cap. 370) to resume some private land lots for use as the works areas. The sewerage works were authorised by the EPD in June 2008, under which 208 private land lots were required to be resumed for carrying out sewerage works for four unsewered areas in Tai Po.

3.25 In July 2008, the DSD received objections to the resumption of 17 land lots. In February 2009, the works contract for the sewerage works was awarded. In July 2012, 41 months after award of the works contract, the DSD reached consensus with the concerned land-lot owners and village representatives to make changes to the sewer alignments such that land resumption of the 17 land lots was not required. The changes entailed resumption of another 5 land lots, which were subsequently resumed after obtaining consent from the concerned land-lot owners.

3.26 In Audit's view, the DSD needs to draw lessons from Project A on the need to expedite actions to resolve objections received after commencement of a works project.

### ***Slippage in completing a works project due to unrecorded underground utilities and delay in gazetting the works***

3.27 Sewerage works under Project B (see para. 3.22) having an APE of \$1,340 million mainly involved the construction of 7 km of sewers for two unsewered areas in Tuen Mun, 7 km of trunk sewers along Lung Mun Road and a new sewage pumping station. According to the paper submitted to the FC for funding approval in July 2009, the sewerage works would commence in December 2009 and were scheduled for completion in June 2014 (i.e. involving a works duration of 54 months). In December 2009, the DSD awarded a works contract (Contract A) under Project B at an estimated cost of \$711 million for constructing the trunk sewers and the new sewage pumping station. In September 2011, the DSD awarded another works contract (Contract B) for the sewerage and related works at the two unsewered areas under Project B at an estimated cost of \$49 million (Contract B also included works under other works projects).

## **Planning and implementation of village sewerage programmes**

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3.28 According to the paper submitted to the FC for funding approval, the objective of Contract A was to improve the sewerage capacity in Tuen Mun to handle the sewage diverted from unsewered areas and the forecast sewage flow generated in the area. Works under Contract A commenced in December 2009 and were scheduled for completion in June 2014. However, works under Contract A were only substantially completed in November 2015, 17 months later than the target completion time. Audit noted that, apart from the extension of time of about 200 days being granted to the works contractor due to inclement weather during the construction period, the slippage was mainly due to the presence of unrecorded underground utilities (e.g. water pipes and electricity cables) and the need for diversion of the affected utilities. As of September 2016, the works contractor had submitted claims for extension of time for the affected works items. According to the works contractor, works to deal with the unrecorded underground utilities had caused delays to the works.

3.29 In October 2016, the DSD informed Audit that the DSD was aware of the need to identify existing underground utilities within works areas during the planning and design stages of a works project through carrying out site investigations as far as possible, but it was not uncommon for village sewerage works to encounter unrecorded underground utilities during works excavation, rendering more time being required for the construction works.

3.30 In Audit's view, in implementing a works project in future, the DSD needs to take measures to identify underground utilities in works areas for works planning purposes before award of a related works contract.

3.31 Regarding Contract B, the village sewerage works commenced in September 2011 and were scheduled for completion in June 2014. However, works under Contract B were only substantially completed in July 2015, 13 months later than the target completion time. Audit noted that, after funding being approved by the FC in July 2009, the DSD identified the need for temporary closure of parts of a narrow footpath and a single-lane carriageway during non-peak hours for implementing the village sewerage works. In June 2010, when preparing the tender documents for Contract B, the DSD, as the EPD's works agent, sought legal advice on whether it needed to adopt the formal gazettal procedures for carrying out the

proposed works. In November 2010, after considering legal advice and with a view to minimising public disputes after the commencement of Contract B, the EPD gazetted the proposed village sewerage works. As it transpired, the DSD only awarded Contract B for implementing the village sewerage works in September 2011, 26 months after the FC's funding approval in July 2009.

3.32 In Audit's view, for works involving temporary closure of roads in future, the DSD needs to draw lessons from Project B on the need to seek legal advice on adopting necessary procedures for the road closure in a timely manner.

### ***Significant cost under-estimation of works***

3.33 Of the 10 village sewerage projects having been substantially completed from January 2011 to June 2016, Audit noted that the original APEs of two projects on Lamma Island (Projects C and D) had been significantly under-estimated.

3.34 In April 2010, the EPD informed the FC that there was a need to increase the APE of Project C from \$288.3 million to \$347.5 million (an increase of \$59.2 million, or 21%), and that of Project D from \$256.4 million to \$353.7 million (an increase of \$97.3 million, or 38%). According to the paper submitted to the FC in April 2010, apart from the increases in price-adjustment provisions of \$51 million and \$52.9 million for Projects C and D respectively, the increases in the APEs were mainly due to the higher-than-expected tender prices received. For example, the successful tender price for sewerage works under Projects C and D (covered under one works contract) totalled \$100 million, which was \$29.7 million higher than the sum of the original estimates of \$70.3 million (representing a 42% increase). According to the EPD, the increases in prices were likely due to greater risk allowances made by the tenderers due to perceived difficulties involved in engaging labour, construction plants and materials for carrying out this type of village sewerage works on an outlying island, and the difficulties in laying sewers in congested and constrained village areas.

3.35 In Audit's view, the DSD needs to draw lessons from Projects C and D on the need to prevent as far as possible significant cost under-estimation when seeking funding approval from the FC for implementing works projects on outlying islands.



### ***Need to explore measures to reduce pollution caused by village houses located in remote areas***

3.36 In March 2009, an EPD consultancy study found that it was technically feasible for installing a small localised sewage treatment plant for treatment of sewage discharged from village houses located in a remote area, and the study recommended that the provision of such a plant for use by a group of village houses should be further investigated.

3.37 In February 2015, in response to a LegCo Member's enquiry, the EPD informed LegCo PWSC that it would study the feasibility to provide alternative sewerage facilities (e.g. small localised sewage treatment plants) for remote villages with small populations, and would report the study results to LegCo Panel on Environmental Affairs. In March 2015, the EPD informed LegCo that 290 villages had not been included in the VS programmes due to their remoteness and difficult site topography (see para. 1.13(d)).

3.38 In Audit's view, given the potential pollution caused by unsewered houses located in areas where public sewerage works would not be carried out in the near future, the EPD needs to take necessary actions and inform LegCo of the EPD's actions plans for these areas in a timely manner.

## **Audit recommendations**

3.39 **Audit has *recommended* that, in implementing the VS programmes in future, the Director of Environmental Protection should:**

- (a) **periodically inform LegCo of the progress of implementing the VS programmes, with comparisons with the time targets set for implementing the programmes;**
- (b) **make reference to the DSD's list of sewered and unsewered areas and the HAD's list of rural committees and villages in determining the total number of unsewered areas, and to formulate an appropriate strategy to address the sewage problems in each area; and**

- (c) **conduct a review of the environmental conditions and the need for provision of sewerage facilities for unsewered areas where public sewerage works would not be carried out in the near future, and inform LegCo of the EPD's action plans for these areas in a timely manner.**

**3.40 Audit has also *recommended* that, in implementing the VS programmes in future, the Director of Drainage Services should:**

- (a) **draw lessons from Project A on the need to expedite actions to resolve objections received after commencement of a works project;**
- (b) **take measures to identify underground utilities in works areas for works planning purposes before award of a related works contract;**
- (c) **for works involving temporary closure of roads, draw lessons from Project B on the need to seek legal advice on adopting necessary procedures for the road closure in a timely manner; and**
- (d) **draw lessons from Projects C and D on the need to prevent as far as possible significant cost under-estimation when seeking funding approval from the FC for implementing works projects on outlying islands.**

### **Response from the Government**

**3.41** The Director of Environmental Protection agrees with the audit recommendations in paragraph 3.39. He has said that the EPD will collaborate with the DSD to expedite actions to complete the VS programmes.

**3.42** The Director of Drainage Services agrees with the audit recommendations in paragraph 3.40. He has said that:

- (a) the DSD will collaborate with the EPD to expedite actions to complete the VS programmes;

## **Planning and implementation of village sewerage programmes**

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- (b) in 2010, the DSD set up an internal Village Sewerage Support Group (VSS Group) comprising professional officers from relevant project offices in the DSD to discuss common issues and share experiences on the problems, difficulties and lessons learnt in respect of implementing village sewerage projects on a quarterly basis. The DSD will draw lessons from Projects A and B for sharing in the VSS Group;
- (c) upon obtaining legal advice in the course of implementing Project B concerning clearer definition on road closure, the DSD has a better grasp of adopting appropriate legal procedures when implementing similar works projects in future. Moreover, the DSD will seek necessary legal advice in a timely manner in future; and
- (d) the DSD has reminded its project offices of the need to prepare pre-tender estimates based on the best and latest available information, particularly for implementing village sewerage works on outlying islands to account for the extra costs of labour, construction plants and materials. The DSD will also arrange to share the lessons learnt from Projects C and D in the VSS Group.

## **PART 4: SEWER CONNECTION OF VILLAGE HOUSES**

4.1 This PART examines actions taken by the EPD to cause village-house owners to carry out works to connect their sewerage systems with public sewers.

### **Connection of village houses to public sewers**

4.2 The objective of provision of sewerage infrastructure for unsewered villages could only be achieved after the target village houses have been properly connected to the public sewerage system. Under the Government's policy, public sewers would only be constructed up to the lot boundaries of private land as far as practicable. Village house owners need to carry out works (including construction of a terminal manhole and connecting sewers) at their own cost to connect their sewerage systems with public sewers.

4.3 According to DSD Technical Circular No. 2/2015 "Reporting New Sewer Connections and the Related Procedures" issued in May 2015:

- (a) after completion of sewer connection works, a village-house owner is required to return a duly completed form to the EPD confirming that his house has been connected to a public sewer; and
- (b) the EPD will forward the completed form to the DSD for verification of the village-house address, the water-meter number and the progress of connecting sewers to the terminal manhole of the village house, and for collection of the SC under the Sewage Services Ordinance (Note 21).

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**Note 21:** *In 2013, Audit conducted a review of the Sewage Services Charging Scheme, the results of which were included in Chapter 8 of the Director of Audit's Report No. 61 of October 2013. Under the Scheme, a person whose premises is connected to a public sewer needs to pay the SC.*

## Sewer connection of village houses

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4.4 Under the WPC Ordinance, in an area having been provided with public sewers, the EPD may serve a statutory notice to a related village-house owner requiring him to carry out works for conveying his waste water to public sewers before a deadline specified in the notice. A house owner who fails to comply with the notice may be subject to prosecution by the EPD, and is liable on conviction to a fine of \$100,000 and an additional daily fine of \$5,000. The EPD may also carry out the required works on the owner's behalf and recover the works costs from him.

4.5 According to the EPD, the following types of village houses may not be connected to public sewers after completion of public sewerage works:

- (a) ***Village houses not ready for sewer connection.*** These houses include those which are under planning or construction, and existing houses not having sewage discharge (e.g. derelict properties and houses having no resident); and
- (b) ***Village houses having technical problems for sewer connection.*** In carrying out the sewer connection works, house owners may encounter problems such as space constraints, costly pumping requirements, obstruction from underground utilities and works involving encroachment on other private land.

4.6 According to the EPD, as of June 2016, 14,710 village houses located at 178 villages in the eight SMP areas (see para. 3.16) were covered by public sewers. Table 4 shows the progress of sewer connections of these 14,710 village houses as of June 2016.

**Table 4**

**Sewer connections of 14,710 village houses at 178 villages  
(June 2016)**

Sewer-connection progress	Village houses (No.)	Percentage
(a) Houses covered by public sewers	14,710	100%
(b) Houses not ready for sewer connection (see para. 4.5(a))	1,490	10%
(c) Houses having technical problems for connection (see para. 4.5(b))	<u>1,678</u>	<u>12%</u>
(d) Houses suitable for sewer connection [(d) = (a) – (b) – (c)]	11,542	78%
(e) Houses connected to public sewers	<u>10,179</u>	<u>69%</u>
(f) Houses not yet connected to public sewers [(f) = (d) – (e)]	1,363	9%

*Source: Audit analysis of EPD records*

***Inadequate actions taken to cause house owners  
to carry out sewer-connection works***

4.7 According to the EPD, the majority of sewer-connection works would be completed by village-house owners between 2 and 5 years after completion of public-sewer works. However, Audit examination of the progress of sewer connections at 6 locations revealed that, as of June 2016, while the related public-sewer works had been completed 5 to 15 years ago, the average sewer-connection rate was only 37% (ranging from 0% to 62%). Details are shown in Table 5.

## Sewer connection of village houses

**Table 5**  
**Sewer connections at 6 locations**  
**(June 2016)**

Location	Date of completing works for public sewers (a)	Houses suitable for sewer connection (b) (No.)	Houses connected to public sewers (c) (No.)	Connection rate of suitable houses (d) = (c) ÷ (b) × 100% (%)
Village A	Dec. 2000	7	0 (Note 1)	0% (see Case 1)
Village B	Jun. 2006	62	12 (Note 2)	19% (see Case 2)
Village C	Jan. 2011	25	7	28%
Squatter Area A	May 2011	270	112	41% (see para. 3.9)
Villages D and E	Feb. 2009	21 (Note 3)	13	62%
Overall		385	144	37%

*Source: Audit analysis of EPD records*

*Note 1: According to the EPD, in addition to unsewered houses, public sewers at Village A also served two elderly homes (which accounted for the majority of sewage pollution in the concerned sewage catchment area), and the sewer connection works for the two homes were completed in 2006 and 2011 respectively.*

*Note 2: According to the EPD, as of August 2016, 28 (45%) of 62 houses at Village B had been connected to public sewers.*

*Note 3: According to the EPD, all premises suitable for connection to public sewers in Villages D and E were squatters.*

4.8 According to the EPD's "Enforcement Guidelines on Sewer Connection" issued in November 2007:

- (a) the EPD's ultimate goal is to connect as many premises as possible within the coverage of new public sewerage facilities for the purpose of achieving early improvement of the environment and full utilisation of the constructed public sewers;

- (b) after completion of public sewer works, administrative advisory letters would be issued to related house owners advising them to complete sewer-connection works normally within 6 months;
- (c) if a house owner fails to commence connection works by the deadline stipulated in an advisory letter, a statutory notice would be served under the WPC Ordinance requiring him to complete the sewer-connection works within 3 months; and
- (d) if the owner fails to observe the statutory notice, the EPD would consider taking prosecution action according to the following priorities:
  - (i) **Top priority.** There is no works progress and the owner has not shown intention to carry out the required works, or serious pollution has been caused;
  - (ii) **Medium priority.** There is no works progress due to certain reasons, but the owner has shown intention to carry out the required works; and
  - (iii) **Low priority.** The required deadline has lapsed, but the house owner has made some works progress.

4.9 In June 2014, with a view to expediting the sewer-connection works by house owners and facilitating the early collection of the SC, the EPD and the DSD jointly implemented an enhanced workflow for village-house sewer connection. Under the enhanced workflow, for house owners who have not notified the EPD of the completion of sewer-connection works after expiry of the time stated in advisory letters, EPD staff should contact them to ascertain the progress of the connection works.

4.10 In October 2016, the EPD informed Audit that:

- (a) the EPD's experience since the 1990's had proven that proactive liaison and continued dialogue with house owners/occupiers, village representatives and related stakeholders to resolve practical difficulties on sewer-connection works, as well as their commitment and cooperation, were essential for the smooth completion of connection works to public sewers in the New Territories; and



## **Sewer connection of village houses**

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- (b) given the wide coverage of village areas in the New Territories and the issues raised by the rural community against the VS programmes in the past two decades, the EPD and the DSD would make every reasonable effort to secure the voluntary efforts of house owners for timely and successful completion of sewer-connection works.

4.11 Audit examination of EPD Regional Offices' records on individual villages revealed that the EPD's enforcement guidelines (see para. 4.8) had not been fully complied with in some cases (see Cases 1 and 2 for examples).

### **Case 1**

#### **None of the 7 village houses had carried out sewer connection works (Village A in Yuen Long District)**

1. In May 1999, under delegated authority, the DSD approved funding of \$2.7 million for carrying out public sewerage works for 56 village houses and 2 elderly homes located in a village in Yuen Long (Village A) for the purpose of resolving the pollution problem caused by discharge of sewage which had not been adequately treated by septic tanks. According to the information provided to LegCo PWSC in June 2002, the public sewerage works at Village A were completed in December 2000. According to the EPD, owing to objections raised by village representatives of 49 houses, public sewerage works for these houses were not carried out. Therefore, public sewers were only provided for 7 (56 less 49) houses.
2. From February 2001 to April 2002, the EPD issued advisory letters to owners of 6 village houses and the 2 elderly homes requesting them to complete the sewer connection works within six months.
3. In February 2004, the EPD served statutory notices to the owners of the 6 village houses requiring them to complete the sewer connection works by August 2004. In May 2010, the EPD further served statutory notices to the owners of 7 village houses (including the 6 owners to whom statutory notices were served in 2004) requiring them to complete the sewer connection works by November 2010.

### Case 1 (Cont'd)

4. In August 2010, in the course of audit review of the Government's planning and administration of the VS programmes (see para. 1.17), the EPD informed Audit that, as the Government had made considerable efforts to provide assistance to the villagers in Village A, the EPD would consider taking prosecution actions if the house owners still refused to make sewer connection by the deadline of November 2010.

5. As of June 2016, none of the 7 village houses at Village A were connected to public sewers, and the EPD had not served further statutory notices nor taken prosecution actions against the related village-house owners from June 2010 to June 2016.

#### *EPD response*

6. From July to October 2016, the EPD informed Audit that:

- (a) the public sewers at Village A also served two elderly homes, which accounted for the majority of sewage pollution in the concerned sewage catchment area and had completed the required sewer-connection works; and
- (b) no discharge of waste water from the remaining 7 village houses and no pollution to the environment had been observed.

#### *Audit comments*

7. Audit considers it unsatisfactory that:

- (a) due to objections from owners of 49 village houses, public sewers were not provided for them even though public sewerage works costing \$2.7 million had been approved for providing sewerage facilities for 56 houses (including these 49 houses) and 2 elderly homes; and
- (b) more than 15 years after completion of public sewerage works in December 2000, none of the 7 village houses in Village A were connected to public sewers.

*Source: DSD and EPD records*

### Case 2

#### **Statutory notice not served on house owners (Village B in North District)**

1. In February 2002, when seeking the FC's funding approval of \$125.1 million for public sewerage works at 8 unsewered areas (including Village B) in North District, the then EFB said that sewage discharged from these unsewered areas was a source of pollution in Deep Bay, and the EPD would serve statutory notices to request villagers to carry out the sewer-connection works.

2. In June 2006, the sewerage works at Village B were completed and 62 village houses could carry out sewer connection works.

3. Since the completion of sewerage works in June 2006, the EPD has held briefing sessions to encourage the villagers to commence sewer connection works. In June 2011, 5 years after completion of public-sewer works, the EPD issued 80 advisory letters to owners of 54 houses requesting them to complete the sewer connection works by December 2011. In December 2011 and June 2016, the EPD respectively issued 6 and 16 advisory letters to the concerned house owners. Up to June 2016, owners of only 12 (19%) of the 62 houses in Village B had completed the sewer-connection works but the EPD had not served any statutory notice on the remaining 50 house owners to require them to carry out sewer-connection works.

#### ***EPD response***

4. From July to October 2016, the EPD informed Audit that:

- (a) as some of the house owners in Village B were usually residing overseas (Note) and they returned to Hong Kong very occasionally, it had taken a longer time to contact them for verifying the progress of sewer connection works; and
- (b) as of August 2016, 28 (45%) of the 62 houses at Village B had been connected to public sewers.

#### ***Audit comments***

5. Audit considers it unsatisfactory that, as of June 2016, 10 years after completion of the public sewerage works, only 12 (19%) of 62 village houses in Village B were connected to public sewers. Moreover, although the Government informed the FC in February 2002 that the EPD would serve statutory notices to require villagers to carry out the sewer connection works, up to June 2016, the EPD had not served any statutory notice on related house owners in Village B. In Audit's view, the EPD needs to make improvement in this area.

*Source: EPD and DSD records*

*Note: As of September 2016, the EPD had only provided Audit with the addresses of three village houses the owners of which were usually residing overseas.*

4.12 As illustrated in Cases 1 and 2 in paragraph 4.11, for full utilisation of the constructed public sewers, Audit considers that the EPD needs to take effective measures to ensure that houses suitable for sewer connection are connected to public sewers within a reasonable time after completion of public-sewer works. The EPD also needs to remind its staff of the need to comply with EPD guidelines on serving statutory notices on house owners not carrying out sewer-connection works in a timely manner.

### *Incomplete database on sewer-connection information*

4.13 According to the EPD:

- (a) for village sewerage works having been completed before mid-2004, the sewer connection information of individual villages are kept in the paper files for the villages maintained by the EPD's Regional Offices;
- (b) for village sewerage works having been completed from mid-2004, the following information is maintained in a computerised database:
  - (i) the village-house addresses;
  - (ii) details of advisory letters issued and statutory notices served; and
  - (iii) progress of sewer connection and date of completing sewer connection works of each village house; and
- (c) in 2013, the EPD worked with the DSD to make enhancements to the computerised database under which the data would be updated on a monthly basis. The enhancement would facilitate reporting and monitoring the progress of sewer-connection works by the two departments.

## **Sewer connection of village houses**

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4.14 In September 2016, the EPD provided Audit with village house addresses and sewer connection information (see para. 4.13(b)) maintained in the computerised database of 10,427 (71%) of the total 14,710 village houses located in areas which were covered by public sewers. According to the EPD, the information related to the remaining 4,283 (14,710 less 10,427) houses was not recorded in the database and was kept in paper files on individual villages maintained by the EPD's Regional Offices. In addition, Audit found the following inadequacies in the EPD's database:

- (a) only 27 (2%) of the 1,678 village houses (see item (c) in Table 4 of para. 4.6) having technical problems for sewer connection had records showing their sewer-connection progress in the database;
- (b) only 6,553 (64%) of the 10,179 village houses (see item (e) in Table 4 of para. 4.6) having been connected to public sewers had records in the database showing the progress of their sewer-connection works;
- (c) information on 1,363 village houses (see item (f) in Table 4 of para. 4.6) not having been connected to public sewers and the actions taken by the EPD to cause sewer connection by the related house owners were not maintained in the database;
- (d) the dates of completing public-sewer works by the DSD were not recorded in the database, rendering it difficult for the EPD to monitor the progress of the sewer connection works; and
- (e) in response to Audit's request for information in June 2016, the EPD informed Audit that, of the 334 houses at a village in Sha Tin, 255 (76%) houses were not ready for sewer connection (see para. 4.5(a)). However, in October 2016, the EPD informed Audit that only 22 instead of 255 houses were not ready for sewer connection.

4.15 In Audit's view, to facilitate effective monitoring of progress of sewer-connection works and timely retrieval of accurate sewer-connection information, the EPD needs to take measures to ensure that the pertinent information related to sewer-connection works is accurately and timely input into the computerised database. The EPD also needs to take measures to cause the database to generate periodic exception reports highlighting significant slippages in sewer-connection works to facilitate effective monitoring by the EPD's senior management.

### ***Need to issue guidelines on monitoring sewer-connection works***

4.16 Audit noted that the EPD had not issued guidelines on determining houses not ready for sewer connection (see para. 4.5(a)) and houses having technical problems for sewer connection (see para. 4.5(b)). In Audit's view, the EPD needs to issue such guidelines and to remind its officers of the need to clearly document justifications for not taking actions against related house owners who do not carry out sewer-connection works. These measures will help ensure that EPD officers would adopt a transparent and consistent approach in taking enforcement actions in this area.

### ***Need to periodically publish progress of sewer-connection works***

4.17 In June 2015, in response to a LegCo Member's enquiry, the EPD provided the FC with the sewer-connection information of 164 villages where sewerage works had been completed by December 2014.

4.18 For public accountability and effective monitoring of the effectiveness of the VS programmes, Audit considers that the EPD needs to periodically publish the progress of sewer-connection works of individual villages.

## **Audit recommendations**

4.19      **Audit *has recommended* that the Director of Environmental Protection should:**

- (a)      **take effective measures to ensure that houses suitable for sewer connection are connected to public sewers within a reasonable time after completion of public sewer works;**
- (b)      **take measures to ensure that pertinent information related to sewer-connection works is accurately and timely input into the EPD computerised database;**
- (c)      **take measures to input into EPD computerised database information kept in paper files related to village sewerage works completed before mid-2004;**
- (d)      **take measures to cause the database to generate periodic exception reports highlighting significant slippages in sewer-connection works;**
- (e)      **issue guidelines on determining houses not being ready for sewer connection and houses having technical problems for sewer connection;**
- (f)      **remind EPD staff of the need to clearly document the justifications for not taking actions against related house owners who do not carry out sewer-connection works; and**
- (g)      **periodically publish the progress of sewer-connection works of individual villages.**

## Response from the Government

4.20 The Director of Environmental Protection agrees with the audit recommendations. He has said that:

- (a) the EPD has circulated proposed actions to relevant government departments with a view to expediting sewer-connection works in Village A. The HAD's Yuen Long District Office is arranging a briefing session in end October 2016 for the EPD to introduce the relevant policy and current situation to the concerned village representatives and villagers. The EPD and the DSD will continue to be prudent and ensure proper use of public money by controlling the capital cost of works projects;
- (b) where technical issues and difficulties hindering sewer-connection works have been resolved, the EPD will consider the circumstances of each outstanding case on individual merits in order to expedite the works completion, including taking enforcement action as necessary. The EPD is drawing up a proposal of criteria for issuing statutory notices and taking subsequent prosecution action for cases involving non-compliance with the notices. When the proposal is finalised, the "Enforcement Guidelines on Sewer Connection" will be updated accordingly. The EPD will also update the enforcement guidelines for implementing the audit recommendations in paragraph 4.19(b), (e) and (f). The EPD will remind its staff to comply with the updated enforcement guidelines;
- (c) the EPD will work jointly with the DSD to convert the available paper-file records on village sewerage works projects completed before mid-2004 into digital data in the computerised database, and will examine the feasibility of modifying its computerised database for generating periodic exception reports; and
- (d) the EPD will conduct a review of the most suitable means to periodically publish the progress of sewer-connection works of individual villages.



**Appendix A**  
(paras. 1.7, 1.9 and  
2.5 refer)

***E. coli* levels of 63 river monitoring stations exceeding WQOs (2015)**

Monitoring station	River	District	Number of <i>E. coli</i> (per 100 mL of water)				WQI (Note 2)
			WQO	Lowest (Note 1)	Highest (Note 1)	Annual geometric mean	
(A) Calculation method: Running median of the most recent five consecutive water samples							
1	River Beas (Sheung Yue River)	North	0	7,900	56,000	18,517	Fair
2			0	5,500	35,000	12,332	Good
3			0	1,200	3,000	2,016	Good
4	River Ganges (Ping Yuen River)		0	8,500	110,000	35,185	Fair
5			0	1,700	11,000	4,266	Good
6			0	320	1,300	572	Excellent
7	River Indus (Ng Tung River)		0	34,000	350,000	113,106	Fair
8			0	740	2,000	1,400	Good
9			0	330	1,900	739	Excellent
10	Fairview Park Nullah	Yuen Long	1,000	9,000	45,000	28,672	Fair
11	Kam Tin River		0	160,000	450,000	299,709	Bad
12			0	40,000	100,000	77,535	Bad
13	Ngau Hom Sha Stream		1,000	290	2,200	704	Excellent
14	Sheung Pak Nai Stream		1,000	9,000	58,000	14,707	Good
15	Tin Shui Wai Nullah		1,000	150,000	1,400,000	299,807	Fair
16			1,000	6,400	88,000	23,790	Good
17	Yuen Long Creek		1,000	800,000	4,000,000	2,040,507	Bad
18			1,000	640,000	1,200,000	995,006	Bad
19			0	120,000	300,000	175,935	Bad
20			0	23,000	100,000	46,615	Fair
21	Tung Chung River	Islands	1,000	16,000	41,000	23,241	Good
22	Tseng Lan Shue Stream	Sai Kung	1,000	36,000	110,000	60,335	Fair
23			1,000	29,000	80,000	44,844	Good
24			1,000	440	2,400	882	Excellent
25	Shing Mun River	Sha Tin	1,000	5,800	66,000	13,638	Good
26			1,000	1,900	5,100	4,537	Good
27			1,000	1,600	23,000	11,175	Good
28			1,000	520	14,000	4,251	Good
29			0	520	7,400	3,414	Good
30			1,000	460	3,400	1,262	Excellent
31			0	380	3,100	1,773	Excellent
32			1,000	130	19,000	2,713	Excellent
33	Lam Tsuen River	Tai Po	1,000	30,000	90,000	45,450	Good
34			0	1,700	2,900	2,424	Excellent
35			0	900	3,900	1,853	Good

**Appendix A**  
(Cont'd)  
(paras. 1.7, 1.9 and  
2.5 refer)

Monitoring station	River	District	Number of <i>E. coli</i> (per 100 mL of water)				WQI (Note 2)
			WQO	Lowest (Note 1)	Highest (Note 1)	Annual geometric mean	
(A) Calculation method: Running median of the most recent five consecutive water samples (Cont'd)							
36	Shan Liu Stream	Tai Po	1,000	1,300	3,300	1,623	Excellent
37	Tai Po River		1,000	5,000	21,000	9,552	Excellent
38	Tung Tze Stream		1,000	2,400	7,300	2,895	Excellent
39	Tuen Mun River	Tuen Mun	1,000	100,000	170,000	135,709	Bad
40			1,000	40,000	67,000	58,503	Fair
41			1,000	2,000	11,000	8,132	Good
42			1,000	1,400	13,000	2,939	Good
43			1,000	900	10,000	3,589	Excellent
44			1,000	800	9,000	3,987	Good
(B) Calculation method: Geometric mean of the most recent five consecutive water samples							
45	Kai Tak River	Kowloon City	1,000	184,209	498,556	309,879	Fair
46			1,000	99,716	277,932	152,549	Good
47			1,000	87,969	236,574	123,426	Good
48			1,000	68,380	182,687	93,620	Good
49			1,000	35,518	99,577	47,608	Good
50			1,000	2,163	11,147	4,760	Good
51	Kau Wa Keng Stream	Kwai Tsing	1,000	18,553	101,015	67,602	Good
52	Shing Mun River	Sha Tin	1	306	2,383	699	Excellent
53	Lam Tsuen River	Tai Po	1	20,887	27,693	23,544	Good
54			1	653	1,758	1,291	Excellent
55			1	360	778	646	Excellent
56			1	268	1,444	484	Excellent
57			1	90	348	216	Excellent
58			1	32	475	136	Excellent
59	Pai Min Kok Stream	Tsuen Wan	1,000	4,578	20,894	6,981	Excellent
60			1,000	3,058	12,156	5,364	Excellent
61	Sam Dip Tam Stream		1,000	4,780	21,510	7,256	Excellent
62			1,000	1,243	9,203	3,410	Excellent
63			1,000	569	3,205	1,364	Excellent

Source: Audit analysis of EPD records

Note 1: These refer to the lowest and highest running medians (or geometric means as appropriate) of *E. coli* among the 12 values calculated for 2015.

Note 2: WQI is based on the assessment of 3 parameters, namely dissolved oxygen, 5-day biochemical oxygen demand and ammonia-nitrogen.

**Appendix B**  
(paras. 1.7, 1.9 and  
2.5 refer)

***E. coli* levels of 8 river monitoring stations complying with WQOs  
(2015)**

Monitoring station	River	District	Number of <i>E. coli</i> (per 100 mL of water)				WQI (Note)
			WQO	Lowest (Note)	Highest (Note)	Annual geometric mean	
Calculation method: Geometric mean of the most recent five consecutive water samples							
64	Pak Nai Stream	Yuen Long	1,000	310	800	417	Excellent
65	Tsang Kok Stream		1,000	120	290	239	Good
66	Ha Pak Nai Stream		1,000	49	230	77	Excellent
67	Tai Shui Hang Stream		1,000	40	580	199	Excellent
68	Tung Chung	Islands	1,000	21	310	114	Excellent
69	River		1,000	18	340	64	Excellent
70	Shing Mun River	Sha Tin	1,000	1	1	4	Excellent
71	Tai Po Kau Stream	Tai Po	1,000	81	710	260	Excellent

*Source: Audit analysis of EPD records*

*Note: See Notes 1 and 2 to Appendix A.*

### **Actions taken by the EPD to improve water quality**

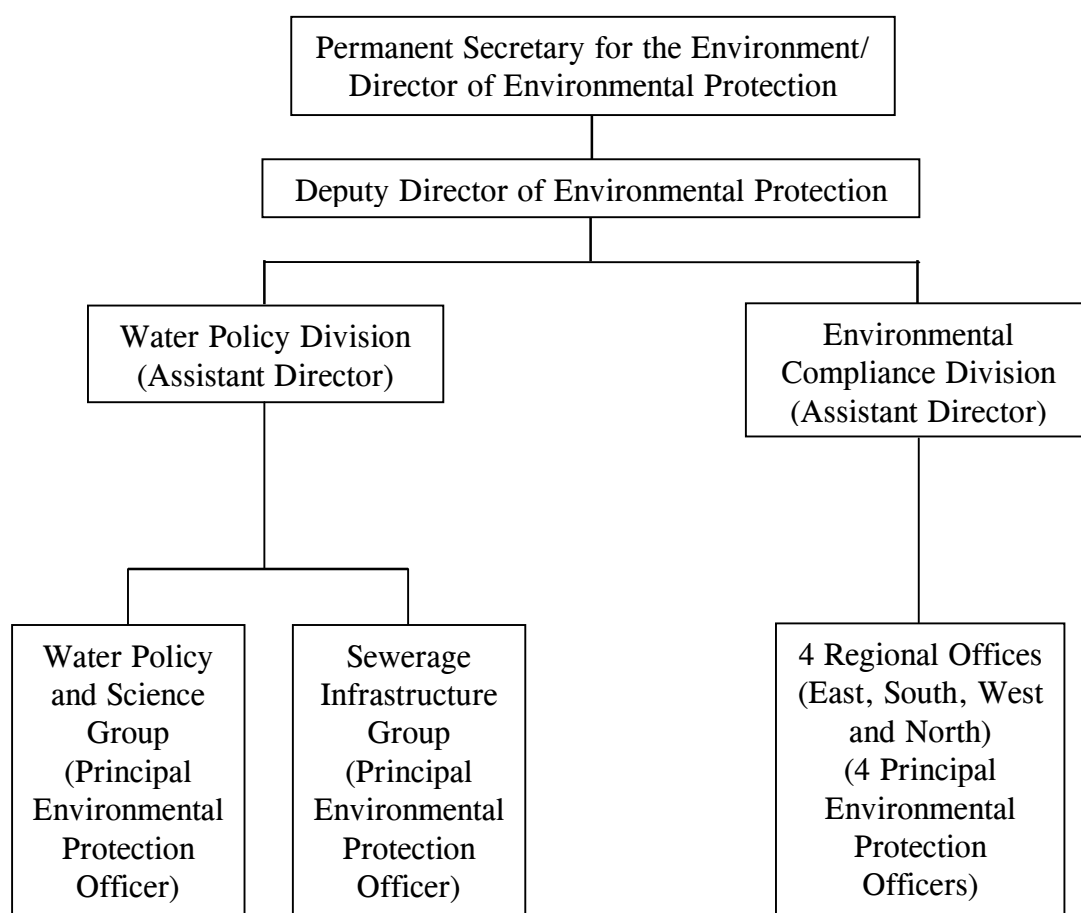
<b>District</b>	<b>River water quality and/or EPD actions</b>
(a) Islands	<ul style="list-style-type: none"> <li>• The <i>E. coli</i> levels of Mui Wo River had reduced by 97% in 2015 as compared with 1988.</li> <li>• The WQIs of Mui Wo River and Tung Chung River have been “Good” or better throughout the years.</li> </ul>
(b) Kowloon City	<ul style="list-style-type: none"> <li>• The <i>E. coli</i> levels of Kai Tak River had reduced by over 75% in 2015 as compared with 1999. The polluted discharges were mainly originated from non-point sources (e.g. sewage from surface channels) in old developed areas.</li> <li>• The WQI of the above river improved from “Very Bad” in 1986 to “Fair” or better in 2015.</li> <li>• To improve water quality, the EPD has pursued the upgrading of DWFIs installed alongside Kai Tak River, as well as conducting a detailed survey to identify expedient connections for rectification.</li> </ul>
(c) Kwai Tsing	<ul style="list-style-type: none"> <li>• The <i>E. coli</i> levels of Kau Wa Keng Stream had reduced by 40% in 2015 as compared with 1998.</li> <li>• The WQI of the above stream improved from “Bad” in 1991 to “Good” in 2015.</li> </ul>
(d) North	<ul style="list-style-type: none"> <li>• The <i>E. coli</i> levels of River Indus, River Beas and River Ganges had reduced by over 90% in 2015 as compared with 1990. <i>E. coli</i> found in the rivers might be caused by treated waste water discharge from livestock farms and sewage discharge from unsewered houses, as well as sewage from surface channels and expedient connections.</li> <li>• The WQIs of downstream monitoring stations of the above rivers improved from “Very Bad” in 1986 to “Fair” in 2015.</li> <li>• To improve river water quality, the EPD has conducted surveys on expedient connections for rectification, and sewer-connection works for villages have been on-going. The EPD and the Agriculture, Fisheries and Conservation Department have undertaken enforcement actions and education programmes on livestock waste treatment facilities for farms.</li> </ul>

District	River water quality and/or EPD actions
(e) Sai Kung	<ul style="list-style-type: none"> <li>• The <i>E. coli</i> levels of rivers in the district had reduced by over 65% in 2015 as compared with 1997.</li> <li>• The WQIs of these rivers improved from “Bad” in 1991 to “Fair” or better in 2015.</li> <li>• As of October 2016, sewer-construction works for 13 villages, and sewer-connection works for other villages, were in progress.</li> </ul>
(f) Sha Tin	<ul style="list-style-type: none"> <li>• The <i>E. coli</i> levels of Shing Mun River had reduced by 85% in 2015 as compared with 1988.</li> <li>• The WQI of the main channel of Shing Mun River improved from “Fair” in 1986 to “Excellent” in 2015.</li> <li>• To further improve water quality, the EPD has conducted surveys to identify expedient connections for rectification.</li> </ul>
(g) Tai Po	<ul style="list-style-type: none"> <li>• The <i>E. coli</i> levels of rivers in the district had reduced by over 70% in 2015 as compared with 1999.</li> <li>• The WQIs of downstream monitoring stations of these rivers improved from “Very Bad” in 1986 to “Good” or better in 2015.</li> </ul>
(h) Tsuen Wan	<ul style="list-style-type: none"> <li>• The <i>E. coli</i> levels of Pai Min Kok Stream had reduced by over 90% in 2015 as compared with 1989.</li> <li>• The <i>E. coli</i> levels of Sam Dip Tam Stream had reduced by 90% in 2015 as compared with 1999.</li> <li>• The WQIs of the above rivers in the district improved from “Bad” in 1988 to “Excellent” in 2015.</li> </ul>
(i) Tuen Mun	<ul style="list-style-type: none"> <li>• The <i>E. coli</i> levels of Tuen Mun River had reduced by 90% or more in 2015 as compared with 1988.</li> <li>• The WQI of upstream section of Tuen Mun River improved from “Very Bad” in 1988 to “Bad” in 2015, and the WQIs of midstream and downstream sections of Tuen Mun River improved from “Bad” in 1988 to “Good” in 2015.</li> <li>• Village sewerage works at the upstream section of Tuen Mun River are ongoing. Sewage at upstream section of the river has been diverted by a DWFI to a nearby sewage treatment plant for proper treatment, without affecting the main river sections of Tuen Mun River.</li> </ul>

District	River water quality and/or EPD actions
(j) Yuen Long	<ul style="list-style-type: none"> <li>• The <i>E. coli</i> levels of Yuen Long Creek and Kam Tin River had reduced by over 70% in 2015 as compared with 1998, and those of Tin Shui Wai Nullah had decreased by 94% compared with 1992. <i>E. coli</i> found in the rivers might be caused by treated waste water discharge from livestock farms and sewage discharge from unsewered houses, as well as sewage from surface channels and expedient connections.</li> <li>• The WQIs of Yuen Long Creek and Kam Tin River improved from “Very Bad” in 1986 to “Bad” (“Fair” for one monitoring station in Yuen Long Creek) in 2015. The WQI of Tin Shui Wai Nullah improved from “Bad” in 1993 to “Fair” or better in 2015.</li> <li>• To improve river water quality, sewer construction works for 6 villages, and sewer connection works for other 11 villages, were in progress. As trunk sewers and sewerage network for many other unsewered villages would take some time for completion, a DWFI was installed in Kam Tin in 2016 to intercept polluted surface water from Kam Tin areas.</li> <li>• The EPD has planned to intercept polluted surface water along the most densely populated areas of Yuen Long Creek and to upgrade the capacity and treatment level of Yuen Long Sewage Treatment Works. The EPD has carried out surveys on expedient connections for rectification, and undertaken enforcement actions and education programmes in collaboration with the Agriculture, Fisheries and Conservation Department to tackle the pollution problems arising from livestock waste.</li> </ul>

Source: EPD records

**Environmental Protection Department:  
Organisation chart (extract)  
(30 June 2016)**



*Source: EPD records*

**EPD views regarding WQOs on *E. coli***  
**(October 2016)**

- (a) For water bodies having beneficial uses of pond fish culture, agriculture and irrigation, the mainstream overseas practices generally did not stipulate bacteriological standards. For jurisdictions having bacteriological water quality standards for aquaculture, they were mainly established specifically for culture of shellfish for raw consumption. To address the human-health risk associated with consumption of aquacultural products, it was a common practice for the food-safety authority to establish bacteriological standards for aquacultural food rather than for the culturing water.
- (b) For water bodies where the major beneficial use was for the maintenance of aquatic life, overseas practices included a wide range of physical and chemical parameters (similar to the parameters reported in the EPD's annual river-water quality reports — see para. 2.3) and no bacteriological criteria had been established. Compliance check with WQOs based on five key indicators, namely pH value, suspended solids, dissolved oxygen, 5-day biochemical oxygen demand and chemical oxygen demand were most relevant for reflecting the related water quality.
- (c) The beneficial use of general amenity was generally applicable to all water control zones including marine and inland waters. Numerical WQOs (including WQO on *E. coli*) were irrelevant to such a beneficial use, and only the narrative WQO, namely “aesthetic appearance”, was relevant and had been established to protect such a generic use.
- (d) The EPD had been taking actions (including pollution and planning control, and the provision of sewerage infrastructures) so as to achieve the various WQOs stipulated under the WPC Ordinance as far as practicable. Regarding the achievement of the WQOs on *E. coli*, other factors, such as deposit of faeces from warm-blooded animals (e.g. birds and dogs), could also affect the *E. coli* levels.
- (e) Some of the WQOs on *E. coli* for inland water control subzones were outdated as they were established 20 to 30 years ago when there was a lack of microbiological data. Based on current overseas practices, WQOs on *E. coli* would need to be established for a very few number of such subzones.

*Source: EPD records*



## Acronyms and abbreviations

APE	Approved project estimate
Audit	Audit Commission
CoE	Certificate of Exemption
DSD	Drainage Services Department
DWFI	Dry-weather-flow interceptor
<i>E. coli</i>	<i>Escherichia coli</i>
EFB	Environment and Food Bureau
ENB	Environment Bureau
EPD	Environmental Protection Department
ETWB	Environment, Transport and Works Bureau
FC	Finance Committee
FEHD	Food and Environmental Hygiene Department
HAD	Home Affairs Department
km	Kilometres
Lands D	Lands Department
LegCo	Legislative Council
m <sup>3</sup>	Cubic metre
mL	Millilitres
PEL Branch	Planning, Environment and Lands Branch
PHMS Ordinance	Public Health and Municipal Services Ordinance
PWP	Public Works Programme
PWSC	Public Works Subcommittee
SC	Sewage charges
SMPs	Sewerage Master Plans
STS system	Septic-tank-and-soakaway system
VS programme	Village sewerage programme
VSS Group	Village Sewerage Support Group
WD Ordinance	Waste Disposal Ordinance
WHO	World Health Organisation
WPC Ordinance	Water Pollution Control Ordinance
WQI	Water Quality Index
WQO	Water Quality Objective

## **CHAPTER 9**

### **Buildings Department Food and Environmental Hygiene Department**

#### **Joint-office operation on water seepage in buildings**

**Audit Commission  
Hong Kong  
28 October 2016**

*This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.*

Report No. 67 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

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# **JOINT-OFFICE OPERATION ON WATER SEEPAGE IN BUILDINGS**

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# **JOINT-OFFICE OPERATION ON WATER SEEPAGE IN BUILDINGS**

## **Executive Summary**

1. Mostly owing to defective water pipes, sanitary fitments and drainage pipes, and deteriorated waterproofing of floor slabs, rooftops and external walls, water seepage in buildings may cause nuisances, health problems, building-safety issues and at times water wastage. In addition to the originating flat, these problems may extend to adjacent and underlying flats. Under the Public Health and Municipal Services Ordinance (Cap. 132 — PH&MS Ordinance), the Food and Environmental Hygiene Department (FEHD) may issue a nuisance notice requiring the responsible person of any premises, drain or sewer which is in such a state as to be a nuisance, or injurious or dangerous to health to take actions to abate the water seepage within a specified period.

2. Upon noting water seepage in a flat which is suspected to be originated from an upper-floor or an adjacent flat, the affected flat owner may seek to resolve the problem by approaching and liaising with the pertinent flat owners to carry out necessary investigations and repair works. The affected flat owner may also refer a water-seepage case to the Government for assistance. In response, the FEHD may carry out investigations to trace the source of the seepage and, upon identifying the source, issue a nuisance notice (see para. 1).

3. In July 2006, a joint-office (JO) operation comprising staff of the FEHD and the Buildings Department (BD) was set up in offices of all the 19 FEHD districts to handle water-seepage cases. The JO operation aimed to improve coordination of FEHD and BD staff. FEHD staff had the enforcement power under the PH&MS Ordinance and BD staff possessed building-survey expertise. The main objectives of the JO operation were to shorten the time of investigation of water-seepage cases reported by the public and improve the success rate of identifying the seepage source of these cases. The Audit Commission (Audit) noted that the number of public reports on water-seepage cases had increased by 70% from 17,405 cases in 2007 to 29,617 cases in 2015.

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4. In 2014-15, the total cost of the JO operation was \$129 million, comprising staff cost of \$97 million, and office expenditure and cost of hiring contractors (for carrying out water-seepage investigations) totalling \$32 million. As of March 2016, 274 staff (comprising 211 FEHD JO staff and 63 BD JO staff) were involved in the JO operation. Audit has recently conducted a review to examine the efficiency and effectiveness of the JO operation in handling water-seepage cases with a view to identifying areas for improvement.

### Investigation and enforcement actions

5. As of December 2006, there were 6,228 outstanding cases. After the setting up of the JO operation in all the 19 districts in 2006, from January 2007 to March 2016, the JO operation had received a total of 231,968 reports on water-seepage cases (or about 2,100 cases a month). As of March 2016, of the 238,196 (6,228 plus 231,968) cases, actions on 196,926 (83%) cases had been completed, and 15,564 (6%) were outstanding cases with investigations in progress. The shortfall of 25,706 (11%) cases was due to record-keeping discrepancies between the number of cases captured in the FEHD's Complaints Management Information System (CMIS) and that in the FEHD JO monthly returns and BD JO case records. Of the 196,926 completed cases: (a) 97,296 (49%) were screen-out cases where investigations would not be carried out due to certain reasons such as the water seepage being at a level not meeting the moisture-content threshold; (b) 40,856 (21%) were cases where the water seepage had ceased or the informants had withdrawn case reports during investigations; (c) 41,024 (21%) were cases where the seepage source was successfully identified by the JO operation; and (d) 17,750 (9%) were cases where the seepage source could not be identified after conducting investigations. According to the formula adopted by the FEHD and the BD, the success rate of identifying the source of water-seepage cases completed from January 2007 to March 2016 was 41% ( $41,024 \div (41,024 + 17,750 + 40,856) \times 100\%$ ) (paras. 1.17, 2.3 and 2.10).

6. ***Deteriorating source-identification success rates.*** Notwithstanding that one of the main objectives of the JO operation was to improve the success rate of identifying the seepage source of water-seepage cases (see para. 3), according to the formula adopted by the FEHD and the BD (see para. 5), the success rate of cases requiring investigations had decreased progressively from 46% in 2007 to 36% in 2015 (paras. 2.9 and 2.10).

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7. ***Long time taken to handle some water-seepage cases.*** Despite the fact that a key objective of the JO operation was to shorten the time of investigation of water-seepage cases (see para. 3), Audit examination revealed that it took a long time for the JO operation to process some water-seepage cases. In this connection, of the 28,332 cases having actions completed from April 2015 to March 2016, the time taken to complete 9,710 (34%) cases had exceeded the 133-day reference timeframe set by the FEHD and the BD. In particular, 643 (2%) cases took 2.2 to 7.5 years to complete. Furthermore, of the 15,564 outstanding cases as of March 2016, 6,368 (41%) cases had been outstanding for more than 133 days, where the time having been spent on 1,046 (7%) cases ranged from 2.2 to 8.3 years (paras. 1.9, 2.17, 2.18 and 2.22).

8. ***Inadequate system for referring cases to BD and WSD for follow-up actions.*** During investigations of water-seepage cases, FEHD JO staff and/or BD JO staff would carry out preliminary assessments and refer cases involving building-safety issues to the BD and cases involving leaking of water-supply pipes to the Water Supplies Department (WSD) for further investigations and necessary enforcement actions under the Buildings Ordinance (Cap. 123) and the Waterworks Ordinance (Cap. 102) respectively. Audit examination revealed that, although FEHD guidelines required FEHD JO staff to maintain a list of cases having been referred to the BD and the WSD for follow-up actions, the staff of 8 of the 19 districts did not maintain such a list. Moreover, while the WSD had received 2,240 cases having been referred from the JO operation from 2011 to 2015 for follow-up actions, the records of the JO operation showed that only 728 (33% of 2,240) cases had been referred to the WSD during the period (paras. 2.28, 2.29 and 2.31).

9. ***Lack of system control over investigations and issuance of nuisance notices.*** From 2011 to 2015, the JO operation had successfully identified the seepage source of 22,439 water-seepage cases and had served 20,729 nuisance notices on the responsible persons. The FEHD promulgated an instruction in March 2008 requiring JO staff of the 19 districts to maintain in each district a Water-seepage Case Monitoring Database by using standalone computers for monitoring the progress of actions taken on each water-seepage case. Information for inclusion in the Database included the date of: (a) conducting a coloured-water test; (b) inspecting the test results; (c) issuing a nuisance notice and its expiry date; and (d) conducting a compliance inspection of a nuisance notice issued. However, information of the Database could not be provided for Audit examination. The absence of the related records and information had impeded the FEHD's monitoring



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and management of investigations and issuance of nuisance notices on water-seepage cases, as well as Audit's examination of the completeness and timeliness of actions taken by the JO operation in conducting investigations and issuing nuisance notices on water-seepage cases (paras. 2.42, 2.46, 2.47 and 2.49).

10. ***Lack of system control over follow-up actions on nuisance notices.*** According to FEHD guidelines, JO staff of each district needed to maintain a Nuisance Notices Monitoring List. However, Audit examination revealed that JO staff of 14 of the 19 districts did not maintain information in the Monitoring Lists on one or more of the following items: (a) the date of serving a nuisance notice; (b) the date of expiry of a nuisance notice; and (c) the dates of conducting follow-up inspections to ascertain compliance with a nuisance notice. Moreover, Audit also noted that none of the Monitoring Lists of the 19 districts comprised information on the results of compliance inspections and the dates of referring cases to the FEHD Prosecution Section for taking enforcement actions. The absence of the related records and information had impeded the FEHD's monitoring and management of follow-up actions on nuisance notices served, and Audit's examination of the completeness and timeliness of the related actions (paras. 2.50 and 2.52 to 2.55).

### Monitoring of service contractors

11. To supplement staff resources, BD JO staff engaged and monitored service contractors to assist in carrying out investigations of water-seepage cases. Service contractors were required to submit bi-weekly progress reports to BD JO staff to show the progress of actions taken on each assigned case. As of March 2016, 7 contractors had been appointed under 9 service contracts to provide water-seepage investigation services for the 19 FEHD districts (paras. 1.10 and 3.3).

12. ***Inadequate monitoring and assessment of contractors' effectiveness.*** Service contractors were mainly engaged to carry out investigations with a view to identifying the source of seepage of water-seepage cases. However, in monitoring and assessing a contractor's performance, BD JO staff did not compile and make reference to the contractor's success rate of identifying the source of seepage of cases assigned to him. Audit examination revealed that there were large variations among the success rates of the nine contracts covering the period April 2014 to April 2015, with the rates ranging from 23% to 67% (paras. 3.6, 3.7 and 3.9).

## Executive Summary

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13. ***Lack of effective actions taken against contractors for taking a long time to complete investigations.*** Audit examination revealed that some contractors had taken a long time to complete investigations of cases assigned to them. For example, as of April 2016, of the 8,327 cases of the nine contracts covering the period April 2014 to April 2015 where investigation reports had been submitted to BD JO staff, the time taken to complete 281 (3%) cases ranged from 1.1 to 1.9 years. Furthermore, a target timeframe had been specified in the contract for a contractor to complete an inspection of the affected premises and carry out necessary tests within 30 days from assignment of a case. However, Audit examination revealed that, as of April 2016, of the 5,457 cases of contracts covering the period April 2014 to April 2015 where actions on inspection of the affected premises and tests had been completed, 3,337 (61%) cases did not meet the 30-day target timeframe. In particular, the time taken for 85 (2%) cases to complete this task ranged from 1.1 to 2.1 years. However, the BD had not issued any warning letter or adverse performance report to related contractors from January 2011 to April 2015 (paras. 3.13 to 3.15, 3.18 and 3.21).

### **Management information system and performance reporting**

14. ***FEHD JO staff not fully adopting new CMIS for water-seepage cases.*** In July 2012, the FEHD engaged a contractor at a cost of \$7.3 million to develop a new CMIS to facilitate the handling of all FEHD enquiry and complaint cases, including water-seepage cases. The new system was rolled out by phases for implementation in the 19 districts from December 2014 to December 2015. The new CMIS provided new functions for storing scanned copies of case documents, generating exception reports highlighting cases not complying with timeframes and generating ageing analysis reports on long-outstanding cases. However, JO staff of the 19 districts did not fully implement the new CMIS. For example, they did not input into the new CMIS the dates of conducting tests and inspections, and issuing nuisance notices of water-seepage cases, causing inefficiency for the management to monitor performance and progress of the cases (paras. 4.2, 4.4 to 4.6 and 4.9).

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15. *Need to consider setting additional performance targets.* While informants of water-seepage cases and members of the public are mostly concerned about the time taken by the JO operation in identifying the source of seepage of water-seepage cases and the extent to which the JO operation could successfully identify the source of seepage, the FEHD and the BD have not set performance targets in these two areas (para. 4.22).

### Audit recommendations

16. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Government should:**

#### *Investigation and enforcement actions*

- (a) **strengthen measures with a view to ensuring that the JO operation actions on water-seepage cases are completed in a timely manner (para. 2.34(c));**
- (b) **periodically send a list of referral cases to the WSD and the BD for reconciliation purposes (para. 2.34(e));**
- (c) **take measures to ensure that BD JO staff take actions on outstanding cases in a timely manner (para. 2.36(a));**
- (d) **take necessary actions to ensure that Water-seepage Case Monitoring Databases are properly maintained by the JO staff (para. 2.58(a));**
- (e) **issue clear guidelines on essential information for inclusion in Nuisance Notices Monitoring Lists (para. 2.58(b));**

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### ***Monitoring of service contractors***

- (f) **take actions to ensure that contractors' investigations on water-seepage cases are completed in a timely manner, and warning letters and adverse performance reports are issued to contractors having unsatisfactory performance (para. 3.33(a));**

### ***Management information system and performance reporting***

- (g) **take measures to ensure that all functions of the new CMIS on water-seepage cases are fully implemented for the JO operation in a timely manner (para. 4.13(a)); and**
- (h) **consider regularly publishing performance indicators for the JO operation (para. 4.24).**

## **Response from the Government**

- 17. The Government agrees with the audit recommendations.



## **PART 1: INTRODUCTION**

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

### **Background**

1.2 Mostly owing to defective fresh-water and seawater pipes, sanitary fitments and drainage pipes, and deteriorated waterproofing of floor slabs, rooftops and external walls, water seepage in buildings (see Photograph 1) may cause nuisances, health problems, building-safety issues and at times water wastage. In addition to the originating flat, these problems may extend to adjacent and underlying flats.

**Photograph 1**

**Water seepage from a ceiling**



*Source: Buildings Department records*

1.3 According to the Food and Environmental Hygiene Department (FEHD) and the Buildings Department (BD):

- (a) property owners are responsible for maintaining and managing their buildings, and resolving any water-seepage problem occurring in their buildings;

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- (b) if water seepage is suspected to be originated from an upper-floor flat or an adjacent flat, the property owner affected should promptly approach the pertinent flat owner for carrying out investigations and repair works. He may seek assistance from the management office or the owners' corporation of his building for resolving the problem. Where necessary, he may engage a building professional to carry out investigations and request the responsible property owner to take actions to cease the water seepage, or lodge a claim for damages;
- (c) an affected property owner may refer a water-seepage case to the Government for assistance (for example, through the Government hotline 1823). In response, FEHD staff will pay a visit to the site. If FEHD staff find that the water seepage has posed a health nuisance or a risk to the structural safety of the building, or has led to wastage of water, they would handle the case by conducting an investigation. If the investigation confirms the existence of water seepage (by measuring the moisture content of the seepage area), the FEHD staff (and at times service contractors engaged by the BD) will seek to pay visits to upper-floor or adjacent premises suspected to be the originated place of the seepage to carry out tests with a view to identifying the source of seepage. Upon identifying the source of seepage, the FEHD will issue a nuisance notice requiring the responsible person to take actions to abate the water seepage within a specified period; and
- (d) the FEHD will refer cases involving building-safety issues and leaking of water-supply pipes to the BD and the Water Supplies Department (WSD) respectively for further investigations and necessary enforcement actions (see para. 1.4(b) and (c)).

### ***Government enforcement actions under three ordinances***

1.4 Upon receiving a public report on water seepage in buildings, pertinent government departments may take actions under the following circumstances:

- (a) ***Nuisances.*** Any premises, drain or sewer which is in such a state as to be a nuisance, or injurious or dangerous to health shall be nuisances under section 12 of the Public Health and Municipal Services Ordinance (Cap. 132 — PH&MS Ordinance) and the FEHD may issue a

nuisance notice under section 127 (Note 1) of the Ordinance to require the responsible person to abate the nuisance within a specified period;

- (b) ***Building-safety issues.*** If the seepage has given rise to building-safety issues, the BD may issue orders under section 24 (related to unauthorised building works (UBW) — Note 2), sections 26 and 26A (related to dangerous, dilapidated and defective buildings — Note 3) and section 28 (related to defective and insanitary drains of building — Note 4) of the Buildings Ordinance (Cap. 123) to require the responsible person to take rectification actions within a specified period; and
- (c) ***Water wastage.*** If the seepage is originated from leaking water-supply pipes and has resulted in water wastage, the WSD may issue a notice under section 16 (Note 5) of the Waterworks Ordinance (Cap. 102) to require the responsible person to take rectification actions within a specified period.

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**Note 1:** *Under section 127 of the PH&MS Ordinance, the Director of Food and Environmental Hygiene may cause a notice to be served on the person by reason of whose act, default or sufferance the nuisance arose or continues, or on the occupier or owner of the premises on which the nuisance exists, requiring him to abate the nuisance.*

**Note 2:** *Under section 24 of the Buildings Ordinance, where any building works have been or are being carried out in contravention of any of the provisions of the Buildings Ordinance, the Building Authority (i.e. the Director of Buildings) may by order in writing require the demolition or necessary alteration of the works.*

**Note 3:** *Under sections 26 and 26A of the Buildings Ordinance, where in the opinion of the Building Authority any building has been rendered dangerous or liable to become dangerous, or on inspection the Building Authority finds any dilapidation or defect in a building, he may by order in writing require the owner to carry out such works as specified.*

**Note 4:** *Under section 28 of the Buildings Ordinance, where in the opinion of the Building Authority the drains or sewers of any building are inadequate or in defective or insanitary condition, he may by an order in writing require the owner to carry out such drainage works as specified.*

**Note 5:** *Under section 16 of the Waterworks Ordinance, the Water Authority (i.e. the Director of Water Supplies) may, if he is satisfied that an inside service is in such a condition that waste of a supply has occurred or is likely to be caused thereby, by notice require the consumer to carry out the repairs or other works as specified.*



### *Government actions before July 2006*

1.5 Before July 2006, a water-seepage case reported by the public would firstly be referred to the pertinent FEHD district office (DO — Note 6) which would carry out an initial investigation to ascertain if there was any evidence of water seepage. If water seepage was suspected to have originated from defective drainage or sewage pipes, the responsible FEHD DO staff might carry out a coloured-water test (Note 7) to trace the source of the seepage. FEHD DO staff would not carry out a coloured-water test if they found that the water seepage was not significant or was intermittent because, according to the FEHD, the test might not help identify the source of seepage in such circumstances. If the source of seepage could be identified, the FEHD would issue a nuisance notice under section 127 of the PH&MS Ordinance to the responsible person requiring him to abate the nuisance within a specified period.

1.6 For a case where the source of seepage could not be identified, the FEHD would not take further actions on the case, and would notify the informant of the investigation results and any referral of the case to other government departments for follow-up actions. For a case which might involve building defects and/or leaking water-supply pipes (Note 8), the FEHD would refer the case to the BD and/or the WSD as appropriate for follow-up actions, which would reply to the informant notifying him of the investigation results directly with a copy of the reply forwarded to the FEHD.

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**Note 6:** *The FEHD has set up 19 DOs to provide public services on a district basis, of which 17 districts were the same as 17 of the 18 District Council districts. The remaining Yau Tsim Mong District Council district is split into two FEHD districts, namely Yau Tsim district and Mongkok district.*

**Note 7:** *If water seepage was suspected to have originated from defective drainage or sewage pipes, investigators would apply coloured water to drainage and sewage outlets and observe any appearance of the coloured water at the affected areas. This test is known as a coloured-water test.*

**Note 8:** *During investigations of water-seepage cases, FEHD DO staff would carry out preliminary assessments of signs of water seepage due to building defects (see para. 1.4(b)) or leaking water-supply pipes (see para. 1.4(c)).*

### *Joint-office operation from July 2006*

1.7 In December 2004, in response to a recommendation of the Team Clean (Note 9), a joint-office (JO) operation comprising 7 FEHD staff and 6 BD staff commenced on a trial basis at an FEHD office in Shamshuipo to handle water-seepage cases. In addition to carrying out coloured-water tests (see Note 7 to para. 1.5) by FEHD DO staff (hereinafter referred to as FEHD JO staff), BD staff with building expertise (hereinafter referred to as BD JO staff) might conduct (or engage service contractors to conduct) additional tests (such as coloured-water ponding test — Note 10) to trace the source of water seepage. In addition, BD JO staff also made preliminary assessments of whether any of the water seepage might be caused by building defects and/or leaking water-supply pipes and refer relevant cases to the BD Existing Buildings Divisions (Note 11) and/or the WSD for follow-up actions. Other than carrying out additional tests and assessments, the other follow-up actions adopted before July 2006 continued to be applicable (see paras. 1.5 and 1.6).

1.8 From December 2004 to July 2006, the trial JO operation was progressively extended to all the 19 FEHD districts using FEHD office facilities and staff resources (mainly non-civil service contract (NCSC) staff) of both the FEHD and the BD. The period of the trial scheme was later extended to March 2009, and subsequently further to March 2012 and March 2014. Since April 2014, the JO operation has become a permanent arrangement.

1.9 Under the JO operation, BD JO staff cost, BD office expenditures and cost of engaging service contractors for carrying out tests to trace the source of water seepage are borne by the BD whereas the FEHD JO staff cost and FEHD

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**Note 9:** *The Team Clean, led by the Chief Secretary for Administration, was set up in May 2003 (in the wake of the spread of the Severe Acute Respiratory Syndrome) to develop and take forward proposals for entrenching a high level of public and environmental hygiene in Hong Kong.*

**Note 10:** *If water seepage was suspected to have originated from floor slabs or a shower tray, investigators would maintain a pond of coloured water on the floor slabs or shower tray for two hours and observe any seepage of the coloured water to the seepage areas. This test is known as a coloured-water ponding test.*

**Note 11:** *Cases under JO operation referred by the FEHD and BD JO staff to the BD for follow-up actions under sections 24, 26, 26A and 28 of the Buildings Ordinance would be handled by staff of the Existing Buildings Divisions of the BD.*

## Introduction

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office expenditures are borne by the FEHD. BD JO staff are under the supervision of an Assistant Director of the BD's Existing Buildings Division 2 whereas FEHD JO staff are under the supervision of the respective Assistant Directors of Operations Divisions 1, 2 and 3 of the FEHD (see Appendix A for a JO operation structure). According to the FEHD and the BD, the main objectives of the JO operation are to:

- (a) shorten the time of investigation of water-seepage cases and improve the success rate of identifying the source of water seepage of cases reported by the public; and
- (b) improve inter-departmental coordination and facilitate efficient and effective management and investigations of water-seepage cases jointly by FEHD staff having the enforcement power under the PH&MS Ordinance and BD staff having the building-survey expertise.

### *Staff resources and recurrent expenditures*

1.10 As of July 2006 (when the JO operation was first extended to all 19 FEHD districts), 129 staff (comprising 81 FEHD NCSC staff and 48 BD NCSC staff — Note 12) were involved in the JO operation. As of March 2016, 274 staff (a 112% increase) comprising 211 FEHD JO staff (136 civil service and 75 NCSC staff) and 63 BD JO staff (30 civil service and 33 NCSC staff) were involved in the JO operation. The 211 FEHD JO staff were deployed in 19 FEHD DOs, and the 63 BD JO staff were stationed at 4 FEHD DOs and a BD office located in Kwai Fong. The staff strength of the JO operation as of March 2016 is shown in Appendix B. The 63 BD JO staff were mainly responsible for engaging and overseeing the work of BD service contractors (Note 13) who carried out tests to trace the source of water seepage. As of March 2016, 7 contractors had been appointed under 9 service contracts to provide water-seepage test services for the 19 FEHD districts.

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**Note 12:** *According to the FEHD and the BD, before the JO operation becoming a permanent arrangement in April 2014, majority of staff involved in the JO operation were NCSC staff and their staff turnover rate was high. Since then, civil service posts have been progressively created to replace the NCSC posts.*

**Note 13:** *Before April 2007, about 69% of the investigation work for tracing the seepage source was conducted by BD JO staff, with the remaining 31% by BD service contractors. Since April 2007, all such investigation work has been carried out by contractors.*

1.11 In 2014-15, the total cost of the JO operation was \$129 million, comprising staff cost of \$97 million (\$71 million for FEHD JO staff and \$26 million for BD JO staff), and office expenditures and cost of hiring contractors totalling \$32 million (\$1 million office expenditures borne by the FEHD, and \$2 million office expenditures and \$29 million contractor cost borne by the BD).

### ***Monitoring progress of actions taken on water-seepage reports***

1.12 The following are relevant systems and records maintained for monitoring and managing the JO operation:

- (a) ***Complaints Management Information System (CMIS).*** The FEHD has maintained a CMIS to record information of all public enquiry and complaint cases received on its services and operations, including water-seepage reports;
- (b) ***FEHD JO monthly returns.*** FEHD JO staff in 19 districts submitted to the FEHD Headquarters (to BD JO staff before 2015) monthly returns on statistics and results of Stages I and II investigations (see para. 2.2) conducted by them (Note 14); and
- (c) ***BD JO case records.*** BD JO staff maintained records of water-seepage cases being assigned to service contractors in spreadsheet format, including the date of assigning each case to a service contractor, the date of submitting an investigation report by a contractor, the date of endorsement of the report by BD JO staff, and investigation results of each case.

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**Note 14:** *According to the BD, it made use of FEHD statistics for compiling statistics of the JO operation.*

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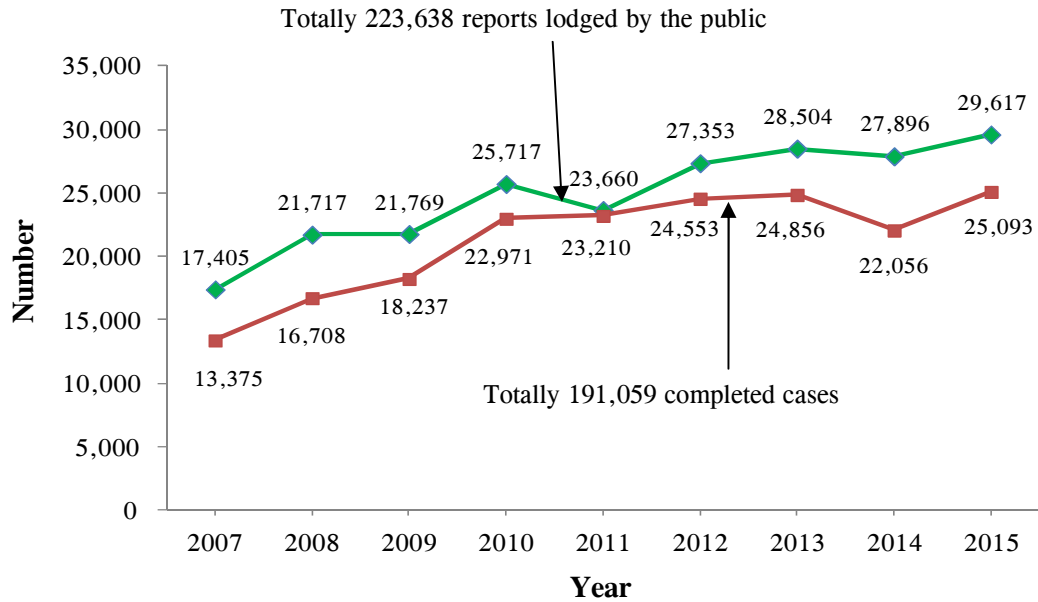
1.13 Relevant statistics of the JO operation include:

- (a) number of cases received in a month;
- (b) number of completed cases (comprising screen-out cases — see para. 2.3, completed cases with water-seepage sources identified, completed cases without identifying the source and cases where water seepage had ceased or reports had been withdrawn by the informants during investigations);
- (c) number of cases being referred to other government departments such as the BD Existing Buildings Divisions and the WSD for follow-up actions; and
- (d) number of cases being followed up with enforcement actions.

1.14 According to FEHD JO monthly returns and BD JO case records, the number of water-seepage reports having been received by the JO operation had increased from 17,405 in 2007 (the first full year of adoption of the JO operation in all 19 FEHD districts) to 29,617 in 2015 (a 70% increase), and the number of completed cases had increased from 13,375 in 2007 to 25,093 in 2015 (a 88% increase). Details are shown in Figure 1.

Figure 1

**Water-seepage public reports and completed cases  
(2007 to 2015)**



Source: FEHD and BD records

Remarks: The data were based on FEHD JO monthly returns and BD JO case records. Some completed cases in a year related to cases received in previous years. Furthermore, from January to March 2016, the JO operation had received a total of 8,330 water-seepage reports, screened out 2,667 cases and completed investigations of 3,200 cases. Moreover, from April to June 2016, the JO operation had received 10,567 water-seepage reports, screened out 3,526 cases and completed investigations of 4,101 cases.

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1.15 According to the FEHD, upon receipt of a water-seepage report from the public, FEHD JO staff would pay visits to the affected premises to examine the water seepage and its moisture content. If the moisture content of the water seepage was found to be below 35% (see para. 2.3(a) — Note 15), or the seepage had not caused nuisances (Note 16), FEHD JO staff would not take further actions and would inform the premises owner accordingly.

1.16 On the other hand, if the moisture content of the water seepage was found to be 35% or above, and that it had caused nuisances, FEHD JO staff (and at times BD service contractors) would seek to pay visits to the premises (mostly upper-floor or adjacent premises) suspected to be the origin of the seepage to carry out tests (see paras. 2.5 and 2.7 for details of tests) with a view to detecting the source of water seepage. Upon identifying the source and that the seepage had caused nuisances, the FEHD JO staff would issue a nuisance notice to the responsible premises owner requiring him to abate the seepage problem within a specified period.

1.17 Based on FEHD JO monthly returns and BD JO case records, as of December 2006, there were 6,228 outstanding cases. After the setting up of the JO operation in all the 19 FEHD districts in 2006, from January 2007 to March 2016, the JO operation had received a total of 231,968 water-seepage reports (223,638 plus 8,330 — see Figure 1 in para. 1.14). As of March 2016, the 238,196 (6,228 plus 231,968) cases requiring actions comprised the following:

- (a) based on FEHD JO monthly returns and BD JO case records, 196,926 (83%) were completed cases (see Table 1);
- (b) based on information in the CMIS, 15,564 (6%) were outstanding cases with investigation in progress; and

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**Note 15:** *The moisture content, ranging from 0% (denoting completely dry) to 100% (denoting completely wet), of a substance could be measured by a moisture measurement meter.*

**Note 16:** *According to the FEHD, water seepage from potentially unclean sources (such as sewage and drainage water) that may give rise to public health concerns is normally regarded as causing nuisances.*

- (c) the shortfall of 25,706 (11%) cases was due to record-keeping discrepancies between the number of water-seepage cases captured in the CMIS and that in the FEHD JO monthly returns and BD JO case records (see para. 4.20 for details).

Table 1

**Completed water-seepage cases  
(January 2007 to March 2016)**

Year	Number of completed cases				
	Screen-out	Seepage source identified	Seepage source not identified	Others (Note)	Total
2007	6,350	3,246	327	3,452	13,375
2008	7,144	4,476	986	4,102	16,708
2009	8,115	4,813	1,433	3,876	18,237
2010	11,051	4,737	2,322	4,861	22,971
2011	12,219	4,199	2,089	4,703	23,210
2012	13,727	4,053	1,963	4,810	24,553
2013	13,062	4,692	2,336	4,766	24,856
2014	10,961	4,816	2,133	4,146	22,056
2015	12,000	4,679	3,494	4,920	25,093
2016 (up to March)	2,667	1,313	667	1,220	5,867
Total	97,296	41,024	17,750	40,856	196,926

*Source: FEHD and BD records*

*Note: Other cases included those where the water seepage had ceased or withdrawn by informants during investigations.*

*Remarks: The data were based on FEHD JO monthly returns and BD JO case records. From April to June 2016, the JO operation had received a total of 10,567 water-seepage reports, screened out 3,526 cases and completed investigation of 4,101 cases.*



## **Introduction**

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1.18 Of the 29,617 (see Figure 1 in para. 1.14) water-seepage public reports received in 2015:

- (a) according to the records of the FEHD, 221 related to leaking water-supply pipes had been referred to the WSD for follow-up actions under the Waterworks Ordinance (see para. 1.4(c)); and
- (b) according to the records of the BD, 65 related to building-safety issues had been referred to the Existing Buildings Divisions of the BD for follow-up actions under the Buildings Ordinance (see para. 1.4(b)).

## **Audit review**

1.19 In 2012, the Audit Commission (Audit) completed a review on Management of public enquiries and complaints by the FEHD (see Chapter 7 of the Director of Audit's Report No. 59 of October 2012). Audit's findings on the FEHD's handling of water-seepage cases formed part of the audit report. The FEHD accepted Audit's recommendations included in the audit report for implementation, including the following:

- (a) reviewing the data accuracy of the CMIS, amending the incorrect data and taking measures to guard against errors and omissions in recording data;
- (b) reminding staff to properly maintain all case files;
- (c) closely monitoring long-outstanding cases;
- (d) looking into the reasons for the long time taken to complete some of the cases so as to identify room for improvement, and for any long periods of inaction during investigations; and
- (e) taking effective measures to improve the efficiency of investigations.

1.20 In April 2016, Audit commenced a review to examine the efficiency and effectiveness of the JO operation in handling water-seepage cases. The review focuses on the following areas:

- (a) investigation and enforcement actions (PART 2);
- (b) monitoring of service contractors (PART 3); and
- (c) management information system and performance reporting (PART 4).

Audit has identified areas where improvements can be made by the Government in the above areas, and has made a number of recommendations to address the issues.

## Acknowledgement

1.21 Audit would like to acknowledge with gratitude the cooperation of the staff of the Food and Health Bureau, the Development Bureau, the FEHD, the BD and the WSD during the course of the audit review.

## **PART 2: INVESTIGATION AND ENFORCEMENT ACTIONS**

2.1 This PART examines the work of FEHD JO staff and BD JO staff under the JO operation on water seepage in buildings, focusing on:

- (a) investigation actions (see paras. 2.2 to 2.40); and
- (b) enforcement actions (see paras. 2.41 to 2.59).

### **Investigation actions on water-seepage cases**

2.2 Members of the public mostly lodge water-seepage reports to the Government hotline 1823 or directly to JO staff of the 19 FEHD districts, and the former will refer cases received to the pertinent district JO staff for follow-up actions. Under the JO operation, three stages of investigations would be carried out, namely Stages I and II investigations by FEHD JO staff and Stage III investigations by BD JO staff.

#### ***Stage I investigations by FEHD JO staff***

2.3 Upon receipt of a water-seepage report from the public, responsible FEHD JO staff would pay visits to the affected premises to examine the water seepage and its moisture content (Stage I investigations). According to FEHD guidelines, FEHD JO staff would not take further actions if the case involves any one of the following circumstances (known as a screen-out case):

- (a) the moisture content of the seepage was below 35% (Note 17);

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**Note 17:** *According to the BD, water seepage with moisture content of less than 35% is insignificant and the chance of detecting its source is slim, and follow-up actions would not be taken on related cases.*

## **Investigation and enforcement actions**

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- (b) the seepage was caused by penetration of rain water through external walls, roofs or floor slabs which did not give rise to public health concerns;
- (c) the seepage was originated from areas within the affected premises;
- (d) the affected area was part of UBW (e.g. UBW on a flat roof, which would be referred to the BD Existing Buildings Divisions for follow-up actions);
- (e) the report was not a seepage case in nature (e.g. a defective drainage system at the exterior of a building, which would be referred to the BD Existing Buildings Divisions for follow-up actions); and
- (f) investigations under the JO operation on the case had been completed within two weeks and the water seepage had not worsened since the last investigation.

2.4 FEHD JO staff would notify the informants of the reasons for any screen-out cases. Table 2 shows the number of water-seepage cases lodged by the public and the screen-out cases from 2007 to 2015, which were based on information contained in FEHD JO monthly returns.

## Investigation and enforcement actions

**Table 2**  
**Number of water-seepage cases and screen-out cases**  
**(2007 to 2015)**

Year	Cases lodged by the public (No.)	Screen-out cases	
		(No.)	(Percentage)
2007	17,405	6,350	36 %
2008	21,717	7,144	33 %
2009	21,769	8,115	37 %
2010	25,717	11,051	43 %
2011	23,660	12,219	52 %
2012	27,353	13,727	50 %
2013	28,504	13,062	46 %
2014	27,896	10,961	39 %
2015	29,617	12,000 (Note)	41 %
Overall	223,638	94,629	42 %

*Source: FEHD records*

*Note: Based on a one-off exercise carried out by the FEHD for 2015, of these 12,000 screen-out cases, 8,049 (27% of 29,617 cases) related to cases not meeting the 35% moisture-content threshold.*

*Remarks: The data were based on FEHD JO monthly returns. Some screen-out cases in a year related to cases received in previous years.*

### ***Stage II investigations by FEHD JO staff***

2.5 For a water-seepage case other than a screen-out case, for the purpose of identifying the source of seepage, FEHD JO staff would conduct one or more of the following tests:

- (a) moisture-content assessment. Other tests might not be required if the moisture content of the seepage had fallen below 35%;
- (b) coloured-water test (see Note 7 to para. 1.5); and

- (c) reversible-pressure test. If water dripping from a ceiling was noted and that the seepage was suspected to be originated from water-supply pipes, FEHD JO staff would turn off the related main water supply and, in order to release the pressure inside the pipes, drain off the remaining water in the pipes by turning on all the pertinent water taps, and observe if the rate of water dripping would reduce. Thereafter, the FEHD JO staff would resume the pressure inside the pipes by turning on the main water supply and turning off all the pertinent water taps, and observe if the rate of water dripping would increase to determine whether the water-supply pipes had any possible leakage.

2.6 If the source of seepage could be identified after conducting the coloured-water test, FEHD JO staff would issue a nuisance notice to the responsible person for taking rectification actions within the time specified in the notice. A case involving possible leakage of water-supply pipes as revealed by a reversible-pressure test would be referred to the WSD for follow-up actions. Otherwise, FEHD JO staff would hand over the case to related BD JO staff for conducting Stage III investigations.

### ***Stage III investigations by BD JO staff***

2.7 Stage III investigations involved conducting one or more of the following tests:

- (a) moisture-content assessment. Other tests might not be required if the moisture content of the seepage had fallen below 35%;
- (b) coloured-water spraying test. If the walls were suspected to be the source of water seepage, investigators would spray diluted coloured water against the walls and observe any seepage of the coloured water to other areas;
- (c) coloured-water test (see Note 7 to para. 1.5);
- (d) coloured-water ponding test (see Note 10 to para. 1.7); and
- (e) reversible-pressure test (see para. 2.5(c)).

## Investigation and enforcement actions

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2.8 To supplement staff resources, BD JO staff engaged and monitored service contractors to assist in carrying out Stage III investigations. If the source of a water-seepage case could be identified and the seepage had caused nuisances under the PH&MS Ordinance (see para. 1.4(a)), BD JO staff would inform FEHD JO staff of the results for the latter to issue a necessary nuisance notice for rectification actions. Cases involving possible leakage of water-supply pipes as revealed by reversible-pressure tests would be referred to the WSD for follow-up actions. For cases where the source of seepage could not be identified after completing Stage III investigations, BD JO staff would notify the informants accordingly.

### *Deteriorating source-identification success rates*

2.9 The objectives of the JO operation are to shorten the time of investigations and improve the success rate of identifying the source of water seepage of cases reported by the public (see para. 1.9(a)). The FEHD and the BD jointly compiled success rates of identifying the source of seepage.

2.10 Figure 2 shows that the success rates had decreased progressively from 46% in 2007 to 36% in 2015, based on data recorded in FEHD JO monthly returns and BD JO case records using the formula adopted by the FEHD and the BD (Note 18).

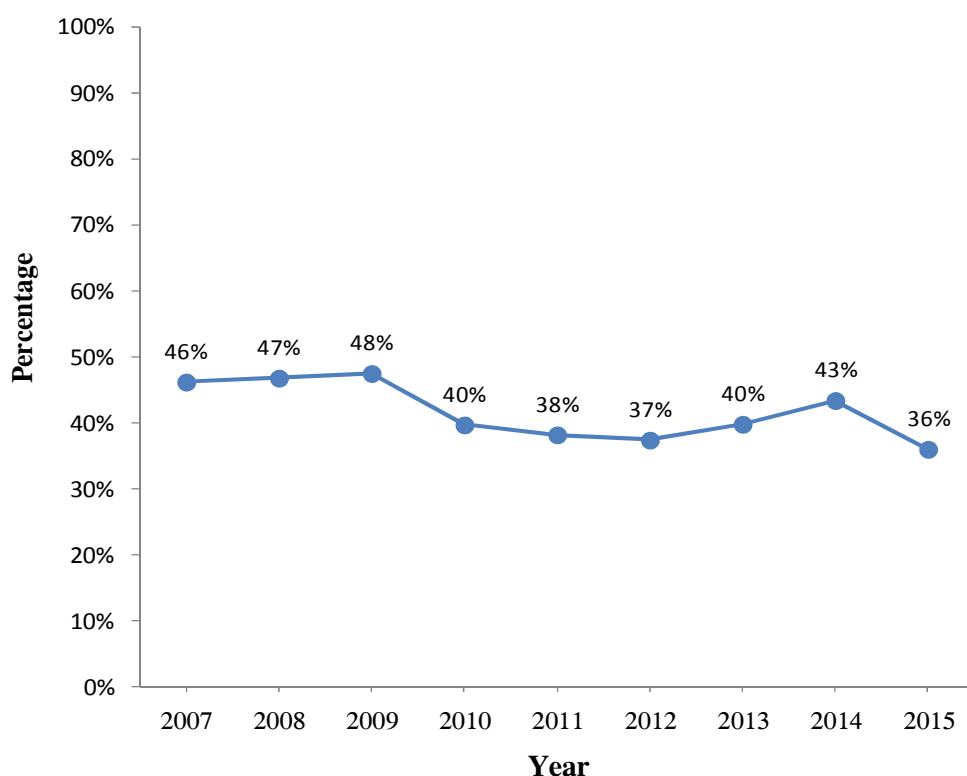
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**Note 18:** *The source-identification success rates were computed using the following formula:*

$$\text{Success rate} = \frac{\text{No. of completed cases with seepage source identified (A)}}{(A) + \text{No. of completed cases without identifying seepage source (Net of screen-out cases)} + \text{No. of cases closed during investigations due to cessation of water seepage or cases withdrawn by informants}} \times 100\%$$

Figure 2

**Success rates of identifying seepage source (Note)  
(2007 to 2015)**



*Source: Audit analysis of FEHD and BD records*

*Note: The number of screen-out cases was excluded from the computation of the success rates.*

*Remarks: From January to June 2016, the success rate of investigation actions on completed cases was 43%.*

2.11 In October 2016, the BD informed Audit that the declining success rates from 2007 to 2015 were attributed to the following:

- (a) the public had become more aware of the service and less tolerant of water seepage having a lower moisture-content level. Hence, public demand for services of the JO operation had increased considerably; and



## **Investigation and enforcement actions**

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- (b) in recent years, more water-seepage cases at lower moisture-content levels were received, and investigators would have a lower chance of identifying the seepage source of these cases.

2.12 In view of the fact that one of the main objectives of the JO operation is to improve the success rate of identifying the source of water seepage, the deteriorating source-identification success rates in recent years is a cause for concern. Audit considers that the BD and the FEHD need to strengthen actions with a view to improving the success rate.

### ***Lack of information on the time of sending final replies on screen-out cases***

2.13 For a screen-out case (see para. 2.3), the FEHD has set a completion timeframe on sending a final reply to the informant within 18 working days from the time of receiving the related water-seepage public report. However, the FEHD's CMIS did not maintain information on the time of sending final replies to informants of screen-out cases. The absence of related information has impeded FEHD management's monitoring and Audit's examination of the timeliness and completeness of the FEHD's actions in handling screen-out cases.

2.14 In Audit's view, the FEHD needs to take measures to maintain the information on the time of sending final replies to informants of screen-out cases. A comprehensive database system on water-seepage cases will facilitate this task (see para. 4.12).

### ***Long time taken to handle some water-seepage cases***

2.15 In 2008, the FEHD and the BD issued guidelines on reference completion timeframes on handling water-seepage cases (see Appendix C) by their staff, as follows:

## Investigation and enforcement actions

Guidelines issued by	Work	Reference completion timeframe
FEHD	From receiving a water-seepage report to completing Stage II investigations	38 working days
BD	From receiving a water-seepage case from FEHD JO staff to completing Stage III investigations	52 working days
	Total	90 working days (or 133 calendar days — Note 19)

### 2.16 According to the FEHD and the BD:

- (a) the guidelines provided indicative timeframes for simple and straightforward cases (i.e. cases not involving any problem for investigators to gain access to the premises concerned, not involving difficulties to trace the seepage source, not involving multiple seepage sources nor multiple tests and not requiring Government Laboratory's confirmation of results of seepage-source tests);
- (b) the actual timeframe for completing a case will vary depending on the complexity of the case, the testing methods used, and the workload and manpower situation of the JO operation; and
- (c) a case will require longer time to complete and the timeframe would become less meaningful if it involves laboratory testing of samples, sub-divided flats or an application for an entry warrant from the Court.

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**Note 19:** *After deducting 52 Saturdays and 52 Sundays, and 14 public holidays not falling on Saturdays in a year, 247 of 365 days in a year were working days. Therefore, the ratio of working days : calendar days was 1:1.48. Based on this ratio, 90 working days = about 133 calendar days.*

## Investigation and enforcement actions

2.17 From April 2015 to March 2016, based on the information in the CMIS, JO operation actions on 28,332 cases had been completed. Audit examination revealed that, of these 28,332 cases, the time of completing 9,710 (34%) cases had exceeded the total reference completion timeframe of 133 days (see para. 2.15). An analysis of the time of completing the 28,332 cases is as follows:

Days (No.)	Cases	
	(No.)	(Percentage)
133 days (or 90 working days) or less	18,622	66%
134 to 400 days	6,332	22%
401 to 600 days	1,863	7%
601 to 800 days	872	3%
801 to 1,000 days (or 2.2 to 2.7 years)	388	1%
1,001 to 2,730 days (or 2.7 to 7.5 years)	255	1%
Total	28,332	100%

2.18 Furthermore, as of March 2016, of the 15,564 outstanding cases with actions not having been completed, the time used for handling 6,368 outstanding cases (41% — Note 20) had exceeded the total reference completion timeframe of 133 days. An analysis of the time of processing the 15,564 outstanding cases as of March 2016 is as follows:

Days (No.)	Cases	
	(No.)	(Percentage)
133 days (or 90 working days) or less	9,196	59%
134 to 400 days	3,422	22%
401 to 600 days	1,083	7%
601 to 800 days	817	5%
801 to 1,000 days (or 2.2 to 2.7 years)	383	3%
1,001 to 3,026 days (or 2.7 to 8.3 years)	663	4%
Total	15,564	100%

**Note 20:** The 6,368 outstanding cases exceeding the 90-working-day completion timeframe was based on an ageing analysis management report provided by the FEHD (see para. 2.57).

2.19 Of the 6,368 (15,564 less 9,196) cases exceeding the completion timeframe, as of March 2016, Stages I and II investigations on 837 (13%) cases were in progress, and on 5,531 (87%) had been completed, which were awaiting completion of Stage III investigations (Note 21).

2.20 Audit selected for examination 30 cases (Note 22) involving long time (more than 800 days) for taking investigation actions (see paras. 2.17 and 2.18). Of these 30 cases, the FEHD and the BD informed Audit that the case files of 7 cases could not be located for Audit examination, and the apparent long time taken for 7 other cases (case files provided for Audit examination) were due to delays in updating the CMIS records. Audit considers it unsatisfactory that the files of some outstanding cases were missing which would create difficulties for the JO operation to follow-up and complete the water-seepage cases. The absence of the records and files has impeded Audit examination of FEHD's and BD's efficiency and effectiveness in handling long-outstanding cases. In Audit's view, the FEHD and the BD need to take measures to improve record keeping and the filing system for case files. The FEHD and the BD also need to take measures to ensure that information of the CMIS is updated in a timely manner. Regarding the remaining 16 (30 minus 7 minus 7) cases, Audit examination revealed the following major reasons for the long time taken:

- (a) long periods without actions taken (see Case 1);
- (b) investigators encountering difficulties in gaining access to the premises suspected to be the origin of the seepage (see Audit comments in paras. 3.23 to 3.25); and
- (c) long time taken by contractors to submit investigation reports and by BD JO staff to endorse the reports (see Case 2).

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**Note 21:** *In October 2016, the BD informed Audit that the number of cases awaiting completion of Stage III investigations as of June 2016 had decreased to 3,867.*

**Note 22:** *Of the 30 cases selected for examination, 8 (exceeding 800 days) were completed cases and 22 (comprising 15 longest cases and 7 other cases exceeding 800 days) were outstanding cases. Due to delays in updating the CMIS records, 3 completed cases and 4 outstanding cases in fact did not exceed 800 days as of March 2016.*

### Case 1

#### Case without actions taken for a long period of time (January 2010 to June 2016)

1. In January 2010, the FEHD received a water-seepage report. In February 2010, FEHD JO staff visited the affected premises and, from February to May 2010, conducted tests at the premises suspected to be the origin of seepage.

2. In July 2010, the case was assigned to a service contractor (Contractor A) for conducting Stage III investigations. In February 2011, Contractor A submitted an investigation report stating that the source of seepage could not be identified. However, as Contractor A did not provide the BD with some requested information, the report was not endorsed by the BD.

3. In May 2011, the case was re-assigned to another contractor (Contractor B). In October 2011, Contractor B informed BD JO staff that it had difficulties in making an appointment with the informant to visit the affected premises, and suggested that a letter could be issued to the informant requesting him to contact the office in ten days.

4. In June 2016, the BD issued a letter to the informant. About two weeks later, the BD issued a final reply to the informant and owner of the suspected premises, stating that no further action would be taken on the case.

#### *Audit comments*

5. There was no record showing that any action had been taken under the JO operation during the 4 years and 8 months from October 2011 to June 2016. Also, the BD did not take any follow-up actions (such as issuing a warning letter) against Contractor A for not providing the requested information, leading to re-assigning the case to Contractor B. The BD needs to strengthen actions on monitoring contractors' performance (see PART 3). In Audit's view, the BD needs to take measures to ensure that its staff take actions on outstanding cases in a timely manner.

*Source: Audit analysis of FEHD and BD records*

**Case 2****Case with long time taken to submit and endorse investigation reports  
(May 2013 to November 2015)**

1. In May 2013, the FEHD received a water-seepage report. After conducting Stages I and II investigations (without identifying the seepage source), the case was assigned by BD JO staff to a contractor (Contractor C) in June 2013 for conducting Stage III investigations. From August to December 2013, Contractor C had visited the affected premises, conducted tests at the premises suspected to be the origin of the seepage and inspected the test results.

2. In April 2014, Contractor C submitted an investigation report, indicating that the seepage source could not be identified. In June 2014, Contractor C conducted another moisture-content assessment at the affected premises and found that the moisture level was above 35%.

3. In May 2015, BD JO staff endorsed Contractor C's investigation report. On the same day, the case was re-assigned to another contractor (Contractor D).

4. In June 2015, Contractor C submitted a supplementary report on the result of the moisture-content assessment conducted in June 2014 (see para. 2).

5. In October 2015, after measuring the moisture content twice at the affected premises (both measurements showed that the moisture levels were below 35%), Contractor D submitted an investigation report and concluded that water seepage had ceased. In November 2015, after endorsing the report, BD JO staff issued a final reply to the informant and owner of the suspected premises.

***Audit comments***

6. BD JO staff had taken 13 months (from April 2014 to May 2015) to endorse the investigation report submitted by Contractor C, and Contractor C had taken 12 months (from June 2014 to June 2015) to submit a supplementary investigation report. In Audit's view, the BD needs to timely endorse investigation reports, and strengthen actions on monitoring contractors' performance to ensure that the investigation reports are submitted in a timely manner.

7. Also, there was no record in the case file showing the reasons for re-assigning the case to Contractor D for investigation after endorsing Contractor C's investigation report. The BD needs to make improvement in this area.

*Source: Audit analysis of FEHD and BD records*

## **Investigation and enforcement actions**

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2.21 In August and October 2016, the BD and the FEHD informed Audit that:

### ***BD***

- (a) before the JO operation becoming a permanent arrangement in April 2014, the majority of BD JO staff were contract staff whose turnover rate was high. Also, the manpower strength and the staff experience level at that time were less than satisfactory. With a more stable workforce being progressively established since April 2014, the performance of the JO operation had improved. The significant increase in the number of water-seepage reports in recent years had resulted in the JO operation taking a long time in completing some outstanding cases; and

### ***FEHD***

- (b) since the JO operation would only apply tests which would not cause damage to premises suspected of causing water seepage, the related staff normally needed to conduct multiple inspections (involving a number of visits) in order to collect adequate evidence for taking legal actions.

2.22 Audit considers it unsatisfactory that FEHD and BD JO staff had taken a long time in processing some cases. For example, they had taken more than 800 days (or 2.2 years) to handle 1,689 (388 plus 255 plus 383 plus 663) cases as of March 2016 (see paras. 2.17 and 2.18). This may lead to prolonged nuisances and increased public concerns over the Government's efficiency and effectiveness in taking enforcement actions under the PH&MS Ordinance. In Audit's view, in order to improve the efficiency of delivery of public services, the FEHD and the BD need to strengthen measures with a view to ensuring that the JO operation actions on water-seepage cases are completed in a timely manner, and publish the ranges of time spent on completing the cases.

### *Case records not available for Audit examination*

2.23 Audit noted that, in January 2016, BD JO staff of 7 (Note 23) of the 19 districts had informed the BD senior management that, regarding the clearance of backlog assigned cases of service contractors, actions on all outstanding assigned cases which were handled before 2014 had been completed. However, based on CMIS information, as of March 2016, 1,046 (383 plus 663) cases had been outstanding for more than 800 days (see para. 2.18), of which 162 (15%) were handled by JO staff of the 7 districts (all related cases were received before 2014 and were under Stage III investigations as of March 2016). In view of the anomaly, Audit requested the BD to provide details of the 162 cases for examination.

2.24 Of the 162 cases handled by JO staff of the 7 districts, from July to September 2016, the BD informed Audit that:

- (a) as of March 2016, actions on 115 cases (71%) had been completed and 35 cases (22%) were in progress. The 115 completed cases had been erroneously indicated as outstanding cases in the CMIS (see para. 2.18) as of March 2016 due to the CMIS not having been timely updated; and
- (b) the case files of the remaining 12 cases (7%) could not be located because:
  - (i) for 5 cases (42%), according to FEHD records, the case files had been transferred to BD JO staff for Stage III investigations. However, according to BD JO staff, the case files had not been received by them; and
  - (ii) for 7 cases (58%), the case files had been mislaid during Stage III investigations.

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**Note 23:** *The 7 districts were Kowloon City, Kwai Tsing, Mongkok, Shamshuipo, Tsuen Wan, Tuen Mun and Yau Tsim districts.*



## **Investigation and enforcement actions**

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2.25 However, as of September 2016, of the 115 cases (see para. 2.24(a)) having actions completed by March 2016, the BD could only provide Audit with the final replies having been sent to informants of 93 cases (81%) notifying them of the completion of the cases. In Audit's view, the BD needs to take measures to locate the final replies for the remaining 22 (115 less 93) cases, and ensure that its staff send final replies to informants in a timely manner and keep related records on file.

2.26 Audit considers it unsatisfactory that the files of some outstanding cases were missing which would create difficulties for the JO operation to manage the water-seepage cases. The absence of the records and files has impeded Audit examination of FEHD's and BD's efficiency and effectiveness in handling long-outstanding cases. In Audit's view, the FEHD and the BD need to take measures to improve the filing system for case files (also see Audit comments in para. 2.20). They also need to conduct a review to identify all cases involving missing case files and take necessary remedial actions. A comprehensive record and database system for water-seepage cases storing scanned copies of documents would help improve the efficiency and effectiveness of the JO operation (see para. 4.12).

2.27 Regarding omissions in updating records in the CMIS (see para. 2.24(a)), the FEHD and the BD need to take measures to ensure that the progress of actions taken under the JO operation are updated in a timely manner (also see Audit comments in para. 2.20).

### ***Inadequate system for referring cases to BD and WSD for follow-up actions***

2.28 During investigations of water-seepage cases, FEHD JO staff and/or BD JO staff would carry out preliminary assessments of whether the cases might involve building defects or leaking water-supply pipes, and refer relevant cases to the BD Existing Buildings Divisions and the WSD respectively for follow-up actions. The BD would then check for any infringement of sections 24, 26, 26A and 28 of the Buildings Ordinance (see para. 1.4(b)) and the WSD for any infringement of section 16 of the Waterworks Ordinance (see para. 1.4(c)).

2.29 According to FEHD guidelines:

- (a) in referring a case to another government department for follow-up actions, FEHD JO staff will send a memorandum together with the relevant information to the related department;
- (b) for water-seepage cases justifying referral to the WSD, FEHD JO staff would forward related memorandum to the WSD directly. For cases to be referred to BD Existing Buildings Divisions, the cases would be passed to BD JO staff for assessing the justifications and forwarding the cases to BD Existing Buildings Divisions for follow-up actions; and
- (c) FEHD JO staff would record the referrals in a list of referral cases.

However, in response to Audit's request for the lists of referral cases for the period January 2015 to March 2016, the FEHD provided Audit with such lists maintained by JO staff of only 11 of the 19 districts, as follows:

<b>FEHD districts</b>	
<b>Maintaining a list of referral cases</b>	<b>Not maintaining a list of referral cases</b>
1. Central & Western	1. Kowloon City
2. Eastern	2. Kwai Tsing
3. Islands	3. Kwun Tong
4. Mongkok	4. Sai Kung
5. North	5. Tsuen Wan
6. Shamshuipo	6. Tuen Mun
7. Shatin	7. Wanchai
8. Southern	8. Wong Tai Sin
9. Tai Po	
10. Yau Tsim	
11. Yuen Long	

2.30 In Audit's view, the FEHD needs to take measures to ensure that FEHD JO staff of all districts comply with FEHD guidelines to maintain a list of referral cases.

## Investigation and enforcement actions

2.31 In July 2016, in response to Audit's request for information on the number of water-seepage cases that had been referred by the JO operation to the BD Existing Buildings Divisions and the WSD for follow-up actions from 2011 to 2015, the FEHD and the BD informed Audit that they could only provide Audit with information related to the WSD but not to the BD Existing Buildings Divisions. However, in response to Audit's request for information on the number of water-seepage cases that had been received under the JO operation by the BD and the WSD for follow-up actions from 2011 to 2015, the BD Existing Buildings Divisions and the WSD were able to provide Audit with the information (see Table 3).

**Table 3**

**Number of water-seepage cases referred under JO operation  
to the BD and the WSD for follow-up actions  
(2011 to 2015)**

Year	Cases referred to BD (No.)		Cases referred to WSD (No.)		
	Based on records of JO operation (see para. 2.32)	Based on records of BD Existing Buildings Divisions	Based on records of JO operation	Based on WSD records	Discrepancy
2011	Not available	75	142	513	(371)
2012		79	124	599	(475)
2013		111	116	516	(400)
2014		117	125	353	(228)
2015		65	221	259	(38)
Total		447	728	2,240	(1,512)

*Source: FEHD, BD and WSD records*

2.32 In October 2016, the FEHD informed Audit that the information on cases having been referred by the JO operation to the BD was kept in individual case files and was not readily available. The absence of the number of cases having been referred to the BD Existing Buildings Divisions for follow-up actions in the past years has impeded proper management and oversight as well as Audit examination of whether all cases referred had been duly followed up.

2.33 Moreover, Audit noted discrepancies between the number of water-seepage cases referred to the WSD under the JO operation and the number of cases received and recorded by the WSD for follow-up actions (see Table 3 in para. 2.31). In October 2016, the FEHD informed Audit that:

- (a) the discrepancies were due to the different bases adopted by the FEHD and the WSD in classifying a referred case. The number of cases based on records of the JO operation was the number of completed cases with seepage source found to be originated from water-supply pipes. The number did not include other cases having been referred to the WSD (e.g. cases requested by informants to be referred to the WSD which did not involve water seepage from water-supply pipes); and
- (b) the number of cases based on WSD records was the total number of cases referred under the JO operation.

In Audit's view, FEHD and BD JO staff need to periodically send a list of referral cases to the WSD and the BD Existing Buildings Divisions for reconciliation purposes.

## Audit recommendations

2.34 **Audit has *recommended* that, in carrying out investigation actions under the JO operation on water-seepage cases, the Director of Food and Environmental Hygiene and the Director of Buildings should jointly:**

- (a) **take measures to improve record keeping and the filing system for case files to prevent loss of files;**
- (b) **take measures to ensure that information of the CMIS is updated in a timely manner;**
- (c) **strengthen measures with a view to ensuring that the JO operation actions on water-seepage cases are completed in a timely manner, and publish the ranges of time spent on completing the cases;**
- (d) **conduct a review to identify all cases involving missing case files and take necessary remedial actions; and**

## **Investigation and enforcement actions**

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- (e) **periodically send a list of referral cases to the WSD and the BD Existing Buildings Divisions for reconciliation purposes.**

**2.35 Audit has *recommended* that, in carrying out investigation actions under the JO operation on water-seepage cases, the Director of Food and Environmental Hygiene should:**

- (a) **take measures to maintain information on the time of sending final replies to informants of screen-out water-seepage cases; and**
- (b) **take measures to ensure that FEHD JO staff of all districts comply with FEHD guidelines to maintain a list of referral cases.**

**2.36 Audit has *recommended* that the Director of Buildings should, under the JO operation on water-seepage cases:**

- (a) **take measures to ensure that BD JO staff take actions on outstanding cases in a timely manner;**
- (b) **strengthen actions on monitoring service contractors' performance to ensure that investigation reports are submitted in a timely manner;**
- (c) **take timely action to endorse investigation reports submitted by service contractors; and**
- (d) **take measures to ensure that BD JO staff send final replies on completed cases to informants in a timely manner and keep related records on file.**

## **Response from the Government**

**2.37 The Director of Food and Environmental Hygiene and the Director of Buildings agree with the audit recommendations in paragraph 2.34. They have said that:**

### *Director of Food and Environmental Hygiene*

- (a) the FEHD and the BD are taking measures to enhance the CMIS, including implementing applicable functions in the CMIS to improve the record keeping in the system;
- (b) the FEHD and the BD are taking measures to ensure that information of the CMIS is updated in a timely manner. For example, in addition to generating exception reports, the CMIS would periodically generate outstanding case lists for reference by supervising officers of the JO operation;
- (c) the FEHD and the BD have started a review of all cases involving missing case files and are exploring means to set up a bar-code filing system to monitor file movements in future;

### *Director of Buildings*

- (d) to enhance the effectiveness of the investigations conducted by the JO operation, in 2014, the BD commissioned a consultancy study on the latest technological methods for identifying the source of water seepage in buildings. The study will be completed in 2017. Furthermore, the BD has engaged contractors (engaged under contracts other than those for conducting Stage III investigations) under the JO operation to use infrared thermography and microwave tomography technologies for investigating complicated cases;

### *Director of Food and Environmental Hygiene and Director of Buildings*

- (e) in view of the significant increase in the caseload over the past years, the FEHD and the BD will realistically review the reference completion timeframe; and
- (f) FEHD and BD JO staff will periodically send a list of referral cases to the WSD and the BD Existing Buildings Divisions.

2.38 The Director of Food and Environmental Hygiene agrees with the audit recommendations in paragraph 2.35. She has said that:

## **Investigation and enforcement actions**

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- (a) for paragraph 2.35(a), FEHD and BD JO staff are required to upload the final reply letters and input the issuing dates into the CMIS. The FEHD will explore whether enhancements to the CMIS can be made on recording information on final reply letters issued; and
- (b) for paragraph 2.35(b), FEHD JO staff have been reminded to comply with FEHD guidelines to maintain a list of referral cases, and will compile such a list in future. Furthermore, to improve work efficiency, the FEHD will enhance the existing CMIS or set up a new database system for FEHD and BD JO staff to keep track of various actions taken in processing water-seepage cases, so that related information can be directly retrieved from the system.

2.39 The Director of Buildings agrees with the audit recommendations in paragraph 2.36. He has said that:

- (a) in October 2013, after conducting a review, the BD revamped its internal guidelines on performance of service contractors (which was further revised in December 2015) and promulgated clearer guidelines on responsibilities of different levels of BD staff on monitoring contractors' performance. The BD also required its staff to make realistic assessments of contractors' performance, timely issue warning letters to contractors having unsatisfactory performance and inculcate partnership relationship with contractors;
- (b) new automation functions had been incorporated in BD JO case records to facilitate monitoring of progress of actions taken, and consideration of issuing warning letters and adverse performance reports to contractors having unsatisfactory performance; and
- (c) the BD will continue to take actions to locate the final replies for the remaining 22 cases (see para. 2.25).

2.40 The Director of Water Supplies agrees with the audit recommendation in paragraph 2.34(e). He has said that the WSD will support the JO operation in conducting reconciliation of the number of referral cases and the review to ascertain the reasons for discrepancies between the number of cases referred under the JO operation and that received by the WSD.

## **Enforcement actions on water-seepage cases**

2.41 The FEHD is responsible for taking enforcement actions against persons not complying with the PH&MS Ordinance. Under section 127 of the PH&MS Ordinance, if water seepage from premises was found to have caused nuisances, the FEHD may issue and serve a nuisance notice on the responsible person requiring him to abate the nuisance within a specified period (Note 24). Any person who fails to comply with requirements of a nuisance notice shall be guilty of an offence and, on conviction, may be fined up to \$10,000 and a daily penalty of \$200 during the period of non-compliance.

2.42 From 2011 to 2015, the JO operation had successfully identified the source of 22,439 water-seepage cases (based on FEHD JO monthly returns and BD JO case records) and the FEHD had issued 20,729 nuisance notices (based on FEHD JO monthly returns) on such cases. The statistics of these cases would at times be reported to the Legislative Council (LegCo) in response to its enquiries. Details are shown in Table 4.

**Table 4**  
**Water-seepage cases with source identified**  
**and nuisance notices issued**  
**(2011 to 2015)**

<b>Year</b>	<b>2011 (No.)</b>	<b>2012 (No.)</b>	<b>2013 (No.)</b>	<b>2014 (No.)</b>	<b>2015 (No.)</b>	<b>Total (No.)</b>
Cases with source identified	4,199	4,053	4,692	4,816	4,679	22,439
Nuisance notices issued	3,064	3,639	4,338	4,700	4,988	20,729
Nuisance orders granted by Court	30	17	41	31	16	135

*Source: FEHD and BD records*

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**Note 24:** *The responsible person is normally given two to four weeks to carry out rectification works, depending on the scale of the works.*



## **Investigation and enforcement actions**

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2.43 Furthermore, if a responsible person did not comply with a nuisance notice, the FEHD might apply to the Court for issuing a nuisance order for:

- (a) requiring the person to comply with the requirements of a nuisance notice;
- (b) prohibiting the recurrence of a nuisance; or
- (c) prohibiting the use of premises causing a nuisance for human habitation.

Any person who fails without reasonable excuse to comply with a nuisance order shall be guilty of an offence and, on conviction, may be fined up to \$25,000 and a daily penalty of \$450 during the period of non-compliance. From 2011 to 2015, upon the FEHD's applications, 135 nuisance orders on water seepage had been granted by the Court (see Table 4 in para. 2.42).

### ***Lack of system control over investigations and issuance of nuisance notices***

2.44 According to the FEHD, upon identifying the source of a water-seepage case causing nuisances (i.e. source-identified case), FEHD JO staff would take actions to ascertain the ownership of the seepage-originated premises by conducting a search at the Land Registry, and serve a nuisance notice on the owners of the seepage-originated premises in warranted cases.

2.45 As shown in Table 4 in paragraph 2.42, for example, in 2011, the JO operation identified the sources of 4,199 water-seepage cases. However, in the same year, the FEHD only issued 3,064 nuisance notices. According to the FEHD, the difference between the number of source-identified cases and the number of nuisance notices issued may be attributed to the following:

- (a) nuisance notices for some cases might be issued in the following year; or
- (b) repair works had been satisfactorily carried out and the water seepage had ceased or been reduced to a level below 35% moisture content before issuing a nuisance notice.

2.46 Furthermore, in March 2008, the FEHD promulgated an instruction requiring JO staff of the 19 districts to maintain in each district a Water-seepage Case Monitoring (WCM) Database by using standalone computers for monitoring the progress of actions taken on each water-seepage case. A standard format of the WCM Database was provided to JO staff of all districts for actions. Information for inclusion in the WCM Database included the date of:

- (a) conducting a coloured-water test;
- (b) inspecting the test results;
- (c) issuing a nuisance notice and its expiry date; and
- (d) conducting a compliance inspection of a nuisance notice issued.

Under the WCM Database, cases with actions exceeding the completion timeframes (see Appendix C) would be highlighted for follow-up actions.

2.47 Audit considers that the efficient and effective implementation of the WCM Database system would facilitate the FEHD in monitoring the progress of actions on each water-seepage case. However, the FEHD could not provide Audit with information of the WCM Database for examination.

2.48 In October 2016, the FEHD informed Audit that:

- (a) details of each of the water-seepage cases such as actions recommended by case officers and endorsed by supervisors were recorded in individual case files; and
- (b) the WCM Database was a spreadsheet database established in 2008 to facilitate individual case officers to record the actions taken and manage the progress of actions taken against the timeframes set for Stages I and II investigations. The Database captured essential information for frontline supervisors of the JO operation to review the progress of cases. In 2012, the FEHD incorporated some useful features of the WCM Database into

## Investigation and enforcement actions

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the new CMIS. However, in mid-July 2015, due to problems encountered when implementing the new CMIS, FEHD JO staff were not required to input some information (see paras. 4.5(a) and 4.6) into the new CMIS.

2.49 The absence of the related records and information has impeded the FEHD's monitoring and management of investigations, issuance of nuisance notices on water-seepage cases, as well as Audit examination of the completeness and timeliness of actions taken by the JO operation in conducting investigations and issuing nuisance notices. In Audit's view, the FEHD needs to conduct a review to ascertain whether FEHD JO staff have complied with FEHD instruction on maintaining WCM Databases and whether the Databases have been maintained in compliance with FEHD requirements, and take necessary actions on proper maintenance of the required Databases.

### *Lack of system control over follow-up actions on nuisance notices*

2.50 According to FEHD guidelines, JO staff of each of the 19 districts needed to maintain a Nuisance Notices Monitoring List (NNM List). The guidelines also stipulated that, after issuing a nuisance notice to a responsible person of seepage-originated premises:

- (a) the pertinent JO staff needed to carry out a follow-up inspection after expiry of the period specified in the nuisance notice;
- (b) during the follow-up inspection, JO staff needed to ascertain:
  - (i) if the moisture of areas of the affected premises was below 35% moisture content; and
  - (ii) proper repair works had been carried out;
- (c) if the JO staff found that one or both of the two conditions in (b) were not fulfilled, they would carry out a coloured-water test or a coloured-water ponding test to obtain evidence of causing nuisances for taking prosecution actions; and

- (d) the JO staff would refer the case found in (c) to the FEHD's Prosecution Section for applying to the Court for taking prosecution actions against the responsible person for not complying with the nuisance notice and for issuing a nuisance order (see para. 2.43).

2.51 In 2015, a total of 4,988 nuisance notices had been issued (see Table 4 in para. 2.42) and the FEHD took prosecution actions against the responsible persons of 60 cases for not complying with nuisance notices on water seepage, of which 55 cases were convicted with each involving fines ranging from \$800 to \$5,500. In the same year, the FEHD took prosecution actions against the responsible person of one case for not complying with a nuisance order on water seepage, who was convicted and was fined \$1,400.

2.52 Notwithstanding that FEHD guidelines required JO staff of all districts to maintain an NNM List, the guidelines did not specify information for inclusion in the List. As a result, there were wide variations in the format and information included in the NNM Lists maintained by JO staff of the 19 districts. In Audit's view, in order to effectively monitor the follow-up actions on nuisance notices issued, the NNM Lists should include the following information of each case:

- (a) date of serving a nuisance notice;
- (b) date of expiry of a nuisance notice; and
- (c) dates of conducting follow-up inspections to ascertain whether a nuisance notice has been complied with (i.e. compliance inspections).

2.53 However, Audit examination of the NNM Lists of the 19 districts revealed that JO staff of only 5 of the 19 districts had maintained NNM Lists containing all the information stated in paragraph 2.52. Details are shown in Table 5.

**Table 5**  
**Information included in NNM Lists of 19 FEHD districts**  
**(2015)**

<b>District</b>	<b>Date of serving notice</b>	<b>Date of expiry of notice</b>	<b>Date of conducting compliance inspection</b>
5 districts (Note 1)	Yes	Yes	Yes
Eastern	Yes	No	No
Islands	Yes	No	No
Shamshuipo	No	No	Yes
Tai Po	No	Yes	No
10 districts (Note 2)	No	No	No

*Source: Audit analysis of FEHD records*

*Note 1: The 5 districts were Kwai Tsing, North, Sai Kung, Shatin and Tuen Mun districts.*

*Note 2: The 10 districts were Central & Western, Kowloon City, Kwun Tong, Mongkok, Southern, Tsuen Wan, Wanchai, Wong Tai Sin, Yau Tsim and Yuen Long districts.*

2.54 Moreover, according to FEHD guidelines, FEHD JO staff should refer cases not complying with nuisance notices to FEHD Prosecution Section for taking prosecution actions and applying for issuance of a nuisance order. However, Audit examination of the NNM Lists of the 19 DOs revealed that none of the Lists included information on:

- (a) results of compliance inspections (see para. 2.52); and
- (b) date of referring a case to the FEHD Prosecution Section for taking enforcement actions.

2.55 In the absence of information on the dates of serving nuisance notices, dates of expiry of the notices and dates of JO staff conducting compliance inspections as shown in Table 5, and results of compliance inspections and dates of referring cases to the FEHD Prosecution Section for actions of JO staff of all the

19 districts (see para. 2.54), the FEHD could not effectively monitor the follow-up actions on nuisance notices issued with a view to ensuring that necessary enforcement actions are taken in a timely manner. Likewise, the absence of the above-mentioned information has impeded Audit examination of the completeness and timeliness of the FEHD in discharging its duties in this area. In October 2016, the FEHD informed Audit that the information stated in paragraphs 2.52 and 2.54 was kept in individual case files. In Audit's view, the FEHD needs to issue clear guidelines on information for inclusion in the NNM Lists, including information in Table 5, and on results of compliance inspections and dates of referring cases to the FEHD Prosecution Section for actions. Including a standard NNM List in the guidelines will facilitate JO staff in maintaining essential information on water-seepage cases.

2.56 Furthermore, Audit examination of the NNM Lists for 2015 compiled by JO staff of the 19 districts revealed that a total of 3,263 nuisance notices had been issued by them, which was 1,725 less than the aggregate total of 4,988 nuisance notices reported to the FEHD Headquarters for the year (see Table 4 in para. 2.42). In September 2016, the FEHD informed Audit that the discrepancy might be due to:

- (a) JO staff of the 19 districts had in fact issued 4,933 nuisance notices in 2015 instead of 3,263 notices because:
  - (i) more than one nuisance notice had been issued for the same identified case because of multiple or co-ownership of the premises concerned; and
  - (ii) JO staff of some districts had not provided updated NNM Lists to the FEHD Headquarters; and
- (b) the remaining 55 (4,988 less 4,933) notices were due to data corruption as a result of a workstation breakdown in one of the 19 JO districts.

In Audit's view, the FEHD needs to take necessary actions with a view to preventing recurrence of the anomaly.

### *Data discrepancies on long-outstanding cases*

2.57 Based on information maintained in the CMIS, monthly ageing analysis reports on outstanding water-seepage cases were compiled for FEHD senior management to monitor the progress of actions taken on outstanding cases. However, Audit examination revealed that, while the FEHD's ageing analysis reports showed that as of March 2016, a total of 6,368 cases had exceeded the 90-working-day reference completion timeframe, Audit analysis of information contained in the CMIS found a total of 8,145 such cases, representing a 28% variance. In October 2016, the FEHD informed Audit that, it had conducted an investigation on the issue. In Audit's view, the FEHD needs to take necessary measures to prevent recurrence of the anomaly.

### **Audit recommendations**

2.58 **Audit has *recommended* that, in monitoring follow-up actions on nuisance notices issued, the Director of Food and Environmental Hygiene should:**

- (a) **conduct a review to ascertain whether FEHD JO staff have complied with FEHD instruction issued in March 2008 on maintaining WCM Databases and whether the Databases have been maintained in full compliance with FEHD requirements, and take necessary actions on proper maintenance of the Databases;**
- (b) **issue clear guidelines on essential information for inclusion in NNM Lists;**
- (c) **take necessary actions with a view to preventing the recording of incomplete information in the NNM lists; and**
- (d) **take necessary measures to prevent variance between the number of outstanding cases as shown in ageing analysis reports and that maintained in the CMIS.**

## Response from the Government

2.59 The Director of Food and Environmental Hygiene agrees with the audit recommendations. She has said that:

- (a) for paragraph 2.58(a), the FEHD has started to review the departmental instruction issued in March 2008 on maintaining WCM Databases (see para. 2.46), and whether the Databases have been maintained in full compliance with the instruction, and will take necessary actions on proper maintenance of the Databases. Measures will also be taken to ensure that all related information in the system is updated in a timely manner. The FEHD has also started to develop more effective and technically feasible means to capture data which will be useful for monitoring the progress of various actions taken on water-seepage cases;
- (b) for paragraph 2.58(b) and (c), as a short-term measure, the FEHD has issued clear guidelines to remind FEHD JO staff of the need to include in NNM Lists essential information. In the long term, the FEHD will explore means to enhance the existing CMIS or set up a new database system to capture information relating to the issuance of nuisance notices; and
- (c) for paragraph 2.58(d), the FEHD will put in place measures as soon as possible to prevent recurrence of the anomaly.



## **PART 3: MONITORING OF SERVICE CONTRACTORS**

3.1 This PART examines the work of BD JO staff in monitoring service contractors' performance in conducting water-seepage investigations.

### **Background**

3.2 In response to a public report on water seepage, the related FEHD JO staff would pay visits to the affected premises to examine whether the water seepage might infringe any of the PH&MS Ordinance, the Buildings Ordinance and the Waterworks Ordinance, and if the moisture content of the seepage was 35% or above (known as Stage I investigations). If a Stage I investigation found that the seepage might infringe the PH&MS Ordinance and that the moisture content of the seepage was 35% or above, the FEHD JO staff would carry out a coloured-water test (see Note 7 to para. 1.5) and/or a reversible-pressure test (see para. 2.5(c)) to trace the source of the seepage (known as Stage II investigations). If a Stage II investigation failed to identify the source of the seepage, the case would be forwarded to BD JO staff for carrying out further tests to detect the seepage source (known as Stage III investigations). BD JO staff maintained BD JO case records (in spreadsheet format) on cases handled by them in standalone computers.

3.3 To supplement staff resources, BD JO staff engaged and monitored service contractors to assist in carrying out Stage III investigations. Moreover, service contractors were required to submit bi-weekly progress reports to BD JO staff to show the progress of actions taken on each assigned case, and attend bi-weekly meetings with BD JO staff to discuss progress of the cases.

### **Service contracts for carrying out Stage III investigations**

3.4 From April 2014 to April 2015, there were 9 service contracts (each for a 12-month period) at an estimated total cost of \$20 million for carrying out Stage III investigations for the 19 FEHD districts (Note 25). In tendering for each contract,

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**Note 25:** *From May 2015 to May 2016 and from May 2016 to May 2017, there were respectively 9 and 10 service contracts (each for a 12-month period) for carrying out Stage III investigations for the 19 FEHD districts.*

BD JO staff made an estimate of the number of cases for Stage III investigations under the contract and tenderers were required to indicate a basic rate for a case and a rate for each individual test. The rates indicated by the successful tenderer would become the rates of the contract for payment purposes.

3.5 Upon receiving a case assigned by BD JO staff, a contractor would pay visits to the premises concerned to carry out a moisture-content assessment and subsequently compile and submit an investigation report to BD JO staff, and he would be paid a basic rate for this service. Depending on the water-seepage situation, one or more of the following tests might be carried out by the contractor:

- (a) additional moisture-content assessment (see para. 2.7(a));
- (b) coloured-water spraying test (see para. 2.7(b));
- (c) coloured-water test (see Note 7 to para. 1.5);
- (d) coloured-water ponding test (see Note 10 to para. 1.7); and
- (e) reversible-pressure test (see para. 2.5(c)).

### ***Inadequate monitoring and assessment of contractors' effectiveness***

3.6 The objective of engaging contractors to carry out Stage III investigations is to identify the source of water seepage of each case assigned to them. However, in response to Audit's enquiries, the BD informed Audit that BD JO staff did not compile the rate of each contractor who successfully identified the source of water seepage (hereinafter referred to as contractor success rate — see Note 18 to para. 2.10). Hence, BD JO staff did not make reference to contractor success rates in monitoring and assessing the performance of contractors.

3.7 In August 2016, in response to Audit's request, the BD compiled and provided Audit with the contractor success rates as of April 2016 of the nine contracts (involving 9,904 cases) for carrying out Stage III investigations covering the period April 2014 to April 2015. Details are shown in Table 6.

## Monitoring of service contractors

**Table 6**  
**Contractor success rates for period April 2014 to April 2015**  
**(April 2016)**

Contract (Note 1)	Contractor	Cases assigned  (a)  (No.)	Completed cases			Cases with action in progress  (e)  (No.)	Success rate (Note 3)  (f) = $\frac{(b)}{(b) + (c) + (d)} \times 100\%$  (%)
			Seepage source identified  (b)  (No.)	Seepage source not identified  (c)  (No.)	Others (Note 2)  (d)  (No.)		
1	E	1,147	766	201	176	4	67%
2	F	1,354	619	344	391	0	46%
3	G	1,138	471	410	205	52	43%
4	H	1,211	394	329	292	196	39%
5	F	657	245	135	277	0	37%
6	I	1,222	240	147	320	515	34%
7	H	1,033	241	199	314	279	32%
8	I	1,078	302	415	290	71	30%
9	J	1,064	174	348	228	314	23%
Total		9,904 (Note 4)	3,452	2,528	2,493	1,431	Overall: 41%

8,473

Source: Audit analysis of BD records

Note 1: Contracts 2 and 5, 4 and 7, and 6 and 8 were respectively awarded to Contractors F, H and I.

Note 2: Other cases included those where the water seepage had ceased or withdrawn by informants during the investigation.

Note 3: The success rates were computed using the formula adopted by the FEHD and the BD (see Note 18 to para. 2.10).

Note 4: The total number of assigned cases according to contractors' bi-weekly progress reports was 9,704. The variance of 200 cases was due to Contractor G only recorded 938 instead of 1,138 assigned cases (i.e. a shortfall of 200 assigned cases) in his bi-weekly progress reports. In October 2016, the BD informed Audit that Contractor G had deleted these 200 assigned cases from the progress reports as these cases had been completed with payment settled, and BD JO staff had reminded Contractor G to provide a full list of all assigned cases in the progress reports.

3.8 In October 2016, the BD informed Audit that the moisture-content levels of cases being assigned to a contractor would affect his success rate, because the contractor would have a higher chance of identifying the seepage source of a case having a higher moisture-content level than a case having a lower moisture-content level.

3.9 As shown in Table 6, contractor success rates ranged from 23% to 67%. The higher success rates (e.g. 46% and 67%) of some contractors might be the result of their adopting better practices or making more efforts than those achieving lower success rates (e.g. 23% and 30%) in conducting Stage III investigations. Therefore, the BD needs to periodically conduct reviews of contracts having:

- (a) high success rates with a view to identifying good practices for sharing with other contractors; and
- (b) low success rates with a view to taking necessary actions for improvement.

3.10 Audit also noted that the contracts did not provide incentives for contractors to achieve higher success rates. Audit considers that, with a view to improving the effectiveness of Stage III investigations conducted by contractors, the BD needs to consider providing incentives in contracts such that contractors would strive to achieve higher success rates in identifying seepage source.

### ***Data discrepancies on completed cases***

3.11 Audit conducted an examination of the bi-weekly progress reports submitted by contractors under the 9 contracts covering the period April 2014 to April 2015 (involving a total of 9,704 cases — see Note 4 to Table 6 in para. 3.7) and another 9 contracts covering the period May 2015 to May 2016 (involving a total of 9,844 cases) on the time of completion of Stage III investigations by contractors. The audit findings are shown in Table 7.

**Table 7****Data discrepancies on completed cases (Note)  
(April 2016)**

<b>Completed cases for 9 contracts covering the period April 2014 to April 2015</b>		<b>Completed cases for 9 contracts covering the period May 2015 to May 2016</b>	
<b>Based on BD JO case records (No.)</b>	<b>Based on contractors' bi-weekly progress reports (No.)</b>	<b>Based on BD JO case records (No.)</b>	<b>Based on contractors' bi-weekly progress reports (No.)</b>
8,473 (see Table 6 in para. 3.7)	7,416 (88 % of 8,473 cases)	4,466	3,712 (83 % of 4,466 cases)

*Source: Audit analysis of BD records*

*Note: Based on the number of investigation reports being submitted by contractors and endorsed by BD JO staff as of April 2016.*

3.12 In October 2016, the BD informed Audit that the discrepancies between the number of completed cases being recorded in BD JO case records and that in contractors' bi-weekly progress reports were mainly due to deficiencies in data input in the latter reports. Audit considers that the BD needs to take measures to improve the accuracy of data presented in contractors' bi-weekly progress reports.

***Lack of effective actions taken against contractors  
for taking a long time to complete investigations***

3.13 With a view to ensuring timely completion of Stage III investigations, target timeframes for completing different tasks were specified in the contracts. Details are shown in Table 8.

**Table 8**  
**Task timeframes specified in contracts**  
**(April 2014 to April 2015)**

<b>Task</b>	<b>Maximum working days specified in contract</b>  <b>(No.)</b>	<b>Equivalent calendar days</b> <b>(Note 1)</b>  <b>(No.)</b>
(a) Conducting an inspection of the affected premises and carrying out necessary tests within 20 working days from assignment of a case	20	30
(b) Conducting an inspection of the test results within one week after conducting a test and a second inspection not less than 3 weeks after the test if the first inspection could not identify the source of seepage	Not applicable (Note 2)	21 or more
(c) Submitting an investigation report to BD JO staff within 10 working days after completion of actions in (b)	10	15
Total	Not applicable	66 or more (or 9.4 weeks or more)

*Source: Audit analysis of BD records*

*Note 1: See Note 19 to paragraph 2.15.*

*Note 2: In contracts covering the period May 2016 to May 2017, it was specified in the contracts that the second inspection shall be carried out not less than 15 working days but not later than 40 working days after the test.*

## Monitoring of service contractors

3.14 According to contractors' bi-weekly progress reports, as of April 2016, contractors had submitted investigation reports on 7,416 cases (see Table 7 in para. 3.11) that had been endorsed and 911 cases that had not been endorsed by BD JO staff. Time taken by contractors from case assignments to report submissions for the 8,327 (7,416 plus 911) cases as of April 2016 under contracts covering the period April 2014 to April 2015 is as follows:

Days (No.)	Cases	
	(No.)	(Percentage)
66 days (see Table 8 in para. 3.13) or less	1,378	17 %
67 to 100 days	1,728	21 %
101 to 200 days	3,436	41 %
201 to 300 days	1,080	13 %
301 to 400 days	424	5 %
401 to 500 days (or 1.1 to 1.4 years)	186	2 %
501 to 697 days (or 1.4 to 1.9 years)	95	1 %
	281	
Total	8,327	100 %

3.15 Audit considers it unsatisfactory that some contractors had taken a long time (the longest being 1.9 years as of April 2016) to complete the cases assigned to them. The long time taken by some contractors to complete investigations for identifying the water-seepage source would undermine the delivery of efficient and effective public services to the public. In Audit's view, the BD needs to strengthen actions on monitoring contractors' performance to ensure that investigations on water-seepage cases are completed in a timely manner.

3.16 Notwithstanding that the contracts covering the period April 2014 to April 2015 did not specify an overall timeframe from the case assignment to the submission of an investigation report for a case assigned to a contractor, two timeframes of 30 and 15 days were respectively specified in the contracts for completing Tasks (a) and (c) in Table 8 in paragraph 3.13.

## Monitoring of service contractors

3.17 According to contractors' bi-weekly progress reports as of April 2016:

- (a) contractors had completed Tasks (a) to (c) in Table 8 for 8,327 cases;
- (b) contractors had completed Task (a) in Table 8 for 5,457 cases. This number had been understated due to omissions by some contractors to indicate the dates of completing Task (a) in the progress reports (see Audit comments in paras. 3.30 and 3.31); and
- (c) of the 8,327 cases in (a), only 5,462 cases had records of time taken from completion of inspecting test results to submission of investigation reports (Task (c) in Table 8).

3.18 The time taken by contractors in carrying out Task (a) (see Table 8 in para. 3.13) for 5,457 cases against the target timeframe of 30 days is as follows:

Days (No.)	Cases	
	(No.)	(Percentage)
30 days (or 20 working days) or less	2,120	39%
31 to 100 days	2,253	41%
101 to 200 days	671	12%
201 to 300 days	209	4%
301 to 400 days	119	2%
401 to 500 days (or 1.1 to 1.4 years)	48	1%
501 to 749 days (or 1.4 to 2.1 years (Note 26)) (see Case 3)	37	1%
	85	2%
Total	5,457	100%

**Note 26:** *As of July 2016, the contractor of the case involving 2.1 years had not submitted an investigation report.*



### Case 3

#### Long time taken to conduct tests (May 2014 to April 2016)

1. In May 2014, the BD assigned a water-seepage case to Contractor H (see Table 6 in para. 3.7).
2. In October 2015, Contractor H contacted the informant and conducted an inspection of the affected premises.
3. In April 2016, Contractor H conducted tests at premises suspected to be the origin of the water seepage. As of July 2016, there was no information in the case file showing whether the tests could identify the source of water seepage.

#### *Audit comments*

4. Contractor H had taken two years (from May 2014 to April 2016) to conduct the tests after being assigned the case. Audit could not find any document in the case file showing actions taken by the BD during the two-year period.
5. In Audit's view, the BD needs to strengthen actions on monitoring contractors' performance to ensure that investigations on water-seepage cases are completed in a timely manner.

*Source: Audit analysis of BD records*

3.19 The time taken by contractors in carrying out Task (c) (see Table 8 in para. 3.13) for 5,462 cases against the target timeframe of 15 days is as follows:

Days (No.)	Cases	
	(No.)	(Percentage)
15 days (or 10 working days) or less	1,296	24%
16 to 100 days	3,648	67%
101 to 200 days	429	8%
201 to 604 days (or 0.6 to 1.7 years) (see Cases 4 and 5)	89	1%
Total	5,462	100%

Case 4

**Error in inputting date of completing investigation  
(June 2014 to January 2016)**

1. In June 2014, the BD assigned a case to Contractor G (see Table 6 in para. 3.7).
2. In July 2014, Contractor G conducted an inspection of the affected premises and found that the moisture content of the water seepage exceeded 35%. However, Contractor G mistakenly stated in the bi-weekly progress reports that the investigation had been completed in that month.
3. In October 2014 and February 2015, Contractor G attempted to contact the informant but in vain.
4. In December 2015, Contractor G visited the affected premises and found that the seepage had ceased.
5. In January 2016, Contractor G submitted an investigation report to BD JO staff.

***Audit comments***

6. Contractor G made a mistake in stating in the progress reports that the investigation had been completed in July 2014, resulting in an apparent long time (18 months from July 2014 to January 2016) taken to submit the investigation report from completion of the investigation. However, the BD did not notice this mistake before Audit's examination and did not take any follow-up actions on the anomaly. In Audit's view, the BD needs to strengthen actions on monitoring contractors' performance by vigilantly examining progress reports submitted by them.
7. There was no record showing that Contractor G had taken any action during the two-month period from August 2014 to September 2014 and during the nine-month period from March 2015 to November 2015. In Audit's view, the BD needs to strengthen actions on monitoring contractors' performance to ensure that investigations on water-seepage cases are completed in a timely manner.

*Source: Audit analysis of BD records*

### Case 5

#### Long time taken to submit investigation report (May 2014 to January 2016)

1. In May 2014, the BD assigned a case to Contractor H (see Table 6 in para. 3.7) which conducted an inspection of the affected premises (finding the moisture content of the water seepage exceeding 35%) and conducted coloured-water ponding tests at the suspected premises in the same month.
2. In June 2014, after conducting inspections of the test results, Contractor H could not identify the source of water seepage.
3. In October 2015, the informant withdrew the case.
4. In January 2016, Contractor H submitted an investigation report to BD JO staff.

#### *Audit comments*

5. There was no record showing that Contractor H had taken any action during the 18-month period from July 2014 to December 2015. In Audit's view, the BD needs to strengthen actions on monitoring contractors' performance to ensure that investigation reports on water-seepage cases are submitted by service contractors in a timely manner.

*Source: Audit analysis of BD records*

3.20 According to BD guidelines, BD staff might take the following actions against contractors having unsatisfactory performance:

- (a) issuing a warning letter for unsatisfactory performance, such as a prolonged slippage in submitting investigation reports;
- (b) issuing a quarterly adverse performance report if a contractor did not show improvement after receiving a warning letter; and

- (c) if a contractor had been issued two or three consecutive adverse performance reports under the same contract, suspending him from bidding for work of the same category for at least 3 or 12 months respectively.

3.21 Despite the fact that some contractors had taken a long time far exceeding the timeframes specified in contracts (see paras. 3.18 and 3.19), the BD had not issued any warning letter or adverse performance report to contractors engaged in water-seepage investigations for the period January 2011 to April 2015. For contracts covering the period May 2015 to May 2016, the BD had only issued two warning letters and two quarterly adverse performance reports to the same contractor for not carrying out investigations and not submitting investigation reports within stipulated timeframes.

3.22 Audit considers it unsatisfactory that, before May 2015, the BD had not issued warning letters nor adverse performance reports to contractors having unsatisfactory performance which might lead to deterioration of the contractors' performance. Therefore, the BD needs to strengthen actions on monitoring contractor's performance by issuing warning letters and adverse performance reports to contractors having unsatisfactory performance.

### ***Need to provide necessary assistance to contractors to gain access to premises for carrying out investigations***

3.23 According to guidelines issued for the JO operation, when encountering access problems for carrying out investigations, FEHD and BD staff involved in the JO operation may take the following actions:

- (a) if an initial visit is unsuccessful, the staff should leave a Notice of Appointment requesting the notified party to contact the staff to arrange for a visit;
- (b) if there is no response after seven working days, the staff should pay a second visit to the premises and leave a Notice of Intended Entry giving a date for the next visit, which should be within the next three working days;
- (c) if the third visit is still unsuccessful, the staff should reconfirm the need for entry and then leave a Notice of Intention to Apply for a Warrant for Entry; and

## Monitoring of service contractors

- (d) if no response is received after one week, the staff will reconfirm the need for entry and report the case via his senior officers to the related Head of the FEHD DO to consider the need to apply to a Magistrate for a Warrant of Entry.

3.24 From 2006 to 2015, a total of 752 entry warrants had been granted by the Court for the JO operation. Details are as follows:

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
No. of entry warrants granted	15	18	70	120	136	90	101	64	74	64

752

3.25 As shown in paragraph 3.14, some contractors had taken a long time to complete investigations of water-seepage cases. According to file records, one of the reasons for the long time taken was that some contractors had encountered problems in gaining access to premises for carrying out investigations. In Audit's view, BD JO staff need to endeavour to provide necessary assistance to contractors in accordance with JO operation guidelines in resolving problems in gaining access to premises for carrying out investigations (see para. 3.23).

### ***Incomplete records and files on contractors' bi-weekly reports and BD JO case records***

3.26 Since May 2009, under a service contract for water-seepage investigations, a contractor was required to submit to BD JO staff bi-weekly progress reports in both hard and soft copies stating the dates of performing different tasks of each case assigned to him (see Table 8 in para. 3.13). However, in June 2016, in response to Audit's request, the BD informed Audit that it could not provide Audit with both the hard and soft copies of some bi-weekly progress reports for Audit examination because it could not locate the whereabouts of the reports. Details are shown in Table 9.

**Table 9**

**Provision of contractors' bi-weekly reports for Audit examination  
(April 2016)**

Contract period	Contracts awarded (No.)	Contracts with bi-weekly reports	
		Provided for Audit examination (No.)	Not provided for Audit examination (No.)
January 2011 to March 2012	10	4	6
April 2012 to April 2013	13	7	6
April 2013 to April 2014	13	7	6
April 2014 to April 2015	9	9	0
May 2015 to May 2016	9	9	0
Total	54	36	18

*Source: BD records*

3.27 In August and October 2016, the BD informed Audit that:

- (a) contractors' bi-weekly progress reports served as a quick reference for monitoring work progress and contractors' performance during the bi-weekly progress meetings. These reports were simply transient summaries of the assignments but they were not accounting records. In addition, upon receipt of the bi-weekly progress reports, BD JO staff would input the relevant information of the reports into BD JO case records; and
- (b) the bi-weekly progress reports that were not provided for Audit examination were related to completed contracts. Following completion of all assignments under these contracts, the related progress reports were no longer required and were not kept.

Regarding (a) above, it is not sure whether data of the bi-weekly progress reports had been completely input into BD JO case records.

## Monitoring of service contractors

3.28 Moreover, in response to Audit's request for BD JO case records (see para. 1.12(c)) for the period 2011 to 2016 for examination, the BD could not provide Audit with some records. Details are shown in Table 10.

**Table 10**  
**Provision of BD JO case records for Audit examination**  
**(April 2016)**

Contract period	Contracts awarded (No.)	BD JO case records	
		Provided for Audit examination (No.)	Not provided for Audit examination (No.)
January 2011 to March 2012	10	5	5
April 2012 to April 2013	13	11	2
April 2013 to April 2014	13	12	1
April 2014 to April 2015	9	9	0
May 2015 to May 2016	9	9	0
Total	54	46	8

*Source: BD records*

3.29 The absence of some contractors' bi-weekly reports and BD JO case records covering the period January 2011 to April 2014 has impeded Audit examination of completeness and timeliness of BD actions in monitoring the progress of Stage III investigations. In Audit's view, the BD needs to conduct a review to ascertain whether BD JO staff had properly compiled BD JO case records and why they had taken a long time to complete some cases.

3.30 The main purpose of bi-weekly progress reports was to help BD JO staff keep track of the progress of contractors' investigation of each case assigned to them against timeframes specified in contracts. Audit examination of the contracts awarded covering the period January 2011 to May 2017 revealed that, although the work-progress information for inclusion in the bi-weekly progress reports had been specified in the contracts, there were wide variations in the information included in progress reports among contractors. For example, some contractors did not provide in some progress reports information on dates of conducting tests (e.g. Contractor G) and dates of submission of investigation reports (e.g. Contractor H). In the absence

of work-progress information in the progress reports, BD JO staff were unable to effectively monitor the work of contractors and take necessary actions on long-outstanding cases.

3.31 In Audit's view, for the purpose of enhancing the monitoring of contractors' work, they should be required to highlight in progress reports long-outstanding cases (against target timeframes of completing a case), reasons for the delays and estimated time of completing the cases. The information will help BD JO staff focus monitoring on long-outstanding cases and take necessary actions in a timely manner.

3.32 As shown in Cases 1 and 2 in paragraph 2.20, two cases respectively handled by Contractors A and C were subsequently re-assigned to Contractors B and D respectively. However, the BD could not provide Audit with the number and details of cases (out of the total 9,904 cases — see Note 4 to Table 6 in para. 3.7) during the contract period April 2014 to April 2015 which had been re-assigned to other contractors. In this connection, in August 2016, the BD informed Audit that, upon expiry of a contract period, outstanding cases being assigned to a contractor involving problems to gain access to premises for carrying out investigations would be re-assigned to a newly appointed contractor under another contract period for carrying out the investigation work. Audit considers that the BD needs to take actions to find out the re-assigned cases.

### Audit recommendations

3.33 Audit has *recommended* that, in monitoring the work of the contractors in carrying out Stage III investigations, the Director of Buildings should:

- (a) **strengthen actions on monitoring contractors' performance:**
  - (i) **to improve accuracy of data presented in contractors' bi-weekly progress reports;**
  - (ii) **to ensure that investigations on water-seepage cases are completed in a timely manner; and**



## **Monitoring of service contractors**

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- (iii) **by issuing warning letters and adverse performance reports to contractors having unsatisfactory performance;**
- (b) **remind BD JO staff of the need to provide necessary assistance to contractors in accordance with JO operation guidelines in resolving problems in gaining access to premises for carrying out investigations;**
- (c) **conduct a review to ascertain whether BD JO staff had properly compiled BD JO case records and why they had taken a long time to complete some cases; and**
- (d) **require contractors to highlight in bi-weekly progress reports long-outstanding cases (against target timeframes of completing a case), reasons for the delays and estimated time of completing work of the cases.**

## **Response from the Government**

3.34 The Director of Buildings agrees with the audit recommendations. He has said that:

- (a) in collaboration with the FEHD, the BD is exploring means of enhancing the CMIS to introduce features which would enable the JO operation to assess the performance of the contractors. The BD has explored appropriate incentives to encourage contractors to strive more efforts to promptly complete different tasks. The BD is also studying the applicability of adopting a new contract for engaging contractors which would provide rewards and penalties for good and unsatisfactory performance respectively; and
- (b) the BD has developed functions in BD JO case records where cases with time spent exceeding the milestones would be highlighted. The BD will adopt the related functions for the contractors' bi-weekly progress reports which will help avoid discrepancies between the number of completed cases recorded in the bi-weekly progress reports and that in BD JO case records, and facilitate the monitoring of contractors' work progress.

## **PART 4: MANAGEMENT INFORMATION SYSTEM AND PERFORMANCE REPORTING**

4.1 This PART examines the management information system (see paras. 4.2 to 4.17) and performance reporting (see paras. 4.18 to 4.26) for handling water-seepage cases under the JO operation.

### **Management information systems for water-seepage cases**

4.2 Since November 2000, the FEHD has maintained a CMIS to record information of all public enquiry and complaint cases received on its services and operations, including water-seepage reports. Information for each case captured in the CMIS included:

- (a) date of receiving a public report;
- (b) case reference number and the related address;
- (c) date of completing investigations; and
- (d) dates of the interim and final replies being sent to the informant.

4.3 In February 2012, the FEHD Management Services Unit completed a study on the FEHD's complaint and enquiry handling processes. Among other issues, the study found that:

- (a) ***ineffective paper-based processes.*** Considerable amount of time had been spent in circulating paper files among officers concerned, resulting in slow sharing and retrieval of information, and frequent loss and misfiling of documents; and
- (b) ***ineffective case monitoring.*** The CMIS could no longer fully meet the user requirements, as it only served as a register providing basic case information but not case investigation details.

## Management information system and performance reporting

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The study recommended that a new computer system for complaint and enquiry handling should be developed to replace the existing CMIS.

4.4 In July 2012, the FEHD engaged a contractor at a cost of \$7.3 million to develop a new CMIS (Note 27). From December 2014 to December 2015, the new CMIS was rolled out by phases for implementation in the 19 FEHD districts. Under the implementation arrangements, information of new complaint and enquiry cases received would be recorded in the new CMIS. For information of existing cases, it would not be migrated to the new CMIS and the old CMIS would continue to be used for monitoring actions taken on existing cases.

4.5 In addition to recording case information (see para. 4.2), the new CMIS provides the following new functions for all FEHD enquiry and complaint cases:

- (a) storing scanned copies of case documents for easy reference and retrieval;
- (b) generating internal memoranda for endorsement by senior officers and replies for sending to complainants and informants;
- (c) generating exception reports highlighting cases not complying with timeframes for taking actions; and
- (d) generating ageing analysis reports on long-outstanding cases for management monitoring actions.

4.6 For a water-seepage case, the new CMIS (Note 28) also provides functions for recording the date of:

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**Note 27:** *In the 2012 audit review of the FEHD's management of public enquiries and complaints (see para. 1.19), Audit recommended and the Director of Food and Environmental Hygiene agreed that the progress of the new CMIS project should continue to be closely monitored, and effective interim measures should be explored to alleviate the inadequacies of the existing CMIS.*

**Note 28:** *According to the BD, since 2012, for capturing useful and sufficient statistics for assessing performance of the JO operation, it has been working closely with the FEHD in developing the new CMIS incorporating functions covering case management, reminders, exception reports and statistical reporting for Stage III investigations.*

- (a) conducting a coloured-water test;
- (b) inspection of test results; and
- (c) issuance of a nuisance notice and its expiry date.

### ***FEHD JO staff not fully adopting new CMIS for water-seepage cases***

4.7 By mid-July 2015, JO staff of 10 of the 19 districts had been requested to input information of water-seepage cases into the new CMIS. According to the FEHD, views and comments of users of the new CMIS indicated that:

- (a) due to the complex nature of water-seepage cases which usually involved a large number of reference documents such as layout plans and photographs, fully adopting all the functions of the new CMIS for water-seepage cases had adversely affected the efficiency and effectiveness of the handling of the cases;
- (b) it would be more convenient, efficient and effective for an officer to open a paper file and forward the file to the subject officers to take follow-up actions, and internal communication between officers on water-seepage cases through paper files was considered more convenient and effective (especially for complicated cases in which written communication between officers was frequent);
- (c) scanning and uploading of documents required considerable time and efforts. As the new CMIS did not provide for efficient cross-reference of scanned documents, it was difficult for FEHD staff to make cross reference to the images stored in the new CMIS when checking case reports. Also, retrieval of the scanned documents from the CMIS was time-consuming and cumbersome; and
- (d) when preparing for prosecution actions for a case, FEHD staff sometimes found it difficult to reconstruct a paper file from the scanned documents stored in the system, and some original documents might need to be located for the purpose.

4.8 According to the FEHD, in mid-July 2015, after extensively consulting FEHD JO frontline staff and thoroughly reviewing the system functions, the work processes and nature of the cases and operational needs, the FEHD informed its JO staff that, in order to help resolve the problems encountered by them in using the new CMIS in handling water-seepage cases, the work process should be streamlined and that some data were not required to be input into the new CMIS for the time being. The FEHD considered it appropriate to adopt a pragmatic approach to implement the above-mentioned measures to help FEHD JO staff improve their efficiency and effectiveness in handling water-seepage cases while at the same time the new CMIS could generate necessary management information.

4.9 As of July 2016, the FEHD JO staff of all 19 districts only input basic information of new water-seepage cases (see para. 4.2) into the new CMIS but not the information as stated in paragraphs 4.5(a) and 4.6. Audit considers it unsatisfactory that, although the new functions provided in the new CMIS would help improve the efficiency and effectiveness of the JO operation in monitoring actions taken on water-seepage cases, the new functions had not been fully implemented for the JO operation seven months after implementation of the new system in December 2015, causing inefficiency for the management to monitor performance and progress of the cases. In Audit's view, the FEHD needs to take measures to ensure that all functions of the new CMIS on water-seepage cases are fully implemented for the JO operation of all 19 districts in a timely manner. The FEHD also needs to consult JO staff on their difficulties encountered in implementing the new system and provide necessary assistance to them to resolve the problems.

### ***Need to consider adopting a comprehensive database system***

4.10 Audit noted that some statistics of the JO operation could not be reconciled. Examples included:

- (a) the number of nuisance notices issued in 2015 as revealed in the NNM Lists compiled by JO staff of the 19 districts was different from that reported to the FEHD Headquarters (see para. 2.56);
- (b) the number of outstanding cases as of March 2016 as recorded in the ageing analysis reports was different from that reflected in the CMIS (see para. 2.57); and

- (c) the number of cases with tests having been completed as recorded in contractors' bi-weekly progress reports had been understated (see para. 3.11).

Besides, some time information could not be provided for Audit examination (for example, the processing time of screen-out cases — see para. 2.13). According to the FEHD, the time information was recorded in the paper case files.

4.11 Furthermore, some information had been erroneously recorded in related reports and systems. For example, 115 cases where actions had been completed before March 2016 were erroneously indicated as outstanding cases in the CMIS (see para. 2.24(a)).

4.12 Audit noted that the FEHD and the BD were maintaining separate computer systems for monitoring water-seepage cases. In this connection, FEHD JO staff were using the CMIS and standalone computers of FEHD to record case information whereas BD JO staff were using standalone computers of BD to record related information. In order to improve the data and record keeping and updating, the FEHD and the BD need to consider implementing a comprehensive database system, under which all related data and scanned copies of documents are input into or shared among the systems, and investigators can make use of handheld devices to access case details and input results of investigations into the system through the handheld devices immediately after each inspection. The dates and details of all actions taken on each case should be recorded in the system. This system with handheld devices will facilitate timely input of details of actions taken and highlight cases requiring follow-up actions.

### Audit recommendations

4.13 **Audit has *recommended* that the Director of Food and Environmental Hygiene should:**

- (a) **take measures to ensure that all functions of the new CMIS on water-seepage cases are fully implemented for the JO operation in a timely manner; and**

- (b) consult JO staff on their difficulties encountered in implementing the new CMIS and provide necessary assistance to them to resolve the problems.

4.14 Audit has also *recommended* that the Director of Food and Environmental Hygiene and the Director of Buildings should jointly consider implementing a comprehensive database system for water-seepage cases under which handheld devices are used for recording and updating investigation results.

### Response from the Government

4.15 The Director of Food and Environmental Hygiene agrees with the audit recommendations in paragraph 4.13. She has said that:

- (a) the FEHD has implemented applicable functions in the CMIS for water-seepage cases, having regard to the nature of such cases, operational needs and users' views after extensive staff consultation. The FEHD has started taking actions to develop more effective and technically feasible means to capture data which are useful for monitoring actions taken on water-seepage cases; and
- (b) the FEHD will continue to explore enhancements to the CMIS, taking a pragmatic approach and having regard to the users' views and other relevant factors.

4.16 The Director of Buildings has said that, regarding the recommendation in paragraph 4.13(a), the BD will explore with the FEHD means of enhancing the CMIS to provide functions related to Stage III investigations covering case management, generation of reminders and exception reports, and statistical reporting.

4.17 The Director of Food and Environmental Hygiene and the Director of Buildings agree with the audit recommendation in paragraph 4.14. The Director of Food and Environmental Hygiene has said that, to improve the present filing and information system, the FEHD would make enhancements to the CMIS in collaboration with the BD.

## Performance reporting

4.18 In response to enquiries from Members of LegCo, the Government provided LegCo from time to time with information on the number of water-seepage cases received and number of cases with actions completed (Note 29).

4.19 Since January 2014, the FEHD has set the following two performance pledges, with results published on its website:

- (a) within six working days upon receipt of a water-seepage report, contacting the informant to arrange for an investigation at the premises concerned; and
- (b) within seven working days upon verification of the investigation results on the source of the seepage nuisance, issuing a nuisance notice.

According to the FEHD, in 2014 and 2015, 99% of water-seepage cases met the two performance pledges.

### *Data discrepancies on JO monthly returns*

4.20 Based on FEHD JO monthly returns and BD JO case records, from January 2007 to March 2016, the JO operation had received a total of 231,968 water-seepage reports, and during the period actions on a total of 196,926 cases had been completed (see para. 1.17). Given that there were 6,228 cases outstanding as of December 2006, there should be 41,270 (6,228 plus 231,968 less 196,926) outstanding cases as of March 2016. However, based on information captured in the CMIS, Audit noted that the system only recorded 15,564 outstanding cases as of March 2016. In August and October 2016, the FEHD informed Audit that:

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**Note 29:** *These cases comprised screen-out cases, cases with and without water-seepage source identified after completing investigations, and cases with seepage ceased or reports withdrawn by informants during investigations.*



## **Management information system and performance reporting**

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- (a) the discrepancy (i.e. 25,706 (41,270 less 15,564)) in the number of outstanding cases was noted and discussed at a directorate meeting between the FEHD and the BD held in July 2014. Since August 2014, the FEHD had started to share the relevant data in the CMIS with the BD. In addition, from 2015, the FEHD Headquarters would collate monthly statistics from FEHD JO staff of the 19 districts and provide the collated data to BD JO staff for compilation of the JO operation's monthly statistical returns; and
- (b) the FEHD had completed an investigation on the discrepancy stated in (a) above. The discrepancy might be due to unclear instructions being given to and different interpretations of FEHD JO staff in compiling the FEHD JO monthly returns.

In Audit's view, the FEHD needs to take measures to prevent the inclusion of inaccurate data in the CMIS and FEHD JO monthly returns.

### ***Need to consider setting additional performance targets***

4.21 While the FEHD and the BD have jointly set timeframes of 38 working days for completing Stages I and II investigations and 52 working days for completing Stage III investigations for a water-seepage case (see para. 2.15), they have not published these timeframes and results of achievement within these timeframes. In August and October 2016, the BD and the FEHD informed Audit that:

#### ***BD and FEHD***

- (a) as the time taken to complete a case depended on various external factors which were beyond the control of the JO operation, it was impractical to set a performance target on the overall timeframe for completing a case;

#### ***BD***

- (b) as the success rate of identifying the seepage source depended on case circumstances that were beyond the control of the JO operation, it was not appropriate to use the success rate as a performance target; and

### ***FEHD***

- (c) while JO operation would strive to meet the existing reference completion timeframe of 90 working days as far as possible, the timeframe is for simple and straightforward water-seepage cases.

4.22 In Audit's view, informants of water-seepage cases and the public are mostly concerned about the time taken by the JO operation in identifying the seepage source of the cases, and the extent to which the JO operation could successfully identify the seepage source. The absence of performance targets in these two areas is not in line with public expectations. Therefore, the FEHD and the BD need to consider setting performance targets, and publishing results of achievement of the targets, on the overall timeframe for completing a water-seepage case and the success rate of identifying the water-seepage source. With a view to enhancing public accountability, the FEHD and the BD also need to consider regularly publishing performance indicators for the JO operation, such as the numbers of completed cases, cases involving identification of seepage sources, cases where the seepage ceased during investigations and cases having nuisance notices issued.

### **Audit recommendations**

4.23 **Audit has *recommended* that the Director of Food and Environmental Hygiene should take measures to prevent the inclusion of inaccurate data in the CMIS and FEHD JO monthly returns.**

4.24 **Audit has *recommended* that the Director of Food and Environmental Hygiene and the Director of Buildings should jointly consider regularly publishing performance indicators for the JO operation.**

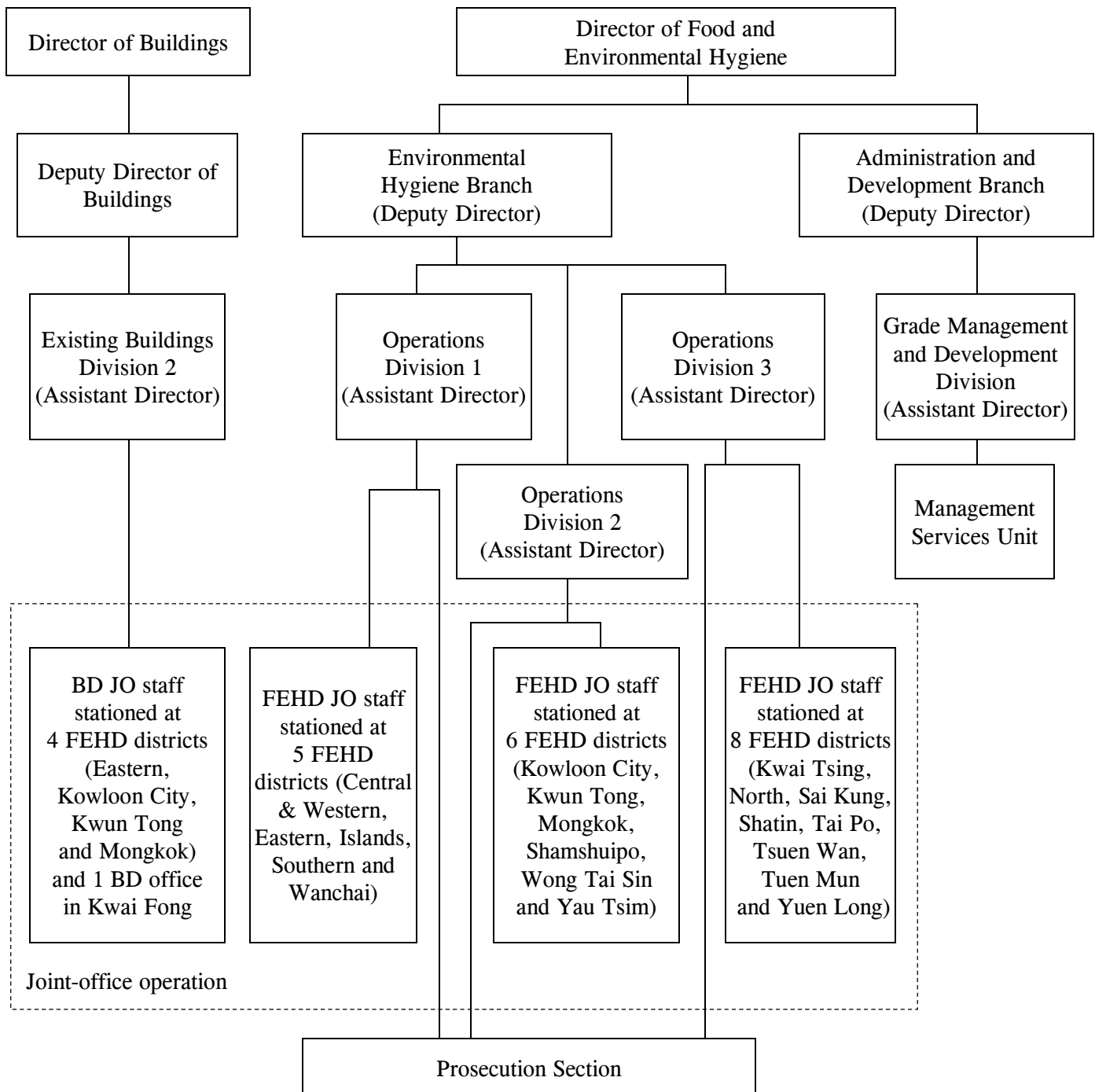
## **Response from the Government**

4.25 The Director of Food and Environmental Hygiene agrees with the audit recommendation in paragraph 4.23. She has said that clear instructions have been issued to FEHD JO staff to remind them of the need to input correct data into the monthly returns. Furthermore, the Director of Food and Environmental Hygiene and the Director of Buildings have said that they will discuss on ways to improve the information systems to prevent data discrepancies in the systems.

4.26 The Director of Food and Environmental Hygiene and the Director of Buildings agree with the audit recommendation in paragraph 4.24. They have said that:

- (a) the performance of the JO operation should be transparent to the public so as to enhance public accountability; and
- (b) the FEHD and the BD will explore if performance targets can be formulated for straightforward cases.

**Joint-office operation structure (extract)  
(31 March 2016)**



Source: FEHD and BD records

**Staff strength of the joint-office operation  
(March 2016)**

District		Number of staff		
		FEHD	BD	Total
1.	Central & Western	10	0	10
2.	Eastern (Note 1)	27	23	50
3.	Islands	1	0	1
4.	Kowloon City (Note 1)	22	25	47
5.	Kwai Tsing	13	0	13
6.	Kwun Tong (Note 1)	16	5	21
7.	Mongkok (Note 1)	11	5	16
8.	North	4	0	4
9.	Sai Kung	7	0	7
10.	Shamshuipo	14	0	14
11.	Shatin	16	0	16
12.	Southern	8	0	8
13.	Tai Po	6	0	6
14.	Tsuen Wan	11	0	11
15.	Tuen Mun	16	0	16
16.	Wanchai	7	0	7
17.	Wong Tai Sin	8	0	8
18.	Yau Tsim	9	0	9
19.	Yuen Long	5	0	5
Total		211	58 (Note 2)	269

*Source: FEHD and BD records*

*Note 1: For these 4 districts, FEHD JO staff and BD JO staff worked in the same office. BD JO staff stationing at the Eastern and Kowloon City districts (designated as the two regional offices for the JO operation) also oversaw Stage III investigations related to the other 17 districts.*

*Note 2: In addition to 58 BD JO staff stationing at 4 FEHD districts, 5 BD JO staff also stationed at a BD office located in Kwai Fong. Therefore, a total of 63 (58 plus 5) BD staff and 274 (269 plus 5) FEHD and BD staff were involved in the JO operation.*

**Appendix C**  
(paras. 2.15 and  
2.46 refer)

### Completion timeframes for Stages I, II and III investigations

Item	Particulars	Completion working day
<b>Stages I and II actions</b>		
1.	Receiving a report on water seepage	38 days
2.	Inputting case details into the CMIS	
3.	Issuing an acknowledgement reply	
4.	Contacting the informant and making an appointment to conduct Stage I investigations at the affected premises (Note 1)	
5.	Conducting site inspection (including measurement of the moisture content) and recording the findings with photographs taken of the affected area (Note 2)	
6.	For a case warranting further investigation (i.e. Stage II investigations), gaining entry into the suspected premises and carrying out tests (e.g. coloured-water test)	
7.	For a case with seepage source identified, sending a final reply to the informant and issuing a nuisance notice to the responsible party (Note 3), or for a case without seepage source identified, sending an interim reply to the informant and conducting Stage III investigations	
Subtotal (a)		38 days
<b>Stage III actions</b>		
8.	BD JO staff screening the case file, and issuing a works order and assigning the case to a service contractor	6 days
9.	Contractor arranging site visit, performing further investigation, and compiling an investigation report for BD JO staff endorsement	30 days
10.	Vetting and endorsing investigation reports	10 days

**Appendix C**  
(Cont'd)  
(paras. 2.15 and  
2.46 refer)

<b>Item</b>	<b>Particulars</b>	<b>Completion working day</b>
11.	BD JO staff sending a reply to notify the informant of results of Stage III investigations. For a case with seepage source identified, FEHD JO staff issuing a nuisance notice to the liable party (Note 3).	6 days
Subtotal (b)		52 days
Total (c) = (a) + (b)		90 days

*Source: FEHD and BD records*

*Note 1: The FEHD has set a performance pledge to contact the informant within 6 working days upon receipt of a case and to arrange for investigation at the affected premises.*

*Note 2: For a case not warranting further investigation (i.e. screen-out case), the FEHD has set a timeframe on sending a final reply to the informant within 18 working days from receipt of the case.*

*Note 3: The FEHD has set a performance pledge to issue a nuisance notice within 7 working days upon confirming the investigation results of the source of the seepage nuisance.*

**Acronyms and abbreviations**

Audit	Audit Commission
BD	Buildings Department
CMIS	Complaints Management Information System
DO	District office
FEHD	Food and Environmental Hygiene Department
JO	Joint-office
LegCo	Legislative Council
NCSC	Non-civil service contract
NNM List	Nuisance Notices Monitoring List
PH&MS Ordinance	Public Health and Municipal Services Ordinance
UBW	Unauthorised building works
WCM Database	Water-seepage Case Monitoring Database
WSD	Water Supplies Department



## **CHAPTER 10**

### **Leisure and Cultural Services Department**

#### **Audience building activities for performing arts**

**Audit Commission  
Hong Kong  
28 October 2016**

*This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.*

Report No. 67 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

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# AUDIENCE BUILDING ACTIVITIES FOR PERFORMING ARTS

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# AUDIENCE BUILDING ACTIVITIES FOR PERFORMING ARTS

## Executive Summary

1. Under “Programme 4: Performing Arts” of the Leisure and Cultural Services Department (LCSD)’s Controlling Officer’s Report, the LCSD aims to promote performing and film arts through audience building, venue management and presenting programmes. The six LCSD units responsible for the work are five offices/sections (i.e. Audience Building Office, Urban Venues Section, New Territories Venues Section, Cultural Presentations Section and Festivals Office) grouped under the Performing Arts Division (for all forms of performing arts including music activities), and the Music Office grouped under the Libraries and Development Division (for music activities only). Audience building is a crucial part of the work, aiming to promote appreciation of performing arts among the general public. Audience building activities include exhibitions, lectures, workshops, training courses and performances. In 2015-16, the six LCSD units organised some 4,700 audience building activities, with some one million participants. The direct costs of organising audience building activities for the Audience Building Office and the Music Office totalled \$87 million in 2015-16, while such costs could not be separated from the overall operation costs of the other four LCSD units. The Audit Commission (Audit) has recently conducted a review of the LCSD’s audience building activities for performing arts.

### Planning of audience building activities

2. *Scope for improving planning of audience building activities.* The LCSD receives submissions of programme proposals by arts groups and other parties. The relevant LCSD units assess these proposals to select suitable ones (including audience building activities) to be included in their annual programme plans. Since January 2007, a Programme and Development Committee, comprising a non-official chairperson, an ex-officio member and 11 non-official members and supported by six panels of experts on different art forms, has been established to advise the LCSD on performing arts programme presentation strategies and annual programme plans including audience building. Audit noted that: (a) the LCSD’s annual overall programme plan on performing arts had incorporated only the

## Executive Summary

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activities of the five offices/sections under the Performing Arts Division but not the Music Office under the Libraries and Development Division; (b) while a Programme and Development Committee had been established to advise the LCSD on strategies for audience building, the Music Office, Urban Venues Section and New Territories Venues Section had not sought advice from the Committee in preparing their annual programme plans; and (c) the LCSD had not compiled management information regularly for audience building activities organised for each key art form and participants' feedback (paras. 1.7, 1.8, 2.3 to 2.8 and 2.11).

### **Audience building activities of the Audience Building Office**

3. *Inadequacies in counting number of participants.* The Audience Building Office organises audience building activities at community and school levels in cooperation with arts groups and educational institutions. In 2015-16, it organised 1,008 audience building activities at a cost (staff costs and direct expenditures) of \$26.9 million. Of the 563 activities under its community schemes, 39% (222 activities) were conducted at LCSD venues. The arts groups commissioned to conduct the activities reported a total of some 155,000 participants. Many activities were free and conducted in public areas or venues open to the public. Many participants appeared to be just passing by or only stayed at the activities briefly. The LCSD had not issued guidelines on counting the number of participants. It also had not reviewed the head count methodology adopted by arts groups. Audit case studies showed that the arts groups concerned might not have counted the number of participants properly (paras. 3.2 to 3.7 and 3.10).

4. *Decrease in number of participants in school schemes.* In 2015-16, some 63,000 students participated in the audience building activities organised by the Audience Building Office under its school schemes, down 37% from 99,506 in 2011-12. Audit noted that the number of schools participating in the schemes were down 21% from 801 to 634 during the period. Reasons for schools not participating in the schemes included inconvenient event times. As at July 2016, of the 1,139 primary, secondary and special schools in Hong Kong, 93 (8%) schools had never participated in the schemes (paras. 3.15 to 3.18).



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### Audience building activities of the Music Office

5. The Music Office was established by the Government in 1977. In 1995, it was transferred to the former Municipal Councils. In 2000, upon dissolution of the Councils, it came under the LCSD's management, pending transfer to the Hong Kong Academy for Performing Arts as recommended by a consultancy study in 1999. In August 2015, the Government decided that the Music Office should continue to be managed under the LCSD as a long-term arrangement. Since its establishment in 1977, the objective of the Music Office has been to promote knowledge and appreciation of music in the community (paras. 4.2 to 4.5, 4.9 and 4.11).

6. *Need to evaluate cost-effectiveness.* The Music Office takes a three-pronged approach to audience building. Its extensive music training schemes (for young people aged 6 to 23) and outreach music interest courses (for people of all ages) actively train people to play and understand music while its other music activities (such as exhibitions and concerts) attract and provide opportunities for people to appreciate music. In 2015-16, the music training schemes incurred the highest cost of \$37.5 million (representing 62% of the Music Office's total cost of \$60.5 million). Because training under the music training schemes is provided on a yearly basis involving many training sessions (e.g. around 39 one-hour sessions for a trainee who received instrumental training), the music training schemes costed \$5,981 per person reached, compared to \$1,334 per person for the short-term outreach music interest courses and \$116 per person for other music activities. The Music Office's training and music activities were delivered by the Music Officer grade staff. However, Audit noted that the Music Officer grade staff had used only 36% of their work hours for delivering music training courses and other music activities, and 64% for administrative and other duties. On the other hand, the Music Office had increased the hiring of part-time instructors to deliver music training to augment music skills not available in the Music Office. Many training classes of the Music Office had a very small class size (e.g. only 1 trainee) compared with the specified standard class size (e.g. 5 to 10 trainees). This had also contributed to the higher cost of the training and audience building activities of the Music Office (paras. 4.13 to 4.15, 4.20 to 4.23, 4.25 and 4.26).

7. *Under-utilisation of music centres.* The Music Office had five music centres located at different districts, with sizes ranging from 643 to 1,916 square metres. Key training facilities of the music centres included a total of 40 training rooms and 5 rehearsal rooms. Audit estimated that the number of training sessions delivered each year under the Music Office's music training schemes and outreach

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music interest courses was equivalent to only 29% of the capacity of the 45 training facilities. For example, the training facilities in November 2015 were almost unused (utilisation rate of 3%) on weekdays before 4 p.m. and around 70% utilised after 4 p.m. and at weekends. As many arts groups were unable to secure venues for staging audience building activities, there might be scope for using these training facilities (paras. 3.9, 3.10 and 4.38 to 4.40).

8. ***Way forward for the Music Office.*** The LCSD did not have an overarching annual programme plan for promoting appreciation of performing arts (see para. 2(a) above). While the extensive music training schemes organised by the Music Office could be complementary to the other audience building activities of the LCSD, they were unique within the LCSD. With the Government's decision in August 2015 to continue to manage the Music Office under the LCSD as a long-term arrangement, the LCSD needs to determine the way forward for the Music Office in relation to other performing arts activities of the LCSD (paras. 4.9 and 4.46).

### **Audience building activities of Urban and New Territories Venues Sections**

9. ***Decrease in number of participants.*** The Urban Venues Section and the New Territories Venues Section each manage seven performing arts venues. In addition, the two Sections organise free audience building activities, including performances at foyers and piazzas, and other venue activities (e.g. guided tours), and provide free use of venues to arts groups for organising audience building activities. While foyer and piazza activities had attracted the largest number of participants per activity, the LCSD had reduced the number of such activities considerably from 139 in 2014-15 to 78 in 2015-16 because of the need to prioritise its budgets. This resulted in an 18% drop in the total number of participants in the audience building activities of the two venues sections, from 399,000 in 2014-15 to 326,000 in 2015-16. Audit case study indicated that, when collaborating with non-governmental organisations and private sector partners, organising foyer and piazza activities attracted interested audience and did not always incur additional costs (paras. 5.2 and 5.5 to 5.8).

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10. ***Scope for using minor facilities for audience building activities.*** The 14 LCSD performing arts venues have a total of 72 minor facilities (e.g. rehearsal rooms), with a total seating capacity of 5,400 people. During 2011-12 to 2015-16, the utilisation of these minor facilities in urban venues were between 37% and 42%, and the utilisation of the New Territories venues were between 61% and 63%. As many arts groups were unable to secure venues for staging audience building activities, there might be scope for using these minor facilities (paras. 3.9, 3.10 and 5.11 to 5.13).

11. ***Opportunities in building audience through Venue Partnership Scheme.*** The Venue Partnership Scheme was implemented by the LCSD at most of its performing arts venues and aims to foster a partnership between the performing arts venues and performing arts groups with the objectives of enhancing the artistic image and character of the venue and its partner, enlarging the audience base, optimising usage of facilities, developing venue-based marketing strategies, facilitating arts sponsorship, and encouraging community involvement. Under the Venue Partnership Scheme, arts groups may apply for the priority use of performing arts venues of the LCSD. Audit found that: (a) 2 of the 14 LCSD performing arts venues had not been open for partnership application; and (b) the LCSD had not taken action to recruit partners for 2 other venues to replace those who had withdrawn (paras. 5.16, 5.17 and 5.21).

### Audit recommendations

12. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Director of Leisure and Cultural Services should:**

#### ***Planning of audience building activities***

- (a) **make good use of the expertise of the Programme and Development Committee in preparing annual programme plans of the Music Office and the Urban and New Territories Venues Sections (para. 2.12(a));**
- (b) **prepare an overarching annual programme plan on performing arts covering all relevant offices/sections (para. 2.12(b));**

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- (c) compile management information on audience building activities organised for each key art form and on participants' feedback on the activities regularly (para. 2.12(c) and (d));

### ***Audience building activities of the Audience Building Office***

- (d) provide arts groups clear guidelines on counting the number of participants in audience building activities under community schemes, and ensure compliance with the guidelines (para. 3.13(a));
- (e) explore ways to help arts groups in securing venues for audience building activities under community schemes, including assigning more LCSD venues for their use (para. 3.13(c));
- (f) review the adequacy of the school schemes in catering for the needs of schools and students, and take measures to improve the participation of schools and students in school schemes (para. 3.20);

### ***Audience building activities of the Music Office***

- (g) in formulating long-term strategies and plans for the Music Office, review the allocation of resources to different types of activities to ensure that its objective is achieved cost-effectively (para. 4.28(a));
- (h) review the skill mix and the actual duties performed by the Music Officer grade staff, and consider rationalising/enhancing the Music Office workforce as appropriate (para. 4.28(b) and (c));
- (i) consider setting minimum class sizes for the Music Office's training courses, and establishing a mechanism for consolidating/cancelling classes falling short of minimum sizes (para. 4.28(d));
- (j) take measures to improve the utilisation of the five music centres of the Music Office (e.g. using them for audience building activities of other LCSD units) (para. 4.42(b));
- (k) review the role of the Music Office in relation to other LCSD performing arts promotion activities, with a view to better aligning the work of the Music Office with that of the LCSD and attaining synergy in promoting appreciation of performing arts more cost-effectively (para. 4.50(a));

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### *Audience building activities of Urban and New Territories Venues Sections*

- (l) review the impact of reducing foyer and piazza activities on audience building, and explore areas where the cost-effectiveness of foyer and piazza activities could be further improved (para. 5.9);
- (m) explore measures to improve the utilisation of minor facilities of performing arts venues, including assigning suitable facilities for use in audience building activities (para. 5.14); and
- (n) take measures to improve the implementation of the Venue Partnership Scheme (para. 5.22).

## Response from the Government

13. The Director of Leisure and Cultural Services generally accepts the audit recommendations.



## PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

### *Background*

1.2 The Home Affairs Bureau (HAB) is responsible for drawing up policies on the arts and culture. The policy objectives are to:

- (a) provide opportunities for wide participation in the arts and culture;
- (b) provide opportunities for those with potentials to develop their artistic talents;
- (c) create an environment conducive to the diversified and balanced development of the arts and culture;
- (d) support the preservation and promotion of traditional cultures while encouraging artistic creation and innovation; and
- (e) develop Hong Kong into a prominent hub of cultural exchanges.

1.3 Operating under the HAB's auspices are three key agencies in the promotion of the arts and culture, namely, the Leisure and Cultural Services Department (LCSD), the Hong Kong Arts Development Council (Note 1) and the Hong Kong Academy for Performing Arts (Note 2).

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**Note 1:** *The Hong Kong Arts Development Council was established in 1995 under the Hong Kong Arts Development Council Ordinance (Cap. 472) to support the broad development of the arts in Hong Kong. Its major roles include grant allocation, policy and planning, advocacy, promotion and development, and programme planning.*

**Note 2:** *The Hong Kong Academy for Performing Arts was established in 1984 under The Hong Kong Academy for Performing Arts Ordinance (Cap. 1135). It is a tertiary institution in performing arts.*

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1.4 In a consultancy study of June 2009 commissioned by the HAB, it was recognised that the arts could cultivate growth in individuals and creative industries could become a key driver of economic growth and regeneration. Socially, the arts helped nurture a shared identity and build community cohesion.

### *Programme for promotion of performing arts*

1.5 Under “Programme 4: Performing Arts” of the LCSD’s Controlling Officer’s Report (referred to as “Performing Arts Programme” hereinafter), the LCSD aims to promote performing and film arts through the provision of facilities and the presentation of programmes, which include:

- (a) maintaining a high standard of service in civic centres to meet the needs of the arts community and the public;
- (b) presenting cultural and entertainment programmes for the development of the performing and film arts; and
- (c) organising audience building activities at schools and in the community to promote appreciation of the performing arts.

1.6 The LCSD units responsible for promoting performing arts under the Performing Arts Programme are the various offices/sections of the Performing Arts Division, and the Music Office of the Libraries and Development Division. An extract of the organisation chart of the LCSD is at Appendix A. For 2016-17, the estimated financial provision for the entire Performing Arts Programme is \$1,139 million, involving about 970 civil service staff of the LCSD.

1.7 Since January 2007, a Programme and Development Committee, comprising a non-official chairperson, an ex-officio member and 11 non-official members, has been established to advise the LCSD on strategies for programmes of the performing arts, including programmes of audience building activities. The Committee, among other duties:

- (a) considers the LCSD’s long-term programme presentation strategies, and the strategies for supporting budding and small-scale performing arts groups;



- (b) endorses the LCSD's annual programme plans; and
- (c) reviews the progress of programme plans.

1.8 The Programme and Development Committee is supported by six Art Form Panels, comprising the Chinese Traditional Performing Arts, Community, Dance and Multi-arts, Festivals, Music and Theatre (see Appendix B for their terms of reference). Panel members include experts on different art forms. Among the six Art Form Panels, the Community Panel is the main Panel giving advice on audience building.

### **Audience building activities for performing arts**

1.9 A crucial part of the work under the LCSD's Performing Arts Programme is organising audience building activities to promote appreciation of the performing arts (see para. 1.5(c)). The activities, including exhibitions, lectures, workshops, training courses and performances, are organised by six LCSD units. Some of the six units are also responsible for other work under the LCSD's Performing Arts Programme. The six units comprise:

- (a) ***Audience Building Office (under Performing Arts Division).*** The Office organises a number of community schemes and school schemes to promote knowledge and appreciation of the performing arts at community and school levels. Some activities under the schemes are free while some are fee-charging;
- (b) ***Music Office (under Libraries and Development Division).*** The Office promotes knowledge and appreciation of music in the community, especially among young people, through the provision of instrumental and ensemble training and the organisation of various music activities. The instrumental music training scheme, with trainees between the age of 6 and 23, offers beginners to grade 8 level training in 30 musical instruments. Running 19 youth orchestras/bands/choirs for young trainees, the Office sends its orchestras, bands, or choirs on overseas concert tour each year to widen the horizon of local young musicians. The Office's annual summer music camp aims to enhance the performance skills of young musicians through intensive training by eminent musicians from the Mainland and overseas. Regular concerts in

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schools are organised by the Office to familiarise students with Chinese and Western orchestral instruments and to stimulate their interest in fine music. Instrumental music training courses are fee-charging and ensemble training courses are free. For other music activities, some are free while others are fee-charging;

- (c) *Urban Venues Section and New Territories Venues Section (under Performing Arts Division)*. The two venues sections are responsible for managing the LCSD's performing arts venues (see para. 1.5(a)). They also organise free audience building activities at the venues or provide arts groups with free use of the venues for organising such activities. The activities include performances and workshops; and
- (d) *Cultural Presentations Section and Festivals Office (under Performing Arts Division)*. The main duties of the two units are presenting fee-paying cultural programmes (see para. 1.5(b)). The Cultural Presentations Section presents cultural programmes on a year-round basis. The Festivals Office presents two arts festivals annually (i.e. the International Arts Carnival in summer and a thematic arts festival in autumn). In presenting cultural programmes, the two units also organise free ancillary audience building activities (e.g. pre-performance talks and post-performance discussions).

1.10 In 2015-16, the six LCSD units organised a total of 4,682 audience building activities, with some one million participants. The direct costs (including staff costs and direct expenditures) of the Audience Building Office and the Music Office in 2015-16 were \$26.9 million and \$60.5 million respectively (Note 3).

## Audit review

1.11 In 2010, the Audit Commission (Audit) conducted a review of the LCSD's management of performing arts venues (see para. 1.5(a)). The results were included in Chapter 7 of the Director of Audit's Report No. 55 of October 2010.

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**Note 3:** *For the other four LCSD units, they conducted cultural programmes as well as audience building activities under the Performing Arts Programme. The audience building activities were built-in features in the cultural programmes. The direct costs of audience building activities therefore could not be separated from the overall programme production costs of the cultural programmes.*

1.12 In May 2016, Audit commenced a review of the LCSD's audience building activities for performing arts. The audit has focused on the following areas:

- (a) planning of audience building activities (PART 2);
- (b) audience building activities of the Audience Building Office (PART 3);
- (c) audience building activities of the Music Office (PART 4); and
- (d) audience building activities of Urban and New Territories Venues Sections (PART 5).

Audit has found room for improvement in the above areas and has made a number of recommendations to address the issues.

## General response from the Government

1.13 The Director of Leisure and Cultural Services generally accepts the audit recommendations. She has said that:

- (a) the LCSD is grateful to Audit for working with it to explore opportunities to improve the value for money of audience building activities; and
- (b) the LCSD has generally found the audit recommendations fruitful. The LCSD will make every endeavour to address the issues and follow up to enhance the overall cost-effectiveness of its audience building activities.

## Acknowledgement

1.14 Audit would like to acknowledge with gratitude the full cooperation of the staff of the LCSD during the course of the audit review.

## PART 2: PLANNING OF AUDIENCE BUILDING ACTIVITIES

2.1 This PART examines the LCSD's planning of audience building activities for performing arts. Table 1 shows the activities organised during 2011-12 to 2015-16.

**Table 1**  
**LCSD audience building activities**  
**(2011-12 to 2015-16)**

LCSD office/section	2011-12	2012-13	2013-14	2014-15	2015-16
<b><i>No. of activities organised</i></b>					
Audience Building Office	1,105 (26%)	1,113 (25%)	1,148 (25%)	1,067 (24%)	1,008 (22%)
Music Office					
Music training courses (Note)	361 (9%)	388 (8%)	397 (8%)	416 (9%)	402 (9%)
Other music activities	1,102 (27%)	1,123 (25%)	1,147 (25%)	1,153 (25%)	1,164 (25%)
Urban and New Territories Venues Sections	770 (18%)	1,128 (25%)	1,137 (24%)	1,080 (24%)	1,389 (29%)
Cultural Presentations Section and Festivals Office	817 (20%)	787 (17%)	844 (18%)	794 (18%)	719 (15%)
Total	4,155 (100%)	4,539 (100%)	4,673 (100%)	4,510 (100%)	4,682 (100%)
<b><i>No. of participants ('000)</i></b>					
Audience Building Office	276 (26%)	279 (24%)	291 (25%)	286 (24%)	264 (26%)
Music Office					
Music training courses (Note)	8 (1%)	8 (1%)	9 (1%)	9 (1%)	9 (1%)
Other music activities	159 (15%)	185 (16%)	161 (14%)	178 (15%)	168 (16%)
Urban and New Territories Venues Sections	326 (30%)	407 (35%)	380 (32%)	399 (33%)	326 (32%)
Cultural Presentations Section and Festivals Office	306 (28%)	271 (24%)	330 (28%)	326 (27%)	262 (25%)
Total	1,075 (100%)	1,150 (100%)	1,171 (100%)	1,198 (100%)	1,029 (100%)

Source: LCSD records

Note: According to the LCSD, the Music Office's music training courses are both audience building activities and music education programmes offered to the public (in the LCSD's Controlling Officer's Report, information about the music training courses is reported separately — see para. 4.11).

## Procedures for planning audience building activities

2.2 The LCSD's audience building activities comprise:

- (a) the audience building activities for all forms of performing arts (including music) organised by the Audience Building Office, Urban Venues Section, New Territories Venues Section, Cultural Presentations Section and Festivals Office under the Performing Arts Division; and
- (b) music training courses and other music activities organised by the Music Office under the Libraries and Development Division.

The audience building activities include exhibitions, lectures, workshops, training courses and performances.

2.3 The LCSD receives submissions of programme proposals (including audience building activities and cultural and entertainment programmes) by arts groups and other parties. The relevant LCSD units assess these proposals to select suitable ones to be included in their annual programme plans. For the Audience Building Office, Cultural Presentations Section and Festivals Office, they are required to seek the advice of the relevant Art Form Panels and/or the Programme and Development Committee (see paras. 1.7 and 1.8) in assessing programme proposals and preparing annual programme plans. All LCSD units are required to submit their annual programme plans to the Director of Leisure and Cultural Services for approval. Flowcharts showing the procedures for preparing annual programme plans are at Appendix C.

### *Scope for improving consultation on annual programme plans*

2.4 Audit noted that, in preparing their 2015-16 annual programme plans, the Audience Building Office, Cultural Presentations Section and Festivals Office had sought advice from the Programme and Development Committee and its panels. However, the Music Office, Urban Venues Section and New Territories Venues Section had not done so. For the Urban Venues Section and New Territories Venues Section, audience building activities conducted under their Venue

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Partnership Scheme (Note 4) were included in an annual programme plan, which had been submitted to a separate committee for endorsement (i.e. the Committee on Venue Partnership). Table 2 shows the details.

**Table 2**  
**Consultation procedure for preparing annual programme plans**  
**(2015-16)**

Office/section	Art Form Panel consulted	Programme and Development Committee	
		Consulted	Endorsement sought
Audience Building Office	Community Panel	✓	✓
Cultural Presentations Section	Chinese Traditional Performing Arts, Dance and Multi-arts, Music, and Theatre Panels	✓	✓
Festivals Office	Festivals Panel	✓	✓
Music Office	None	×	×
Urban and New Territories Venues Sections (Note)	None	×	×

*Source: Audit analysis of LCSD records*

*Note: For audience building activities conducted under the Venue Partnership Scheme (see para. 5.2(c)), the related annual programme plan was endorsed by the Committee on Venue Partnership (see Note to Appendix C).*

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**Note 4:** *The two venues sections organised free audience building activities at the LCSD's performing arts venues, or provided arts groups with free use of the venues for organising such activities. The arts groups included those who were partners under the Venue Partnership Scheme (see para. 5.2(c)).*

According to an LCSD circular issued in 2006, for free entertainment and foyer programmes, expert advisors of the appropriate art form are not to be consulted. However, Audit noted that while the audience building activities of the Urban Venues Section and New Territories Venues Section were free, the activities accounted for a significant proportion (29% in 2015-16 — see Table 1 in para. 2.1) of the LCSD audience building activities.

2.5 The role of the Programme and Development Committee established in 2007 is to advise the LCSD on strategies for programmes of the performing arts, including programmes of audience building activities. Its panels include experts on different art forms. In Audit's view, since the programmes organised by the Music Office, Urban Venues Section and New Territories Venues Section are part of the LCSD's programmes of the performing arts, the LCSD should make good use of the expertise of the Programme and Development Committee and its panels in preparing annual programme plans of the Music Office and the two venues sections.

### ***Lack of an overarching annual programme plan***

2.6 Taking account of the annual programme plans of individual offices/sections, the LCSD prepares an annual overall programme plan on performing arts. However, Audit noted that the overall programme plan incorporated only the activities of the Performing Arts Division (i.e. activities of the Audience Building Office, Cultural Presentations Section, Festivals Office, Urban Venues Section and New Territories Venues Section). Activities of the Music Office, which is under the Libraries and Development Division (but not the Performing Arts Division), were not included in the overall programme plan.

2.7 Audit considers that there is merit for the LCSD to prepare an overarching annual programme plan on performing arts covering all relevant offices/sections including the Music Office. This will help senior management assess whether efforts of different offices/sections are well coordinated to produce optimal results. For example, since the Audience Building Office and the Music Office both organise audience building activities for music, their efforts need to be well coordinated to ensure optimal use of resources (see Case 1).

### Case 1

#### Music training offered by two different LCSD offices (2015-16)

1. In accordance with the overall programme plan of the Performing Arts Division for 2015-16, the Audience Building Office provided training for students under the School Performing Arts in Practice Scheme. The Scheme included an orchestra training project for students, as follows:

- (a) an arts group was commissioned to provide instrumental music training to primary school students who had not received music training before;
- (b) the project lasted for a school year. Upon completion of the project, students were expected to be able to perform solos, ensembles or with an orchestra. Project activities included class training, finale rehearsals and in-school finale performances; and
- (c) 117 students from two primary schools participated in the project.

According to the LCSD, the project targeted primary schools without orchestras and less privileged students without music knowledge.

2. Meanwhile, the Music Office was organising an instrumental music training scheme, targeting people aged 6 to 23. There were 4,808 trainees in 2015-16 (see para. 4.13(a)(i)). During the year, the Music Office had used only 36% of its staff work hours in delivering training and music activities (see para. 4.21).

#### *Audit comments*

3. There may be room for better coordinating the efforts of the two offices to ensure optimal use of resources for music training.

*Source: Audit analysis of LCSD records*

2.8 Audit also noted that the LCSD had not compiled information about audience building activities organised for each key art form. Analysis of activities of various offices/sections by art forms is key management information, which could help gain insight into areas where audience building activities need more



effort. It could also help identify possible areas where the utilisation of resources can be improved.

### ***Need to collect more planning data***

2.9 Table 1 in paragraph 2.1 shows that, during 2011-12 to 2015-16, the total number of participants in LCSD audience building activities generally remained stable (some one million a year). However, comparing with its peak of 1.198 million participants in 2014-15, the number decreased by 14% to 1.029 million participants in 2015-16. Table 3 shows that the average number of participants per activity declined by 15% from 259 in 2011-12 to 220 in 2015-16. Upon enquiry, the LCSD informed Audit in August 2016 that it had ascertained the underlying reasons for the drop in the average number of participants. One of the reasons was the reduction in foyer and piazza activities organised by the Urban and New Territories Venues Sections. Audit noted that among the audience building activities of the Urban and New Territories Venues Sections, foyer and piazza activities had the largest number of participants per activity (see paras. 5.5 to 5.7).

**Table 3**

**Number of participants in LCSD audience building activities  
(2011-12 to 2015-16)**

	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>
No. of activities	4,155	4,539	4,673	4,510	4,682
No. of participants (’000)	1,075	1,150	1,171	1,198	1,029
No. of participants per activity	259	253	251	266	220

*Source: Audit analysis of LCSD records*

2.10 In this connection, Audit noted that in 2011, the LCSD commissioned a consultant to conduct an overall survey on its performing arts activities (including audience building activities). Respondents comprised participants in the activities

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and those who had not participated in the activities (Note 5). Reasons given by some respondents for their unfavourable feedback included low standard of performers and programme contents for some community audience building activities. According to the LCSD, the performers of these activities were workshop trainees and amateur Cantonese operatic song organisations.

2.11 Since 2011, the LCSD has not conducted overall surveys on its audience building activities. Upon enquiry, the LCSD informed Audit in August 2016 that overall surveys were conducted at intervals of around four to six years in the past. The next survey would be conducted when due. In the meantime, the responsible offices/sections of the LCSD conducted questionnaire surveys of participants at the end of individual activities. The offices/sections would discuss and follow up on participants' comments through regular programme and marketing meetings. Audit noted that the LCSD had not summarised the survey results for further analysis and management information. In Audit's view, such survey results are useful for planning future activities, and collecting the views of non-participants in parallel would also be useful.

## Audit recommendations

2.12 **Audit has *recommended* that the Director of Leisure and Cultural Services should:**

- (a) **make good use of the expertise of the Programme and Development Committee and its panels in preparing annual programme plans of the Music Office and the Urban and New Territories Venues Sections;**
- (b) **prepare an overarching annual programme plan on performing arts covering all relevant offices/sections including the Music Office;**
- (c) **compile management information on audience building activities organised for each key art form regularly;**

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**Note 5:** *The LCSD conducted opinion surveys on performing arts activities in 2001, 2005 and 2011. Respondents in the 2011 survey comprised 5,510 participants in performing arts activities and 2,039 other persons who had not participated in performing arts activities. The 2,039 other respondents were surveyed through telephone interviews.*

- (d) **compile, on a regular basis, management information on participants' feedback on audience building activities; and**
- (e) **regularly conduct surveys of people who had not participated in audience building activities to solicit their views on audience building.**

### **Response from the Government**

2.13 The Director of Leisure and Cultural Services accepts the audit recommendations. She has said that:

- (a) the LCSD will review the procedures for preparing the annual programme plans of the Urban and New Territories Venues Sections and the Music Office with a view to involving more external stakeholders for expert advice so as to enhance the community engagement in enriching the annual programme plans;
- (b) the LCSD has internal communication among different offices/sections through daily contacts and programme meetings when drawing up annual programme plans, and will continue to coordinate well among programme offices to optimise the use of resources. The LCSD will re-examine the procedures for preparing annual programme plans with a view to working out an overarching annual programme plan on audience building and education covering all relevant offices/sections including the Music Office;
- (c) the LCSD will compile regular management information on audience building activities by key art forms;
- (d) the LCSD will compile regular statistics and management information on participants' feedback on audience building activities collated through questionnaire surveys for better planning of future programmes; and
- (e) the LCSD will continue to conduct overall surveys on performing arts activities on a regular basis at intervals of four to six years. Through such surveys, views of people who have not participated in audience building activities will also be gauged.

## **PART 3: AUDIENCE BUILDING ACTIVITIES OF THE AUDIENCE BUILDING OFFICE**

3.1 This PART examines the audience building activities of the Audience Building Office, focusing on:

- (a) community schemes (paras. 3.5 to 3.14); and
- (b) school schemes (paras. 3.15 to 3.21).

3.2 In early 2000, to enhance audience development efforts, the LCSD set up the Audience Building Office under its Performing Arts Division. The Office aims at promoting knowledge and appreciation of the performing arts at community and school levels through organising various audience building schemes and activities in cooperation with arts groups and educational institutions.

3.3 As at June 2016, the Audience Building Office had a strength of 25 staff comprising 18 civil service staff and 7 non-civil service contract staff. In 2015-16, its direct costs (including staff costs and direct expenditures) were about \$26.9 million (Note 6).

3.4 In 2015-16, the Audience Building Office organised a total of 1,008 audience building activities, comprising 563 (56%) activities under its community schemes, 355 (35%) activities under its school schemes and 90 (9%) other activities. Some activities were free of charge while some were fee-charging. The number of participants in these activities totalled 264,422. Table 4 outlines the nature and types of activities organised under the community and school schemes.

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**Note 6:** *In 2015-16, the LCSD commissioned 45 arts groups involved in 66 projects for carrying out audience building schemes and activities of the Audience Building Office (see para. 3.2). The payments to these arts groups totalled \$15.8 million, which formed part of the total direct costs of \$26.9 million.*

## Audience building activities of the Audience Building Office

**Table 4**

### Audience building activities of the Audience Building Office (2015-16)

Scheme/nature of activities		No. of activities	No. of participants
<b><i>Community schemes</i></b>			
1	Community Cultural Ambassador Scheme	557	153,689
	Arts groups were commissioned to act as cultural ambassadors to conduct outreach activities in the community (e.g. at public spaces) for audience building. Activities included exhibitions and performances (see Photograph 1).		
2	Community Oral History Theatre Project	6	964
	An arts group was commissioned to conduct theatre workshops for the elderly in selected districts. The elderly then acted out their personal experiences and stories on stage (see Photograph 2).		
Sub-total		563	154,653
<b><i>School schemes</i></b>			
3	School Performing Arts in Practice Scheme	184	30,100
	In collaboration with local arts groups, the LCSD provided a series of performing arts training for primary, secondary and special school students. In the finale performance, students could put their training into practice (see Photograph 3).		
4	School Culture Day Scheme	64	7,469
	Students were encouraged to visit the LCSD's performing arts venues, museums and libraries during school hours over a school year, and to take part in activities such as performances and workshops (see Photograph 4).		
5	Arts Experience Scheme for Senior Secondary Students	56	9,643
	Artists were invited to stage performances for students at schools and in performing arts venues. Students were required to attend pre-performance lectures and post-performance appreciation sessions, as well as other interactive workshops.		

## Audience building activities of the Audience Building Office

**Table 4 (Cont'd)**

	Scheme/nature of activities	No. of activities	No. of participants
6	Let's Enjoy Cantonese Opera in Bamboo Theatre	32	14,773
	Opportunity was provided to participants, particularly children, to set foot on bamboo theatres to get to know about the unique kind of temporary structure, while at the same time appreciating the arts in Cantonese opera.		
7	General Education in Arts Programme for Tertiary Students	15	420
	Activities were conducted for tertiary students to develop an in-depth understanding and artistic appreciation of theatre, such as pre-performance and post-performance discussions, workshops, seminars, drama training and professionally-guided theatre production.		
8	Performing Arts Appreciation Project for Senior Secondary Students	4	289
	Activities were conducted to cultivate participants' interest in the arts, and to strengthen their skills in expressing views on arts performance. Activities included thematic lectures and appreciation workshops on performing arts in drama, music, dance and Cantonese opera.		
Sub-total		355	62,694
9	<b>Other audience building activities</b> (e.g. performances sponsored by the Audience Building Office)	90	47,075
Total		1,008 (Note)	264,422 (Note)

Source: LCSD records

Note: An analysis by type of activities is as follows:

Type of activities	No. of activities	No. of participants
Performances	646	217,511
Exhibitions	91	31,750
Training, workshops, seminars and talks	271	15,161
Total	1,008	264,422

**Photographs 1 to 4**

**Examples of community schemes and school schemes**

**Photograph 1**

**Community Cultural  
Ambassador Scheme**



**Photograph 2**

**Community Oral History  
Theatre Project**



**Photograph 3**

**School Performing Arts  
in Practice Scheme**



**Photograph 4**

**School Culture  
Day Scheme**

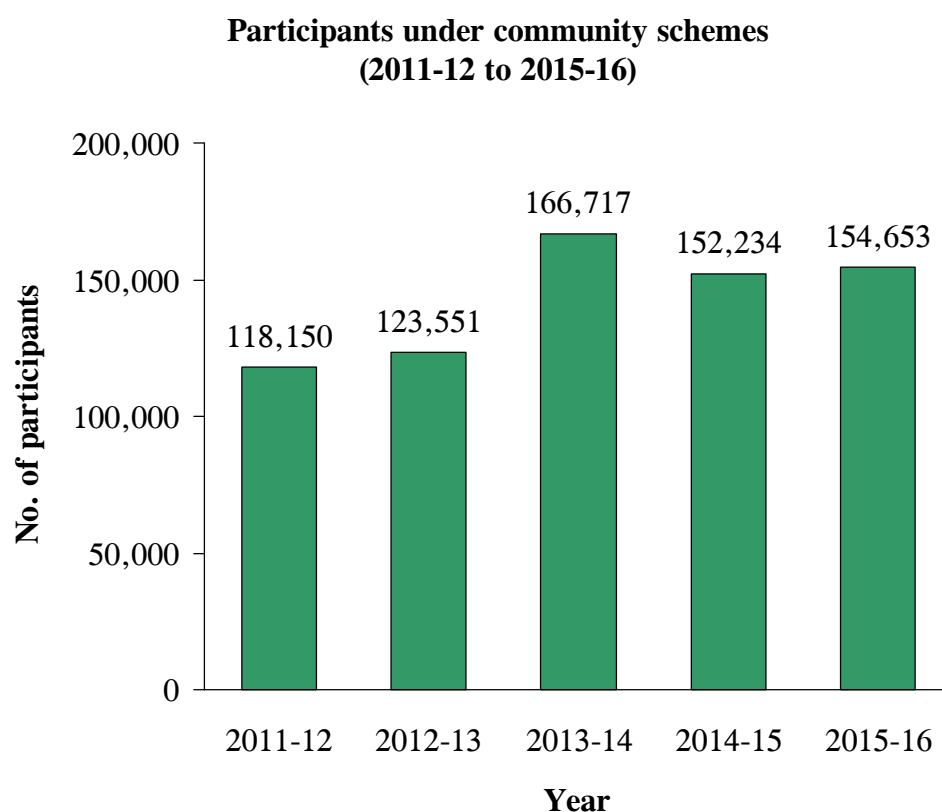


*Source: LCSD records*

## **Community schemes**

3.5 Figure 1 shows the number of participants in audience building activities organised by the Audience Building Office under its community schemes (see Table 4 for the list of schemes) between 2011-12 and 2015-16.

Figure 1



Source: LCSD records

Remarks: In each year, the number of participants in the Community Cultural Ambassador Scheme accounted for some 99% of the total.

***Need for clear guidelines on  
counting the number of participants***

3.6 Figure 1 shows that in 2015-16 there were 154,653 participants in activities under community schemes, up 31% from 118,150 in 2011-12. Audit noted that:

- (a) arts groups commissioned to conduct activities under community schemes were required to report to the LCSD the number of participants; and
- (b) many activities were conducted in public areas or venues which were open to the public. The activities were free of charge. Many participants appeared to be just passing by or only stayed at the activities briefly, making it difficult to count the number of participants in the activities (see Cases 2 and 3).



**Case 2**

**A concert held in public areas  
(June 2016)**

1. On 25 June 2016, Arts Group A performed a free concert under the Community Cultural Ambassador Scheme. The concert was held in a shopping mall at Wong Tai Sin during 7:30 p.m. to 8:45 p.m.
2. Audit attended the concert and noted that:
  - (a) participants were generally passers-by who attended the concert for some time and then left; and
  - (b) throughout the concert, the size of the audience fluctuated between some 30 to 50 people (see Photograph 5).

**Photograph 5**

**Audience of the concert at 7:56 p.m.**



3. Arts Group A subsequently reported an audience of 300 people to the LCSD.

***Audit comments***

4. Without clear guidelines, Arts Group A might not have properly counted the number of participants in the concert for reporting to the LCSD.

*Source: Audit site visit on 25 June 2016 and LCSD records*

### Case 3

#### A concert held in a public venue (June 2016)

1. On 26 June 2016, Arts Group B performed a free concert under the Community Cultural Ambassador Scheme. The concert was held in a community hall at Yau Ma Tei during 2:30 p.m. to 3:45 p.m. Free tickets had been given to the public for attending the concert.
2. Audit attended the concert and noted that:
  - (a) free tickets were still available at the venue during the concert. A few people joined the concert after its commencement, and a few people left before the concert ended; and
  - (b) the venue had 360 seats. Throughout the concert, the size of the audience was around 80 people (see Photograph 6).

#### Photograph 6

##### Audience of the concert at 2:40 p.m.



3. Arts Group B subsequently reported an audience of 250 people to the LCSD.

#### *Audit comments*

4. Arts Group B might have overstated the number of participants in the concert.

*Source: Audit site visit on 26 June 2016 and LCSD records*

3.7 Audit considers that where people keep “joining” and “leaving” an activity, there could be different definitions of the number of participants in the activity. Upon enquiry, the LCSD informed Audit in September 2016 that:

- (a) the LCSD had in place general principles for counting the number of participants for free admission events. As participants might join and leave at different times throughout the activities, instead of taking the “head count” of participants at a single time, the number of audience observed at regular intervals, the volume of crowd flow and audience movement would be taken into account in estimating attendance figures; and
- (b) the locations and times of the events would also be considered in verifying the reasonableness of the estimation by the arts groups. The LCSD’s subject officers would attend the activities on a regular basis and arrange surprise checks to monitor the activities and counter check the attendance.

However, Audit noted that the Audience Building Office had not issued guidelines in this regard. The Office also had not reviewed the head count methodology adopted by arts groups. In Audit’s view, such guidelines and their consistent application to all relevant activities help ensure the proper counting of the number of participants in such activities.

***Need to explore assigning more LCSD venues  
for community scheme activities***

3.8 Target participants of community schemes are the general public. Around March each year, the Audience Building Office publicised activities of the community schemes to be held in the next 12 months (Note 7). Audit reviewed the promotion brochure published in 2016, and noted that such key information as dates and venues of activities had not been included. The brochure provided a description of the activities and stated the months in which the activities were to be held.

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**Note 7:** *Activities publicised were those held under the Community Cultural Ambassador Scheme, which accounted for the vast majority (e.g. 99% for 2015-16) of participants in community scheme activities.*

3.9 Upon enquiry, the LCSD informed Audit in May 2016 that many arts groups responsible for the relevant activities had not yet secured the venues when the brochure was published. Exact dates for the activities were therefore also unknown. People interested in the activities would need to check up on any updated information near the event dates (e.g. on websites of the LCSD or arts groups, or referring to leaflets on the events which would be available at LCSD performing arts venues and public libraries).

3.10 Audit noted that it was not the LCSD's practice to offer its venues for conducting activities of the community schemes. According to the LCSD, such activities were outreach in nature and were designed to make performing arts more accessible and exposed to the community. Arts groups were encouraged to conduct activities in the community at non-LCSD venues. Of the 563 community scheme activities conducted in 2015-16, only 39% (222 activities) were conducted at LCSD venues. However, this audit revealed that some LCSD venues had been under-utilised, such as music centres of the Music Office (see paras. 4.39 and 4.40) and minor facilities of performing arts venues (see paras. 5.11 to 5.13). The LCSD should explore assigning more LCSD venues for community scheme activities.

### ***Many districts not served by a community scheme***

3.11 The Community Oral History Theatre Project is a community scheme launched since October 2009. Under the Project, an arts group was commissioned to organise theatre workshops for the elderly in selected districts. The elderly then acted out their experiences on stage. Audiences were people in the community. Table 5 shows the districts which the Project had served.

**Table 5**

**Districts served by the Community Oral History Theatre Project  
(October 2009 to July 2016)**

<b>District</b>	<b>Period</b>	<b>No. of months</b>
Sham Shui Po	October 2009 to January 2011	16
Sham Shui Po (Note)	September 2011 to May 2012	9
Kwun Tong	October 2011 to April 2013	19
Kwun Tong (Note)	July 2013 to January 2014	7
Tai O	March 2013 to November 2014	21
Eastern District	July 2014 to January 2016	19

*Source:* LCSD records

*Note:* The Project was extended to serve another round in Sham Shui Po and Kwun Tong.

*Remarks:* The Project commenced implementation in Sha Tin in October 2015.

3.12 According to the Audience Building Office's evaluation, the Community Oral History Theatre Project was well-received by people in the community. As at July 2016, with some seven years (82 months) having elapsed since its first launch, the Project had served four districts and was being implemented in another district (see Table 5). Drawing on past experience, the LCSD needs to review whether the Project should be rolled out to other districts and the timing (e.g. rolling out to other districts more expeditiously to enhance participation).

## **Audit recommendations**

3.13 **Audit has recommended that the Director of Leisure and Cultural Services should:**

- (a) **provide arts groups clear guidelines on counting the number of participants in audience building activities under community schemes, and ensure compliance with the guidelines;**

## **Audience building activities of the Audience Building Office**

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- (b) **conduct a review of the counting of the number of participants in other audience building activities organised by the LCSD, and take measures as appropriate to ensure the accurate counting of the number of participants;**
- (c) **explore ways to help arts groups in securing venues for audience building activities under community schemes, including assigning more LCSD venues for their use; and**
- (d) **review whether the Community Oral History Theatre Project should be rolled out to other districts more expeditiously.**

## **Response from the Government**

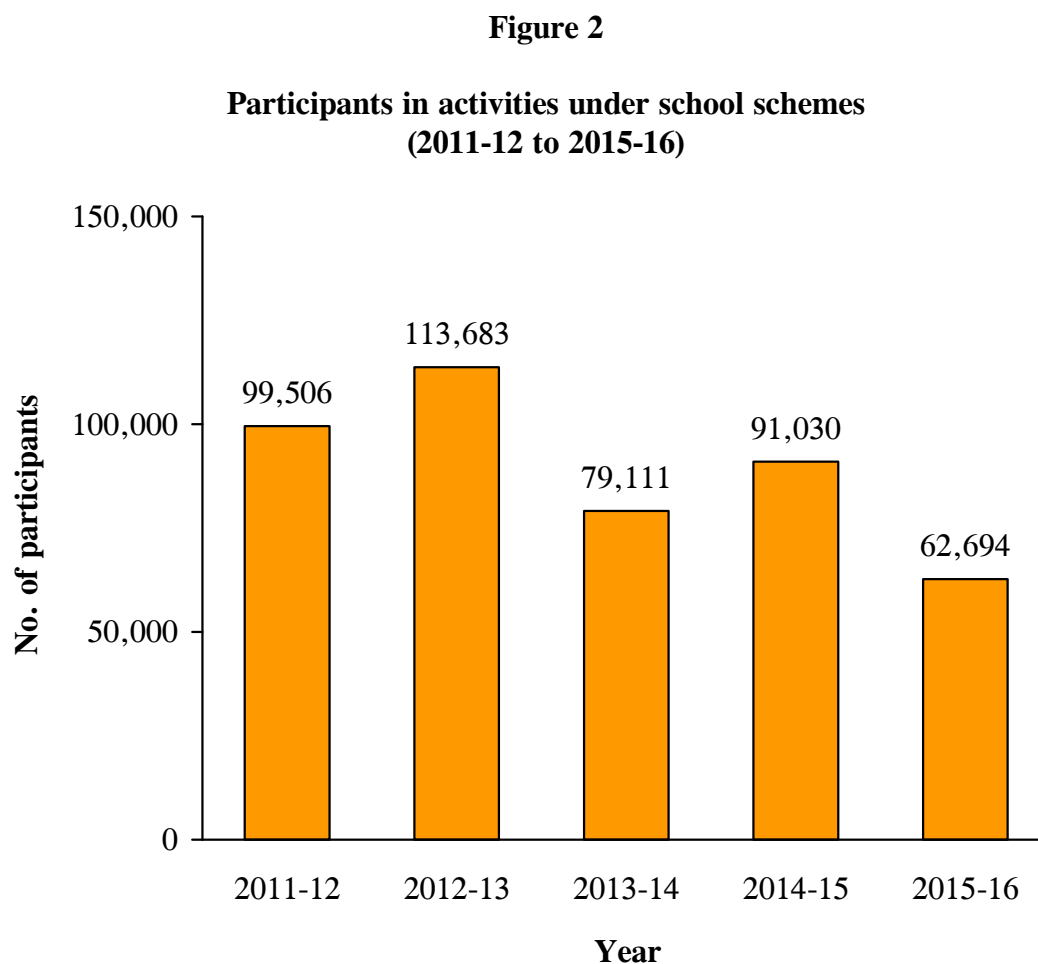
3.14 The Director of Leisure and Cultural Services accepts the audit recommendations. She has said that:

- (a) the LCSD will review and lay down clear guidelines for counting of attendance at audience building activities under the community schemes to enhance accuracy and consistency. Clear guidelines will also be provided to arts groups under the community schemes for compliance;
- (b) the LCSD will review the existing methodology for counting the number of participants in other LCSD audience building activities. Clear guidelines will be provided to all relevant subject officers for compliance;
- (c) the LCSD will continue to assist arts groups to identify suitable venues for staging audience building activities at LCSD and non-LCSD venues, so as to increase their exposure to different sectors of the community; and
- (d) the rolling out of the Community Oral History Theatre Project to other districts has in fact been speeded up since 2014 with a new round of the Project being launched in another district while the current one was still in progress. The LCSD will continue to review the rollout time of the Project having regard to the availability of funding, relevant manpower resources and the readiness of different districts and the respective

partnering organisations. Apart from direct engagement, the LCSD will also consider providing free use of venues for community touring/finale performances or making recommendations and providing references to arts groups in seeking financial support from other funding bodies for the implementation of new or enhanced oral history projects when opportunities arise.

### School schemes

3.15 Figure 2 shows the number of participants in audience building activities organised by the Audience Building Office under its school schemes (see Table 4 in para. 3.4 for the list of schemes) between 2011-12 and 2015-16.



*Source: LCSD records*

***Decrease in the number of schools participating in school schemes***

3.16 Figure 2 shows that in 2015-16 there were 62,694 participants in activities under school schemes, down 37% from 99,506 in 2011-12. Audit noted that five of the school schemes were intended for students of primary, secondary and special schools. The schools needed to join these schemes before their students could participate in the activities of the schemes. However, the number of schools participating in the schemes decreased significantly over the past five school years (see Table 6). This could be a contributory factor in the decreasing number of participants in activities under school schemes.

**Table 6**

**Schools participating in five school schemes  
(2011/12 to 2015/16 school year)**

School scheme	No. of participating schools					Decrease (2015/16 vs 2011/12)
	2011/12	2012/13	2013/14	2014/15	2015/16	
Performing Arts Appreciation Project for Senior Secondary Students	7	6	6	6	3	-57%
Let's Enjoy Cantonese Opera in Bamboo Theatre	72	78	74	84	42	-42%
School Culture Day Scheme	534	530	494	436	430	-19%
School Performing Arts in Practice Scheme	89	80	77	78	73	-18%
Arts Experience Scheme for Senior Secondary Students	99	116	108	101	86	-13%
Overall	801	810	759	705	634	-21%

Source: LCSD records

Remarks: 1. A school year covers the period 1 September to 31 July.

2. Some schools participated in more than one scheme.



3.17 According to the 2012 report of a consultancy study commissioned by the LCSD, reasons for schools not participating in school schemes included inconvenient event times and the schools' own administrative difficulties. The study recommended that the Audience Building Office should open up more activity time slots for teachers to select. Upon enquiry, the LCSD informed Audit in September 2016 that in response to the findings of the 2012 consultancy report, it had taken into account those feedbacks and comments from schools and audience to put forward new initiatives for the enhancement of school schemes. Since 2013, new efforts to cater for the needs of schools and students had included offering more flexible time slots and locations for activities of the School Culture Day Scheme, setting up Facebook account for sharing of enjoyment experiences, providing more programme information to students and aligning arts education programmes with teaching requirements and curriculum.

3.18 Audit noted that, as at July 2016, of the 1,139 primary, secondary and special schools in Hong Kong, 93 (8%) schools had never participated in school schemes (Note 8). This, together with the significant decrease in the number of schools participating in the schemes between 2011/12 and 2015/16 school years, suggested that further actions would be required to better cater for the needs of teachers and schools. Audit noted that the LCSD had not conducted further studies to follow up the significant decrease in the number of participating schools.

3.19 Upon enquiry, the LCSD informed Audit in August and September 2016 that:

- (a) it had ascertained the major reasons for the decreasing number of schools and students participating in school schemes. The reasons included:
  - (i) a 1.2% decrease in the number of schools in Hong Kong, and a 12.5% decrease in the number of school students over the past five school years (Note 9); and

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**Note 8:** *The 93 schools included 67 international schools or private schools.*

**Note 9:** *During 2011/12 to 2015/16 school years, the number of schools in Hong Kong decreased from 1,153 to 1,139, and the number of primary and secondary school students in day schools decreased from 798,018 to 698,055.*

## **Audience building activities of the Audience Building Office**

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- (ii) secondary school education had been re-structured from 7-year to 6-year structure. There might be less time for participation in performing arts activities within school hours;
- (b) tens of new schools joined the various school schemes every year. This was a result of conscious measures taken to encourage the participation of new schools, such as direct invitation of new schools for applications and priority given to newly joined schools in the selection criteria. However, schools that had joined might not enrol repeatedly year after year and lower priority was accorded to these schools; and
- (c) as regards the 93 schools that had never participated in school schemes (see para. 3.18), many had a curriculum different from mainstream schools and could have more resources in organising their own arts programmes.

## **Audit recommendations**

**3.20     Audit has *recommended* that the Director of Leisure and Cultural Services should:**

- (a) **review the adequacy of the school schemes in catering for the needs of schools and students; and**
- (b) **take measures to improve the participation of schools and students in school schemes.**

## **Response from the Government**

**3.21     The Director of Leisure and Cultural Services accepts the audit recommendations. She has said that the LCSD will:**

- (a) continue to review the adequacy of the school schemes in catering for the needs of schools and students; and
- (b) review the school schemes from time to time to improve the programme mix so as to broaden the participation of schools.

## **PART 4: AUDIENCE BUILDING ACTIVITIES OF THE MUSIC OFFICE**

4.1 This PART examines the audience building activities of the Music Office of the LCSD, focusing on:

- (a) cost-effectiveness of audience building activities of the Music Office (paras. 4.14 to 4.29);
- (b) subsidisation of fees for programmes of the performing arts (paras. 4.30 to 4.37);
- (c) utilisation of music centres (paras. 4.38 to 4.43); and
- (d) way forward for the Music Office (paras. 4.44 to 4.51).

### ***History of the Music Office***

4.2 The Music Office was established some 40 years ago in 1977 under the then Recreation and Culture Branch of the Government Secretariat, with the objective to promote knowledge and appreciation of music in the community.

4.3 In 1993, after completing a review of the arts policy and consulting the public, the Government considered that transferring the Music Office to a non-governmental organisation would enable its functions to be conducted more effectively, efficiently and creatively. In 1994, the Hong Kong Academy for Performing Arts, the Tung Wah Group of Hospitals and the former Municipal Councils submitted proposals for taking over the Music Office. The Government considered that the Municipal Councils were the most suitable organisations to take over the Music Office and transferred the Office to the Councils in 1995. The Music Officer grade staff were retired on abolition-of-office terms, and their posts were replaced by contract positions.

## **Audience building activities of the Music Office**

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4.4 In 1999, the Government published a consultancy study report on “Culture, the Arts, Recreation and Sports Services”. One of the recommendations in the report was to transfer the Music Office to the Hong Kong Academy for Performing Arts. The recommendation was based on management and educational considerations, and was accepted by the Government.

4.5 In 2000, upon the dissolution of the Municipal Councils, the LCSD was established to take up duties in respect of the arts and culture, sports and recreation. The Music Office came under the management of the LCSD’s Libraries and Development Division, pending the transfer of the Office to the Hong Kong Academy for Performing Arts.

4.6 In 2001, in the reply to a question raised by a Legislative Council Member, the LCSD stated that the Hong Kong Academy for Performing Arts had indicated interest in taking over the Music Office. While no time frame was set for the transfer, it remained the LCSD’s intention to achieve the transfer as soon as practicable.

4.7 Since 2006, the LCSD had conducted rounds of consultation with the staff and stakeholders on the transfer of the Music Office out of the LCSD, which was met with objection. In late November 2013, after reviewing the alternative modes of operation of the Office, the LCSD came up with a staffing proposal for the longer term development of the Office.

4.8 In 2014, Audit completed a review of the staff recruitment work of, among other bureaux/departments, the LCSD (Chapter 8 “Recruitment of staff” of the Director of Audit’s Report No. 62 of April 2014). Audit reported that, due to high staff turnover, the LCSD had conducted frequent exercises for recruiting Music Officer grade staff on non-civil service contract staff terms. Audit recommended that the LCSD should finalise the way forward for the contract positions in the Office at an early date.

4.9 In August 2015, the Government decided that the Music Office should continue to be managed under the LCSD as a long-term arrangement and the former civil service Music Officer grade posts should be reinstated and other non-civil service contract positions in the Office should be replaced with civil service posts in phases.

4.10 As at June 2016, the Music Office had a strength of 97 staff, comprising 55 Music Officer grade staff (contract staff) and 42 general grade staff (14 civil service staff and 28 contract staff).

### ***Audience building activities of the Music Office***

4.11 Since its establishment in 1977, the objective of the Music Office has been to promote knowledge and appreciation of music in the community, especially among young people, through the provision of instrumental and ensemble training and the organisation of various music activities, with a view to building a new generation of concert audiences. The LCSD has stated this objective in its website. In its Controlling Officer's Report, the LCSD included the Music Office's "Other music activities" (see para. 4.13(c)) in the total number and attendance of audience building activities for performing arts, and reported separately the total number of music training courses and trainees under the Music Office's "Music training schemes" and "Outreach music interest courses" (see para. 4.13(a) and (b)). Upon enquiry, the LCSD informed Audit in August 2016 that:

- (a) music training courses were audience building activities as well as music education programmes offered to the public; and
- (b) the main purpose of "Music training schemes" was to promote the knowledge and appreciation of music among young people for nurturing young music players.

4.12 The HAB has also stated the audience building objective of the Music Office in various papers submitted to the Legislative Council. For example, in March 2016, in replying to a question raised by a Legislative Council Member in the examination of the Government's Estimates for 2016-17, the HAB stated that:

## Audience building activities of the Music Office

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- (a) concerning audience building in the community, the LCSD's Audience Building Office (see PART 3), Art Promotion Office (Note 10) and Music Office provided dedicated programmes to promote knowledge and appreciation of various art forms and organised various audience building schemes and visual arts activities for the public; and
- (b) for example, the Music Office provided instrumental music and ensemble music training for the youth at affordable fees. It also offered orchestral training, touring exchange, music appreciation programmes, music interflows, music camps, music workshops and outreach programmes to promote an interest in music among the public.

4.13 The Music Office organises three types of activities, as follows:

- (a) ***Music training schemes.*** The Music Office runs two types of music training schemes for young people aged 6 to 23:
  - (i) ***Instrumental music training scheme.*** The scheme provides young people with training in more than 30 Western and Chinese musical instruments, inclusive of musicianship and music theory (see Photograph 7). For each instrument, courses are provided at three skill levels:
    - ***Elementary level.*** A two-year elementary course for young people aged 6 to 14 with no instrumental experience;
    - ***Intermediate level.*** A three-year intermediate course for young people who have attained the specified performance standards; and
    - ***Advanced level.*** A three-year advanced course for young people who have attained the specified performance standards.

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**Note 10:** *The Art Promotion Office is involved in audience building for visual arts, which are not within the scope of this audit.*

Annually, the Music Office recruits trainees to the first year of different courses. Applicants for elementary courses are required to attend an admission test which comprises a music aptitude test and an interview. Qualified applicants for intermediate and advanced courses are required to attend an audition. Admitted trainees attend a one-hour group lesson every week. Depending on their progress, trainees will advance to the second/third year of the course over time. For 2015-16 (Note 11), there were 4,808 trainees in 884 classes, and the annual tuition fees were \$1,530 to \$1,870 for elementary courses, \$2,970 for intermediate courses and \$3,850 for advanced courses; and

- (ii) ***Ensemble training scheme.*** The Music Office runs 19 youth orchestras/bands/choirs (Note 12). Trainees are recruited through open auditions every year. The auditions include the playing of scales and sight-reading/sight-singing, as well as the performance of an own-choice work at the stipulated level. Regular rehearsals are held once a week and intensive training may be held during holidays when required. The orchestras/bands/choirs will also have opportunities to perform and/or participate in cultural exchange activities with visiting young musicians from the Mainland and overseas. The training is free of charge. For 2015-16 (Note 13), there were 1,462 trainees in the 19 youth orchestras/bands/choirs;

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**Note 11:** *Courses commence in September or November, and end in July of the following year.*

**Note 12:** *They comprise 1 youth symphony orchestra, 4 youth string orchestras, 1 junior chamber ensemble, 4 youth Chinese orchestras, 1 junior Chinese orchestra, 1 children's Chinese orchestra, 4 youth bands, 1 children's band, 1 youth choir and 1 children's choir.*

**Note 13:** *The annual training cycle commences in September and ends in May of the following year.*

## **Audience building activities of the Music Office**

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- (b) ***Outreach music interest courses.*** These are short-term fundamental music training courses provided to people of all ages. They include foundation classes in Western and Chinese musical instruments, ensemble training and various music workshops including those on music theory (see Photograph 8). A course generally lasts for several months. Recruitment of trainees is held twice a year. Admitted trainees attend a group lesson/workshop session every week. For 2015-16, there were 2,698 trainees in 261 classes, and the course fees ranged from \$270 to \$900; and
  
- (c) ***Other music activities.*** Activities such as exhibitions and concerts are organised for the public (see Photographs 9 and 10). Trainees of training programmes (see (a) and (b) above) are given the opportunity to perform the concerts. Other occasional activities, such as music workshops, are also organised for trainees of training programmes at a fee. In 2015-16, 402 music activities (e.g. concerts, music workshops and exhibitions) were organised with 167,577 participants (including trainees).

In this Audit Report, since the music training courses (see (a) and (b) above) and other music activities (see (c) above) of the Music Office both serve its objective of promoting knowledge and appreciation of music in the community with a view to building a new generation of concert audiences (see para. 4.11), they are both included as audience building activities.



## Audience building activities of the Music Office

### Photographs 7 to 10

#### Examples of activities of the Music Office

**Photograph 7**

**Training in liuqin under the  
instrumental music training scheme**



**Photograph 8**

**Training in saxophone under the  
outreach music interest courses**



**Photograph 9**

**Music activity:  
Orchestral performance**



**Photograph 10**

**Music activity:  
Choir performance**



*Source: LCSD records*

## Cost-effectiveness of audience building activities of the Music Office

4.14 The Music Office takes a three-pronged approach to audience building. The music training schemes and the outreach music interest courses actively train people to play and understand music while the other music activities such as

## Audience building activities of the Music Office

exhibitions and concerts, similar to those organised by the Audience Building Office, attract and provide opportunities for people to appreciate music. Audit's analysis of the audience building activities of the Music Office for 2015-16 revealed that its music training schemes incurred the highest cost of \$37.5 million (representing 62% of the Office's total cost of \$60.5 million) as well as the highest cost of \$5,981 per person reached (see Table 7).

**Table 7**  
**Costs of audience building activities of the Music Office**  
**(2015-16)**

Type of activities	Cost (a) (\$ million)	No. of participants (b)	Cost per person reached (c) = (a)/(b) (\$)
Music training schemes	37.5 (62%)	6,270	5,981
Outreach music interest courses	3.6 (6%)	2,698	1,334
Other music activities	19.4 (32%)	167,577	116
Overall	60.5 (100%)	176,545	343

*Source: Audit analysis of LCSD records*

*Remarks: Costs in the table were direct costs (including staff costs and direct expenditures). Other overheads (e.g. administrative overheads and accommodation costs) were not included.*

4.15 For the music training schemes, the cost per person reached represented the annual cost of services provided for training one trainee, which involved the provision of many training sessions (e.g. around 39 one-hour sessions for a trainee who received instrumental training). As such, the music training schemes had the highest cost of \$5,981 per person reached in 2015-16. Audit's further analysis of the audience building activities of the Music Office between 2011-12 and 2014-15 revealed similar situation. In summary, the music training schemes had the highest cost per person reached, increasing from \$5,150 in 2011-12 to \$5,981 in 2015-16. Details are at Appendix D.

4.16 Audit examination revealed that the cost-effectiveness of the audience building activities of the Music Office could be improved in the following aspects:

- (a) allocation of resources (see paras. 4.17 to 4.19);
- (b) utilisation of staff resources (see paras. 4.20 to 4.24); and
- (c) rationalisation of training classes (see paras. 4.25 to 4.27).

### *Allocation of resources*

4.17 The Music Office compiles an annual programme plan to determine the activities to be organised. As shown in Appendix D, during 2011-12 to 2015-16, each year about 62% of its resources were spent on music training schemes, 6% on outreach music interest courses and 32% on other music activities.

4.18 Upon enquiry, the LCSD informed Audit in September 2016 that in parallel with audience building, the Music Office also had the role of and long-term commitment to nurturing local young music talents (see para. 4.11). A trainee who received music training was more than just an audience in a concert, and required more resources for development. The cost per person for music training should be viewed from both audience building and nurturing local young music talents perspectives.

4.19 Following the integration of the Music Office into the LCSD and the Civil Service and with a more stable workforce (see para. 4.9), the Music Office would be in a better position to formulate long-term strategies and plans. Audit considers that, in formulating long-term strategies and plans for the Music Office, the LCSD should review the allocation of resources to different types of activities in order that the Music Office's prime objective of promoting knowledge and appreciation of music in the community could be achieved in a more cost-effective manner.

### *Utilisation of staff resources*

4.20 Staff cost is the main component of the costs of the Music Office. The staff of the Music Office comprise Music Officer grade staff and general grade staff. The Music Office's training and music activities are delivered by the Music Officer grade staff. Optimal utilisation of staff resources would enhance cost-effectiveness.

4.21 Music Officer grade staff are required to seek approval from their supervisors of the duties that they will perform on a regular basis. Figures 3 to 5 and Table 8 show Audit's analysis of the relevant reports submitted by Music Officer grade staff during 2015/16 school year. The analysis covered the 43 Assistant Music Officers and the 10 Music Officers of the Music Office (Note 14). It can be seen from Figure 3 that, overall, the Assistant Music Officers and Music Officers had used only 36% of their work hours for delivering music training courses and other music activities. Table 8 shows that, for 6 Assistant Music Officers and 3 Music Officers, none of their work hours was used for delivering music training courses and other music activities.

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**Note 14:** *In the Music Officer grade, Assistant Music Officer and Music Officer are the entry rank and the first promotional rank respectively. The Assistant Music Officers and Music Officers are overseen by 5 Senior Music Officers and 1 Chief Music Officer who mainly play a supervisory role.*

## Audience building activities of the Music Office

### Figures 3 to 5

#### Duties performed by Assistant Music Officers and Music Officers (2015/16 school year)

Figure 3 — Overall

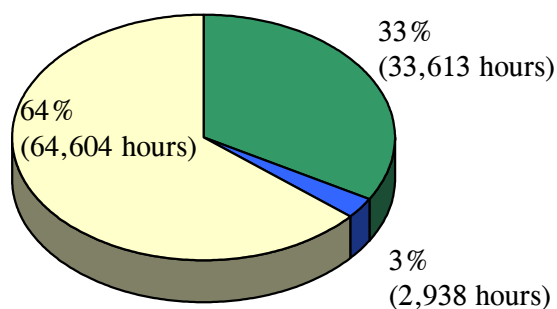


Figure 4 — Assistant Music Officers

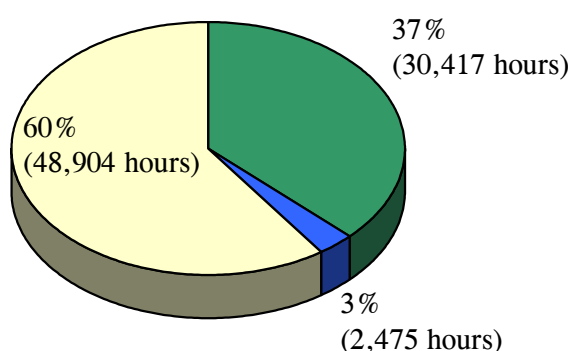
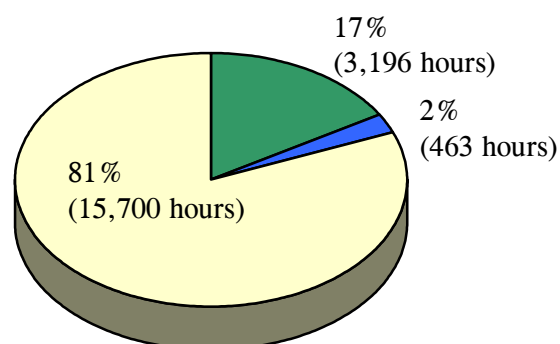


Figure 5 — Music Officers



- Legend:
- Delivering music training courses (including music training schemes and outreach music interest courses)
  - Delivering other music activities (e.g. school programme performances and music accompaniments)
  - Other duties (Note)

Source: *Audit analysis of the LCSD's approved staff duty rosters*

Note: *According to the items listed in the approved staff duty rosters, "other duties" comprised "administrative and clerical work", "ensemble administrative work", "handling ensemble matters", "handling ensemble matters/preparing for classes/practicing", "meetings held at headquarters", "small group meetings", "teaching staff meetings", "small group practicing", "preparing for classes", and "travelling to the music centre". Upon enquiry, the LCSD informed Audit in September 2016 that "other duties" also included the supervision of full-time staff and part-time instructors (applicable for the staff at Music Officer rank).*

**Table 8**

**Proportion of work hours used by Assistant Music Officers  
and Music Officers for delivering music training courses  
and other music activities  
(2015/16 school year)**

Proportion of work hours used for delivering music training courses and other music activities	No. of staff involved	
	Assistant Music Officer	Music Officer
0 %	6	3
> 0 % to 5 %	3	—
> 5 % to 20 %	—	1
> 20 % to 40 %	5	6
> 40 % to 50 %	3	—
> 50 % to 60 %	24	—
> 60 %	2	—
Total	43	10

} Note

*Source: Audit analysis of the LCSD's approved staff duty rosters*

*Note: These 9 Assistant Music Officers and 3 Music Officers worked under the Activities and Promotion Unit, which was one of the six units of the Music Office (the other units were Administration Unit, Chinese Unit, Musicianship/Training Support Unit, String Unit and Wind Unit). Upon enquiry, the LCSD informed Audit in September 2016 that their work duties pertained to the organisation of the outreach music interest courses and other music activities of the Music Office.*

4.22 On the other hand, the Music Office hired the service of part-time instructors to help deliver training under the music training schemes and outreach music interest courses. Some part-time instructors, especially for the outreach music interest courses, possessed music skills (e.g. ukulele and ocarina) not currently available in the Music Office. Upon enquiry, the LCSD informed Audit in September 2016 that:

## Audience building activities of the Music Office

- (a) there were many musical instruments in the orchestras/bands covered in the instrumental music training scheme and ensemble training scheme. It was not feasible for a full-time staff to acquire several professional qualifications for different musical instruments especially for Chinese and Wind streams to provide quality training to trainees; and
- (b) for effective delivery of quality training services, part-time staff with expertise in individual musical instruments was therefore genuinely required to complement full-time staff.

4.23 Audit noted that the hiring of service of part-time instructors increased from 16,062 hours in 2013-14 to 16,879 hours in 2015-16 (see Table 9).

**Table 9**  
**Hiring part-time instructors to deliver training**  
**(2013-14 to 2015-16)**

Year	Service hired (Hours)	Total cost of service (\$ million)
2013-14	16,062	7.7
2014-15	16,521	8.0
2015-16	16,879	8.3

*Source: Audit analysis of LCSD records*

4.24 The integration of the Music Office into the LCSD and the Civil Service (see para. 4.9) would enable the Office to attract and retain quality music professionals and take active steps in capacity building and staff development. In Audit's view, in this regard the LCSD needs to review the skill mix and the actual duties performed by the Music Officer grade staff to identify areas for improvement and ensure optimal utilisation of the staff resources of the Music Office in delivering training and music activities.

***Rationalisation of training classes***

4.25 For many of its courses under the instrumental music training scheme and outreach music interest courses, the Music Office offers more than one class. It generally will specify the standard size of each class (mostly ranging from 5 to 10 trainees). In 2015-16, a total of 8,968 trainees were enrolled into 1,164 music training classes, including those under the ensemble training scheme (see Table 10).

**Table 10**  
**Average size of training classes**  
**(2015-16)**

<b>Type of training courses</b>	<b>No. of trainees</b>	<b>No. of classes</b>	<b>Average class size (No. of trainees)</b>
Instrumental music training scheme	4,808	884	5
Ensemble training scheme	1,462	19	77
Outreach music interest courses	2,698	261	10
Overall	8,968	1,164	8

*Source: Audit analysis of LCSD records*

4.26 Table 11 shows Audit's further analysis of the sizes of 609 of the 1,164 training classes in 2015-16 (see Note 2 to the Table). It can be seen that many training classes had a very small class size, including five training classes each having only one trainee. This reduced the cost-effectiveness of the training, increasing the cost per person reached of the audience building activities of the Music Office. The LCSD needs to take improvement measures in organising training classes in future. For example, Case 4 shows that the eight training classes in the Chinese musical instrument sheng conducted in 2015-16 could have been consolidated into five classes.



**Table 11**

**Analysis of sizes of training classes  
(2015-16)**

<b>Class size (Note 1) (No. of trainees)</b>	<b>No. of classes</b>			
	<b>Instrumental music training scheme</b>	<b>Ensemble training scheme</b>	<b>Outreach music interest courses</b>	<b>Total</b>
1	5	0	0	5
2	10	0	0	10
3	20	0	0	20
4	26	0	6	32
5	65	0	14	79
6 or 7	121	0	53	174
8 to 10	82	0	148	230
Over 10	0	19	40	59
Sub-total	329	19	261	609
Not analysed	555 (Note 2)	0	0	555
Total	884	19	261	1,164

*Source: Audit analysis of LCSD records*

*Note 1: "Class size" refers to the number of trainees recruited to the class at the time of its commencement in 2015-16. The LCSD computer system did not keep track of subsequent changes in the number of trainees for each class.*

*Note 2: Under the instrumental music training scheme, the Music Office provided training courses at three skill levels, namely, two-year elementary courses, three-year intermediate courses and three-year advanced courses (see para. 4.13(a)(i)). In 2015-16, 329 classes were organised for the first year of these courses and 555 classes for the second/third year. Due to computer system limitation, the LCSD could not provide Audit with detailed class size information about the 555 classes for the second/third year for analysis.*

**Case 4**

**Room for consolidating training classes**

1. In 2015-16, three courses at different skill levels were organised for the Chinese musical instrument sheng. Despite the low enrolment, 8 classes were conducted for the first year of the courses (see para. 4.13(a)(i)). The 8 classes had an average class size of 4 trainees, as follows:

Course	Class commencement date in 2015	No. of classes (a)	No. of trainees (b)	Average class size (No. of trainees) (c) = (b)/(a)
1. Advanced	9 and 12 September	2	4	2.0
2. Intermediate	12 and 13 September	3	13	4.3
3. Elementary	1, 2 and 7 November	3	15	5.0
Overall		8	32	4.0

***Audit comments***

2. Based on the standard class sizes specified by the Music Office for the courses, the 8 classes could theoretically be consolidated into 5 classes (see table below). Thus, there is room for consolidation and reducing the number of classes held.

Course	Standard no. of trainees per class (a)	No. of trainees (see para. 1 above) (b)	No. of classes needed (rounded to whole number) (c) = (b)/(a)
1. Advanced	5	4	1
2. Intermediate	7	13	2
3. Elementary	10	15	2
Total			5

*Source: Audit analysis of LCSD records*

4.27 Upon enquiry, the LCSD informed Audit in August and September 2016 that, for classes with one trainee, the Music Office had been asked to consolidate some classes within one month. However, the LCSD could not provide relevant records for audit review. The LCSD computer system had not kept track of changes, if any, in the number of trainees after the commencement of a class (see also Note 1 to Table 11 in para. 4.26).

### Audit recommendations

4.28 Audit has *recommended* that the Director of Leisure and Cultural Services should:

- (a) in formulating long-term strategies and plans for the Music Office, review the allocation of resources to different types of activities to ensure that the objective of the Music Office is achieved cost-effectively;
- (b) for capacity building and staff development in the Music Office, review the skill mix and the actual duties performed by the Music Officer grade staff to identify areas for improvement in the utilisation of staff resources;
- (c) based on the review results in (b) above and other relevant factors (e.g. skill sets of part-time instructors employed to help out the Music Office), consider rationalising/enhancing the Music Office workforce as appropriate; and
- (d) consider setting minimum class sizes for the Music Office's training courses, and establishing a mechanism for consolidating/cancelling classes falling short of minimum sizes.

### Response from the Government

4.29 The Director of Leisure and Cultural Services accepts the audit recommendations. She has said that the Music Office will:

## Audience building activities of the Music Office

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- (a) review the allocation of resources to different types of activities to meet the prime objective of promoting knowledge and appreciation of music in the community, especially among young people; and
- (b) enhance the mechanism for setting minimum class sizes. At the same time, the Music Office will step up the promotion of classes of less popular instruments to recruit trainees to sustain the development of local youth orchestras/bands.

## Subsidisation of fees for programmes of the performing arts

4.30 It is the Government's policy that fees charged by the Government should in general be set at levels adequate to recover the full cost of providing the goods or services. A subsidised fee may be charged provided that there is a clear policy backing for the exception to the full-cost recovery principle. Directors of Bureaux and Controlling Officers should aim at achieving full-cost recovery (or other targets that have been agreed) as early as practicable. For the LCSD's programmes of the performing arts (including audience building activities) and film arts, the then Finance Bureau (now the Financial Services and the Treasury Bureau) has delegated authority to the LCSD since 1 January 2000 to set subsidised fees (ticket and course fees). The delegated authority is subject to the requirement that the LCSD should aim at achieving an overall recovery rate of 13% of the full cost of such programmes.

4.31 The LCSD's programmes of the performing arts and film arts comprise activities organised by the Performing Arts Division (Note 15), the Music Office and the Film Programmes Office (Note 16). Table 12 shows that Music Office activities accounted for a considerable proportion of the LCSD's programmes of the performing arts and film arts.

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**Note 15:** *Activities organised by the Performing Arts Division include the presentation of cultural and entertainment programmes (see para. 1.5(b)).*

**Note 16:** *The Film Programmes Office is established under the Heritage and Museums Division of the LCSD. The Office aims to promote the appreciation of film and media arts. Activities of the Film Programmes Office are not covered by this audit review.*

## Audience building activities of the Music Office

**Table 12**

### **Full cost of the LCSD's programmes of the performing arts and film arts (2011-12 to 2015-16)**

Activity	Full cost (\$ million)				
	2011-12	2012-13	2013-14	2014-15	2015-16
Music Office activities	83.4 (23.1%)	91.4 (23.6%)	100.1 (26.3%)	105.0 (26.2%)	109.6 (26.6%)
Performing Arts Division and Film Programmes Office activities (Note)	278.4 (76.9%)	296.1 (76.4%)	280.6 (73.7%)	296.1 (73.8%)	302.2 (73.4%)
Total	361.8 (100%)	387.5 (100%)	380.7 (100%)	401.1 (100%)	411.8 (100%)

*Source: LCSD records*

*Note: The Film Programmes Office accounted for about 4% to 5% of the annual full cost.*

*Remarks: It was the LCSD's practice to conduct a full costing exercise once every four years. The last exercise was conducted in 2012-13. For the years 2013-14 to 2015-16, the full costs shown in the Table were figures projected by the LCSD.*

### ***Music Office course fees substantially below market rates***

4.32 For Music Office courses, it has been the LCSD's practice to revise the course fees from time to time with reference to the Composite Consumer Price Index. Audit noted that:

## Audience building activities of the Music Office

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- (a) for many courses under the Music Office's instrumental music training scheme and outreach music interest courses, there were similar courses run by the private sector (Note 17); and
- (b) the fees charged by the Music Office were substantially less than those charged by the private sector. In March 2016, the Music Office conducted a survey of course fees. It was noted that, for example, the hourly rate of a Music Office course was \$49, which was 69% to 80% lower than the private market rates of \$160 to \$240 for similar courses.

### *Target cost recovery rate not attained on an overall basis*

4.33 Table 13 shows that, over the past five years, for both Music Office activities and Performing Arts Division/Film Programmes Office activities, there was a general decline in the percentage of costs recovered. Audit noted that, according to the LCSD's projection (see remarks to Table 13), the LCSD would fail to attain, on an overall basis, the target cost recovery rate of 13% in 2014-15 and 2015-16.

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**Note 17:** *Similar to their counterparts participating in privately-run courses, participants in Music Office courses could sit the relevant examinations of the Associated Board of the Royal Schools of Music, which are the most popular music examinations in Hong Kong.*

## Audience building activities of the Music Office

**Table 13**

**Recovery of costs for programmes of the performing arts  
and film arts  
(2011-12 to 2015-16)**

Year	Full cost (\$ million)	Cost recovered	
		(\$ million)	Percentage
<i>Music Office activities</i>			
2011-12	83.4	12.8	15.3 %
2012-13	91.4	12.9	14.1 %
2013-14	100.1	13.6	13.6 %
2014-15	105.0	14.7	14.0 %
2015-16	109.6	15.5	14.1 %
<i>Performing Arts Division/Film Programmes Office activities</i>			
2011-12	278.4	43.7	15.7 %
2012-13	296.1	42.2	14.3 %
2013-14	280.6	39.0	13.9 %
2014-15	296.1	35.7	12.1 %
2015-16	302.2	35.3	11.7 %
<i>Overall</i>			
2011-12	361.8	56.5	15.6 %
2012-13	387.5	55.1	14.2 %
2013-14	380.7	52.6	13.8 %
2014-15	401.1	50.4	12.6 %
2015-16	411.8	50.8	12.3 %

Falling short of the 13 % target cost recovery rate

*Source:* LCSD records

*Remarks:* It was the LCSD's practice to conduct a full costing exercise once every four years. The last exercise was conducted in 2012-13. For the years 2013-14 to 2015-16, the full costs and the costs recovered shown in the Table were figures projected by the LCSD.

## Audience building activities of the Music Office

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4.34 As can be seen from Table 13, the cost recovery rate for Performing Arts Division/Film Programmes Office activities had dropped noticeably from 15.7% to 11.7% in five years' time. Upon enquiry, the LCSD informed Audit in June 2016 of the following:

- (a) ***“Sponsored programmes” on the increase.*** The Performing Arts Division activities included many cultural and entertainment programmes. In arranging the programmes, the Performing Arts Division played the role of either a “presenter” or “sponsor”. As a presenter, proceeds of programmes (i.e. ticket fees) went to the LCSD. As a sponsor, proceeds went to artists/arts groups (Note 18). Since many established arts groups had proven production ability, there had been more programmes in which the Performing Arts Division acted as a “sponsor” instead of as a “presenter”. This had resulted in less revenue (i.e. proceeds of performances) for the LCSD and hence a lower cost recovery rate. The proportion of sponsored programmes might continue to increase in the future; and
- (b) ***Concessionary tickets on the increase.*** For cultural and entertainment programmes presented by the Performing Arts Division, concessionary tickets (i.e. tickets at discount prices) were available to senior citizens aged 60 or above. Owing to the ageing population, the proportion of tickets sold at concessionary prices had increased (Note 19). This had reduced the LCSD's revenue and hence lowered the cost recovery rate. It was expected that the proportion of concessionary tickets would continue to increase.

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**Note 18:** *As a presenter, the LCSD was responsible for the production of a performance programme and retained the programme proceeds. As a sponsor, the LCSD provided various support to a performance programme (including financial support in some cases), and artists/arts groups were responsible for the programme production and retained the programme proceeds.*

**Note 19:** *For example, for Chinese opera performances during 2012-13 to 2015-16, the proportion of concessionary tickets increased from 60% in 2012-13 to 67% in 2015-16.*



4.35 The LCSD needs to closely monitor the situation and take appropriate actions (e.g. fee revisions) to ensure that the 13% target cost recovery rate is achieved on an overall basis. In this regard, prompt implementation of measures to enhance the cost-effectiveness of the audience building activities of the Music Office (see paras. 4.14 to 4.27) will help improve cost recovery.

### **Audit recommendation**

4.36 **Audit has *recommended* that the Director of Leisure and Cultural Services should keep in view the cost recovery situation for the LCSD's programmes of the performing arts and film arts, and take appropriate actions to ensure that the target overall cost recovery rate of 13% is attained.**

### **Response from the Government**

4.37 The Director of Leisure and Cultural Services accepts the audit recommendation. She has said that, to ensure the attainment of the target overall cost recovery rate of 13%, the LCSD will continue to keep in view the cost recovery situation and explore every means as far as possible to improve the situation.

### **Utilisation of music centres**

4.38 As at June 2016, the Music Office had five music centres located at different districts, with sizes ranging from 643 to 1,916 square metres (m<sup>2</sup>). Key facilities of the music centres included a total of 40 training rooms and 5 rehearsal rooms, which provided venues for running training classes of the Music Office's music training schemes and outreach music interest courses. Table 14 shows the details of the five music centres.

**Table 14****Key facilities of the five music centres  
(June 2016)**

Location of music centre	Size of the music centre (m <sup>2</sup> )	Training room		Rehearsal room	
		No.	Area (m <sup>2</sup> )	No.	Area (m <sup>2</sup> )
Wanchai	705	9	244	1	176
Mongkok	681	9	182	1	148
Kwun Tong	1,916	7	210	1	310
Sha Tin	643	7	188	1	132
Tsuen Wan	760	8	225	1	136
Total	4,705	40	1,049	5	902

*Source: LCSD records*

*Remarks: Details of minor facilities and non-training facilities (e.g. reception areas, staff rooms, lavatories, store rooms and cable duct rooms) are not shown in the Table.*

***Under-utilisation of training facilities***

4.39 For training classes run under music training schemes and outreach music interest courses, training is mainly delivered in sessions of one hour each. Audit estimated that the training facilities (i.e. 40 training rooms and 5 rehearsal rooms) of the music centres had a total capacity of about 148,590 one-hour sessions a year (Note 20). This capacity exceeded the operation scale of the Music Office. Table 15 shows that, during the past three years, the number of training sessions delivered each year under music training schemes and outreach music interest courses was about 43,000 sessions. The number was equivalent to only 29% of the capacity of the music centres.

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**Note 20:** *The music centres opened 63.5 hours a week (i.e. from 9:30 a.m. to 8 p.m. on weekdays and from 9 a.m. to 6 p.m. during weekends, with a one-hour lunch break). For the 45 training facilities of the music centres (i.e. 40 training rooms and 5 rehearsal rooms), the total annual capacity was 148,590 sessions (i.e.  $63.5 \times 52 \times 45$ ).*

**Table 15**

**Capacity of the five music centres against delivery of training  
under music training schemes and outreach music interest courses  
(2013/14 to 2015/16 school year)**

<b>School year</b>	<b>Training delivered (a) (No. of sessions)</b>	<b>Capacity of music centres (b) (No. of sessions)</b>	<b>Percentage of capacity (c) = (a)/(b)</b>
2013/14	42,685	148,590	29%
2014/15	42,432	148,590	29%
2015/16	43,077	148,590	29%

*Source: Audit analysis of LCSD records*

*Remarks: "Other music activities" of the Music Office (see para. 4.13(c)) were generally not conducted at the music centres.*

4.40 Audit noted that it was not the practice of the Music Office to promote the use of training facilities for purposes other than delivering training classes under music training schemes and outreach music interest courses (e.g. for use by other LCSD units for audience building activities). Audit examination of the actual utilisation of training facilities for November 2015 indicated that the utilisation rate was generally low (see Table 16). The 45 training facilities were almost unused (utilisation rate of 3%) on weekdays before 4 p.m. Utilisation on weekdays after 4 p.m. and at weekends was only 70%. Photographs 11 and 12 show respectively a training room at the Mongkok Music Centre and the rehearsal room at the Kwun Tong Music Centre, both unused at the time of Audit visit.

**Table 16****Utilisation of 45 training facilities of music centres  
(November 2015)**

<b>Time</b>	<b>No. of sessions available (a)</b>	<b>No. of sessions used (b)</b>	<b>Utilisation (c) = (b)/(a)</b>
Weekdays: 9:30 a.m. to 4 p.m.	5,197.50	159.25	3%
Weekdays: after 4 p.m.	7,020.00	4,906.75	70%
Weekends			
Overall	12,217.50	5,066.00	41%

*Source: Audit analysis of LCSD records*

4.41 Upon enquiry, the LCSD informed Audit in September 2016 that the five music centres were designated for organising music training activities, especially for young people (mostly students) in the region. This had constrained the use of the facilities during school days and school hours.

**Photograph 11**

**A training room unused at the time of Audit visit  
(Mongkok Music Centre)**



*Source: Photograph taken by Audit on 21 June 2016  
(12:00 noon)*

**Photograph 12**

**A rehearsal room unused at the time of Audit visit  
(Kwun Tong Music Centre)**



*Source: Photograph taken by Audit on 21 June 2016  
(10:30 a.m.)*

### Audit recommendations

4.42 Audit has *recommended* that the Director of Leisure and Cultural Services should:

- (a) conduct a review of the utilisation of the five music centres of the Music Office to identify room for better using the centres; and
- (b) based on the review results in (a) above, take measures to improve the utilisation of the music centres (e.g. using the centres for audience building activities of other LCSD units).

### Response from the Government

4.43 The Director of Leisure and Cultural Services accepts the audit recommendations. She has said that the LCSD will identify ways to improve usage of the music centres during non-peak hours by reviewing the opening hours, and exploring collaboration with schools and arts groups in the use of the facilities of the music centres for music activities/rehearsals, etc.

### Way forward for the Music Office

4.44 The Music Office came under the management of the LCSD in 2000 (see para. 4.5). As at September 2016, the LCSD had managed the Music Office for 16 years.

4.45 Considerable resources have been deployed to the Music Office. In 2015-16, staff costs and other direct expenditures of the Music Office totalled \$60.5 million. Moreover, its five music centres have a total floor area of 4,705 m<sup>2</sup>. It is important that the considerable resources are used cost-effectively.

4.46 Audit examination revealed room for improvement in the cost-effectiveness of the audience building activities of the Music Office, subsidisation of fees for programmes of the performing arts and utilisation of music centres (see paras. 4.14 to 4.43). In particular, before and after coming under the LCSD's management, the Music Office had all along organised extensive music

training schemes (see para. 4.13(a)). While such training schemes could be complementary to the other audience building activities of the LCSD, they were unique within the LCSD. The LCSD did not organise similar training, in terms of breadth and depth, for other key art forms (e.g. dance and Chinese opera). As mentioned in paragraphs 2.6 and 2.7, the LCSD did not have an overarching annual programme plan for promoting appreciation of performing arts. The LCSD needs to review the role of the Music Office in relation to other performing arts activities of the LCSD, with a view to better aligning the work of the Music Office with that of the LCSD and attaining synergy in promoting appreciation of performing arts cost-effectively.

4.47 In 1995, when the former Municipal Councils took over the Music Office (see para. 4.3), all its Music Officer grade civil service posts were replaced by contract posts (Note 21). In 2000, in taking over the Office from the Councils, the LCSD offered contract positions to the Music Officer grade staff mainly on ex-council contract terms. Upon the departure of any such staff, the LCSD's practice had been to recruit non-civil service contract staff to meet the service needs. Currently, seven Music Officer grade staff in the Music Office are on ex-council contract terms. All other Music Officer grade staff are non-civil service contract staff.

4.48 In August 2015 when the Government decided that the Music Office should continue to be managed under the LCSD as a long-term arrangement, it was also decided that the former civil service Music Officer grade posts should be reinstated, and other non-civil service contract positions in the Music Office should be replaced with civil service posts in phases (see para. 4.9).

4.49 As mentioned in paragraphs 4.20 to 4.24, Audit examination revealed inadequacies in the deployment of Music Office staff and that the skill mix of these staff might not be entirely meeting the Music Office needs. In Audit's view, the LCSD needs to critically review the staffing requirements of the Music Office before replacing non-civil service contract positions with civil service posts.

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**Note 21:** *The 58 Music Officer grade staff at that time were required to retire on abolition-of-office terms. The Legislative Council approved the commuted pension gratuity. Ex-gratia payments of about \$50 million were paid to the staff.*

## **Audit recommendations**

**4.50      Audit has *recommended* that the Director of Leisure and Cultural Services should:**

- (a)      review the role of the Music Office in relation to other performing arts promotion activities of the LCSD, with a view to better aligning the work of the Music Office with that of the LCSD and attaining synergy in promoting appreciation of performing arts more cost-effectively; and**
- (b)      based on the review results in (a) above, implement necessary organisational and staffing changes to ensure the cost-effective operation of the Music Office.**

## **Response from the Government**

**4.51      The Director of Leisure and Cultural Services accepts the audit recommendations. She has said that frequent collaboration among the LCSD's programme offices is in place for creating synergy. The LCSD will strengthen the collaboration within the Cultural Services Branch with a view to attaining more synergy in promoting appreciation of performing arts.**



## **PART 5: AUDIENCE BUILDING ACTIVITIES OF URBAN AND NEW TERRITORIES VENUES SECTIONS**

5.1 This PART examines the audience building activities of the Urban Venues Section and the New Territories Venues Section. Audit found room for improvement in the following areas:

- (a) audience building activities of the two venues sections (paras. 5.2 to 5.10);
- (b) use of minor facilities at performing arts venues for audience building activities (paras. 5.11 to 5.15); and
- (c) building audience through the Venue Partnership Scheme (paras. 5.16 to 5.23).

### **Audience building activities of the two venues sections**

5.2 While the main responsibilities of the Urban Venues Section and the New Territories Venues Section are to each manage seven performing arts venues (see para. 5.11), they also organise free audience building activities or provide arts groups with free use of venues for organising such activities, as follows:

- (a) ***Foyer and piazza activities.*** Performances are organised by the two venues sections at foyers and piazzas (see Photograph 13);
- (b) ***Other venue activities.*** Activities of a smaller scale (in terms of numbers of participants and performers) are organised by the two venues sections. Such activities include guided tours of performing arts venues, and performances in the style of street performance (see Photograph 14); and

## Audience building activities of Urban and New Territories Venues Sections

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- (c) *Activities organised by arts groups.* The LCSD provides free use of performing arts venues to arts groups for organising audience building activities (Note 22). Audience building activities are also organised by arts groups which are partners under the Venue Partnership Scheme (see para. 5.16). The activities include workshops and performances.

As at June 2016, the two venues sections had a strength of 629 staff in total, comprising 550 civil service staff and 79 non-civil service contract staff.

### Photographs 13 and 14

#### Examples of audience building activities of the two venues sections

**Photograph 13**

**A piazza activity held at  
the Hong Kong Cultural Centre**



*Source: LCSD records*

**Photograph 14**

**A venue activity held at  
the Sha Tin Town Hall**



*Source: Photograph taken by Audit on  
13 August 2016*

5.3 Table 17 shows the audience building activities of the two venues sections during 2011-12 to 2015-16.

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**Note 22:** *To promote and encourage the arts at community level, arts groups organising cultural activities for the local community could apply for free use of performing arts venue facilities.*

**Audience building activities of  
Urban and New Territories Venues Sections**

**Table 17**

**Audience building activities of the two venues sections  
(2011-12 to 2015-16)**

Type of activities	2011-12	2012-13	2013-14	2014-15	2015-16
<b><i>No. of activities organised</i></b>					
Foyer and piazza activities	133 (17%)	138 (12%)	144 (13%)	139 (13%)	78 (6%)
Other venue activities	119 (16%)	169 (15%)	160 (14%)	235 (22%)	289 (21%)
Activities organised by arts groups	518 (67%)	821 (73%)	833 (73%)	706 (65%)	1,022 (73%)
Total	770 (100%)	1,128 (100%)	1,137 (100%)	1,080 (100%)	1,389 (100%)
<b><i>No. of participants ('000)</i></b>					
Foyer and piazza activities	120 (37%)	122 (30%)	105 (28%)	111 (28%)	56 (17%)
Other venue activities	28 (8%)	56 (14%)	40 (11%)	58 (14%)	53 (16%)
Activities organised by arts groups	178 (55%)	229 (56%)	235 (61%)	230 (58%)	217 (67%)
Total	326 (100%)	407 (100%)	380 (100%)	399 (100%)	326 (100%)

Source: LCSD records

***Room for improving consultation on plans***

5.4 As discussed in paragraphs 2.4 and 2.5, the two venues sections did not engage the Programme and Development Committee and its panels in planning their activities. The audit recommendation is at paragraph 2.12(a).

***Reduction in foyer and piazza activities***

5.5 As can be seen from Table 17, the number of foyer and piazza activities decreased considerably from 139 in 2014-15 to 78 in 2015-16. Comparing with its peak of 144 activities in 2013-14, the number of foyer and piazza activities had decreased by 46%. Upon enquiry, the LCSD informed Audit in June 2016 that:

- (a) the reduction of foyer and piazza activities was due to a budget prioritising measure adopted in 2015; and
- (b) in 2016, foyer and piazza activities were completely stopped at performing arts venues in the New Territories.

***Decrease in the total number of participants***

5.6 LCSD records indicated that, among the three types of audience building activities of the two venues sections, foyer and piazza activities had the largest number of participants per activity (see Table 18). For example, in 2015-16, each foyer and piazza activity had on average 718 participants, which was about four times the 183 participants for “other venue activities” and three times the 212 participants for “activities organised by arts groups”.

**Table 18**

**Average number of participants in  
audience building activities of the two venues sections  
(2011-12 to 2015-16)**

Type of activities	No. of participants per activity				
	2011-12	2012-13	2013-14	2014-15	2015-16
Foyer and piazza activities	902	884	729	799	718
Other venue activities	235	331	250	247	183
Activities organised by arts groups	344	279	282	326	212

*Source: Audit analysis of LCSD records*

5.7 With the reduction of foyer and piazza activities in 2015-16, the two venues sections increased the other audience building activities (i.e. “other venue activities” and “activities organised by arts groups”). This boosted the total number of audience building activities by 29% from 1,080 in 2014-15 to 1,389 in 2015-16 (see Table 17 in para. 5.3). However, the total number of participants dropped considerably (18%) from 399,000 in 2014-15 to 326,000 in 2015-16. The smaller number of participants per activity for the other audience building activities, as compared with foyer and piazza activities, was one reason.

***Not all foyer and piazza activities were costly***

5.8 According to the LCSD, reducing foyer and piazza activities was due to a budget prioritising measure (see para. 5.5(a)). However, Audit noted that organising foyer and piazza activities did not always incur additional costs (see Case 5).

**Case 5**

**Organising foyer and piazza activities without incurring additional cost  
(2015-16)**

The Hong Kong Cultural Centre was a performing arts venue. In 2015-16, the LCSD organised foyer and piazza activities at the Centre in collaboration with a non-governmental organisation and a music foundation. Positive responses were received from audiences and participating artists. The LCSD did not need to pay any production costs.

*Source: LCSD records*

**Audit recommendations**

5.9 **Audit has *recommended* that the Director of Leisure and Cultural Services should:**

- (a) **review the impact of reducing foyer and piazza activities on audience building, and take necessary follow-up action; and**

- (b) **explore areas where the cost-effectiveness of foyer and piazza activities could be further improved (e.g. enhancing collaboration with non-governmental organisations and private sector partners).**

## **Response from the Government**

5.10 The Director of Leisure and Cultural Services accepts the audit recommendations. She has said that:

- (a) the LCSD will continue to explore the opportunities to collaborate with venue partners, District Councils, district bodies and arts groups in organising district-based arts-related audience building programmes at venue facilities, including foyers and piazzas, to increase community involvement, thereby encouraging wider participation in and appreciation of different art forms. Proposed events will include student performances, backstage tours, workshops, talks, lecture demonstrations, film screenings and fun fairs; and
- (b) since April 2016, the Hong Kong Cultural Centre has adopted a partnership approach in organising foyer and piazza programmes through collaboration with venue partners, Consulate Generals and non-governmental organisations. New Territories venues will also continue to explore collaboration with non-governmental organisations and private sector partners in organising free audience building programmes at foyers and piazzas.

## **Use of minor facilities at performing arts venues for audience building activities**

5.11 LCSD performing arts venues have major facilities such as concert halls, theatres and auditoriums. The venues also have minor facilities such as function rooms, rehearsal rooms, practice rooms and studios. As at June 2016, the 14 LCSD performing arts venues had in total 97 facilities, comprising 25 major facilities and 72 minor facilities. The total seating capacity of the 72 minor facilities was about 5,400 people.

## Audience building activities of Urban and New Territories Venues Sections

5.12 Audit noted that the utilisation of minor facilities was low. During 2011-12 to 2015-16, the utilisation rates of minor facilities in urban venues were between 37% and 42%, and the rates for New Territories venues were between 61% and 63%. Comparing with its peak of 52% in 2013-14, the overall utilisation rate of minor facilities dropped to 47% in 2015-16. Table 19 shows the details.

**Table 19**

### Utilisation rates of minor facilities of 14 performing arts venues (2011-12 to 2015-16)

Venue	Utilisation rate				
	2011-12	2012-13	2013-14	2014-15	2015-16
Urban venues	39%	39%	42%	41%	37%
New Territories venues	62%	62%	63%	61%	61%
Overall	50%	50%	52%	50%	47%

*Source: LCSD records*

*Remarks: The utilisation rate was the ratio of “number of hours hired out” to “number of hours available for hire”.*

5.13 In Audit’s view, the LCSD needs to explore measures to improve the utilisation of minor facilities. In this regard, Audit noted that some minor facilities were large in size (e.g. some rehearsal rooms had a size of about 280 m<sup>2</sup> each). There might be scope for assigning suitable minor facilities for audience building activities (e.g. community scheme activities — see para. 3.10).

## Audit recommendation

5.14 Audit has *recommended* that the Director of Leisure and Cultural Services should explore measures to improve the utilisation of minor facilities of performing arts venues, including assigning suitable facilities for use in audience building activities.

## **Response from the Government**

5.15 The Director of Leisure and Cultural Services accepts the audit recommendation. She has said that the LCSD will continue to explore means to further promote the use of minor facilities of the performing arts venues. Since potential users may have limited interest in using the facilities during daytime on weekdays, measures will also be made to encourage partnering arts groups to stage more audience building activities in suitable minor facilities to improve the usage during non-peak hours.

## **Building audience through the Venue Partnership Scheme**

5.16 In 2009-10, the LCSD started to implement a Venue Partnership Scheme, covering a period of three years in each round. The Venue Partnership Scheme was implemented by the LCSD at most of its performing arts venues and aims to foster a partnership between the performing arts venues and performing arts groups with the objectives of enhancing the artistic image and character of the venue and its partner, enlarging the audience base, optimising usage of facilities, developing venue-based marketing strategies, facilitating arts sponsorship, and encouraging community involvement. The third round of the Scheme commenced in April 2015. Arts groups accepted as venue partners could receive support from the LCSD in various forms, such as priority use of venue facilities, free use of office facilities at the venue, enhanced publicity arrangements and part of the funding for organising activities. As at June 2016, there were a total of 20 venue partners.

### ***Two performing arts venues not included in the Scheme***

5.17 The current term for the Venue Partnership Scheme covers the three-year period from April 2015 to March 2018. Audit noted that, as at June 2016, 2 of the 14 LCSD performing arts venues (i.e. Tai Po Civic Centre and Ko Shan Theatre) did not have venue partners. According to the LCSD, these two venues had not been open for partnership application for the following reasons:

- (a) ***Tai Po Civic Centre.*** The venue was in the vicinity of a government school. Its major facility was an auditorium, with a seating capacity of 553 people. To meet the school's need for assembly areas, the LCSD had been sharing with the school the use of the auditorium. It would not be appropriate to invite venue partners in the circumstances; and



- (b) ***Ko Shan Theatre.*** All along, this venue had been solely used for Chinese opera performances. It would not be appropriate to invite venue partners of other art forms.

5.18 Audit noted that the government school mentioned in paragraph 5.17(a) had closed since September 2014. As for the Ko Shan Theatre, its major facilities comprise a theatre (seating capacity of 1,031 people) and an auditorium (seating capacity of 600 people). These are key facilities. There is merit to include them in the Venue Partnership Scheme with a view to enhancing the Scheme.

5.19 Upon enquiry, the LCSD informed Audit in August 2016 that the Tai Po Civic Centre had inherent technical and physical constraints. The LCSD was planning a major improvement project for upgrading the facilities of the Tai Po Civic Centre. As regards the Ko Shan Theatre, it was well received by the public as dedicated venues for Cantonese opera. In the light of the high demand for Cantonese opera performances, opening up the Ko Shan Theatre for venue partners would upset the balance of the Cantonese opera sector. The LCSD consulted the Committee on Venue Partnership (see para. 2.4) and the Cantonese Opera Advisory Committee (Note 23) in 2013 and 2014 respectively. Both committees supported not to include the Theatre in the Venue Partnership Scheme.

### ***Replacement partners not recruited***

5.20 In April 2016, two venue partners withdrew from the Venue Partnership Scheme for the following reasons:

- (a) ***Ngau Chi Wan Civic Centre.*** The Civic Centre had two venue partners. On 1 April 2016, one partner ceased operation and withdrew from the Scheme; and

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**Note 23:** *The Cantonese Opera Advisory Committee was set up in May 2004 to advise the HAB on the promotion, preservation, study and development of Cantonese opera. Its members include experienced Cantonese opera artists, presenters of Cantonese opera, Cantonese opera educationists and promoters, and Cantonese opera scholars.*

## Audience building activities of Urban and New Territories Venues Sections

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- (b) *Yuen Long Theatre.* The Theatre also had two venue partners. One partner was unable to stage performances or conduct audience building activities as intended. The partner withdrew from the Scheme in April 2016.

5.21 Audit noted that the LCSD had not taken any action to recruit replacement partners for the Civic Centre and the Theatre. Since the current term of partnership will last until March 2018, there is merit for the LCSD to invite interested arts groups as replacement partners for the two venues. Upon enquiry, the LCSD informed Audit in August and September 2016 that:

- (a) it would take about 6 to 7 months to complete any exercises for inviting new partners; and
- (b) the decision of not recruiting replacement venue partners for the Civic Centre and the Theatre had been thoroughly discussed and was unanimously agreed by the Committee on Venue Partnership in September 2015, taking into account that there was still another partner at the respective venues, as well as the long lead time for invitation and processing of new applications.

## Audit recommendations

5.22 Audit has *recommended* that the Director of Leisure and Cultural Services should:

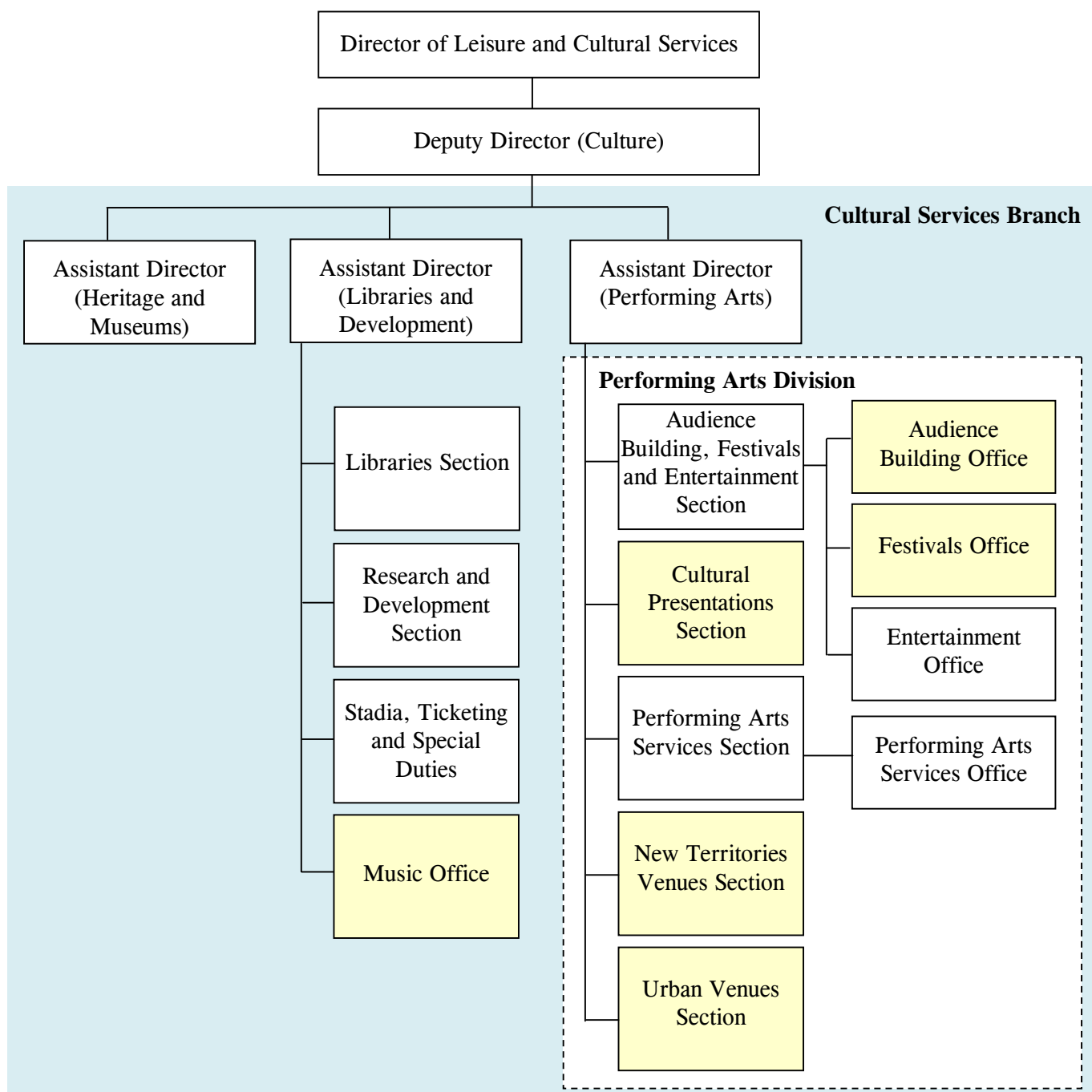
- (a) **upgrade the facilities of the Tai Po Civic Centre in a timely manner with a view to opening it up for venue partnership;**
- (b) **keep in view any change in circumstances which would call for the need to open up the Ko Shan Theatre for venue partnership; and**
- (c) **take measures to facilitate any future recruitment of replacement venue partners upon withdrawal of the original ones (e.g. maintaining a waiting list of venue partners for future use).**

## **Response from the Government**

5.23 The Director of Leisure and Cultural Services generally accepts the audit recommendations. She has said that:

- (a) a major upgrading of the Tai Po Civic Centre to improve the standard of performance facilities is under planning. Design consultancy service has been engaged and consultation with stakeholders will be arranged. Subject to funding approval, the Civic Centre will be closed for upgrading and open up for venue partnership upon project completion;
- (b) in respect of the Ko Shan Theatre, the LCSD would keep in view any change in circumstances and review the scheme regularly. The LCSD will also refer the audit recommendation to the Committee on Venue Partnership and the Cantonese Opera Advisory Committee for consideration and consultation for a new round of the Venue Partnership Scheme; and
- (c) as regards the future recruitment of replacement venue partners, the LCSD will refer the audit recommendation to the Committee on Venue Partnership for consideration and will further explore the feasibility of adopting a waiting list system in the new round of Venue Partnership Scheme.

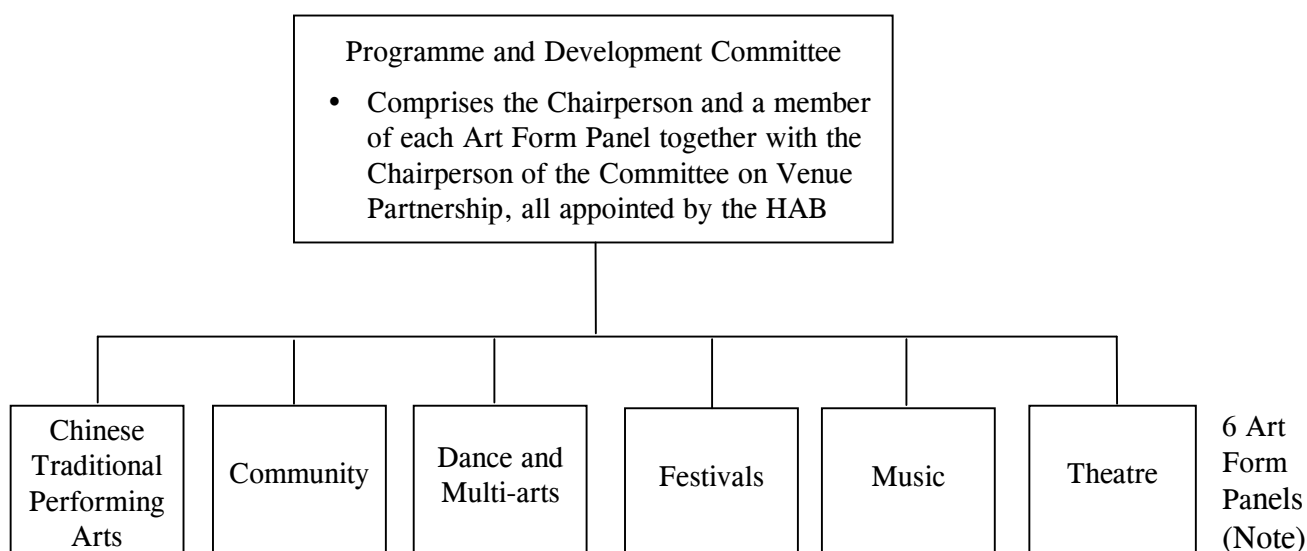
**Leisure and Cultural Services Department  
Organisation chart (extract)  
(June 2016)**



Legend:  The offices/sections responsible for organising audience building activities for performing arts

Source: LCSD records

**Programme and Development Committee  
and six Art Form Panels  
(June 2016)**



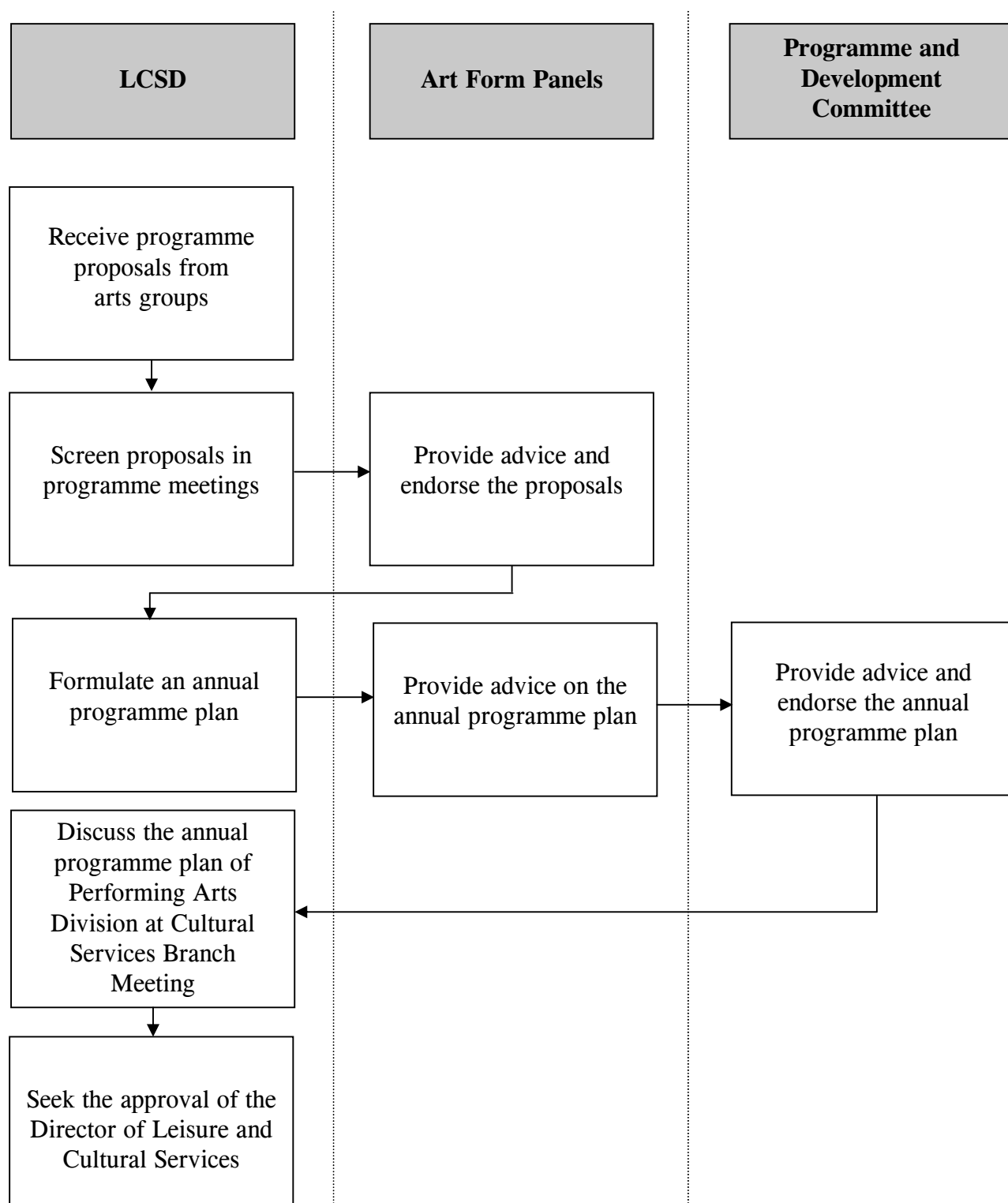
*Source: LCSD records*

*Note: Each Art Form Panel comprises 8 or 9 non-official members appointed by the HAB. The Chairperson of each Panel is elected by its members. The terms of reference of the Panels are as follows:*

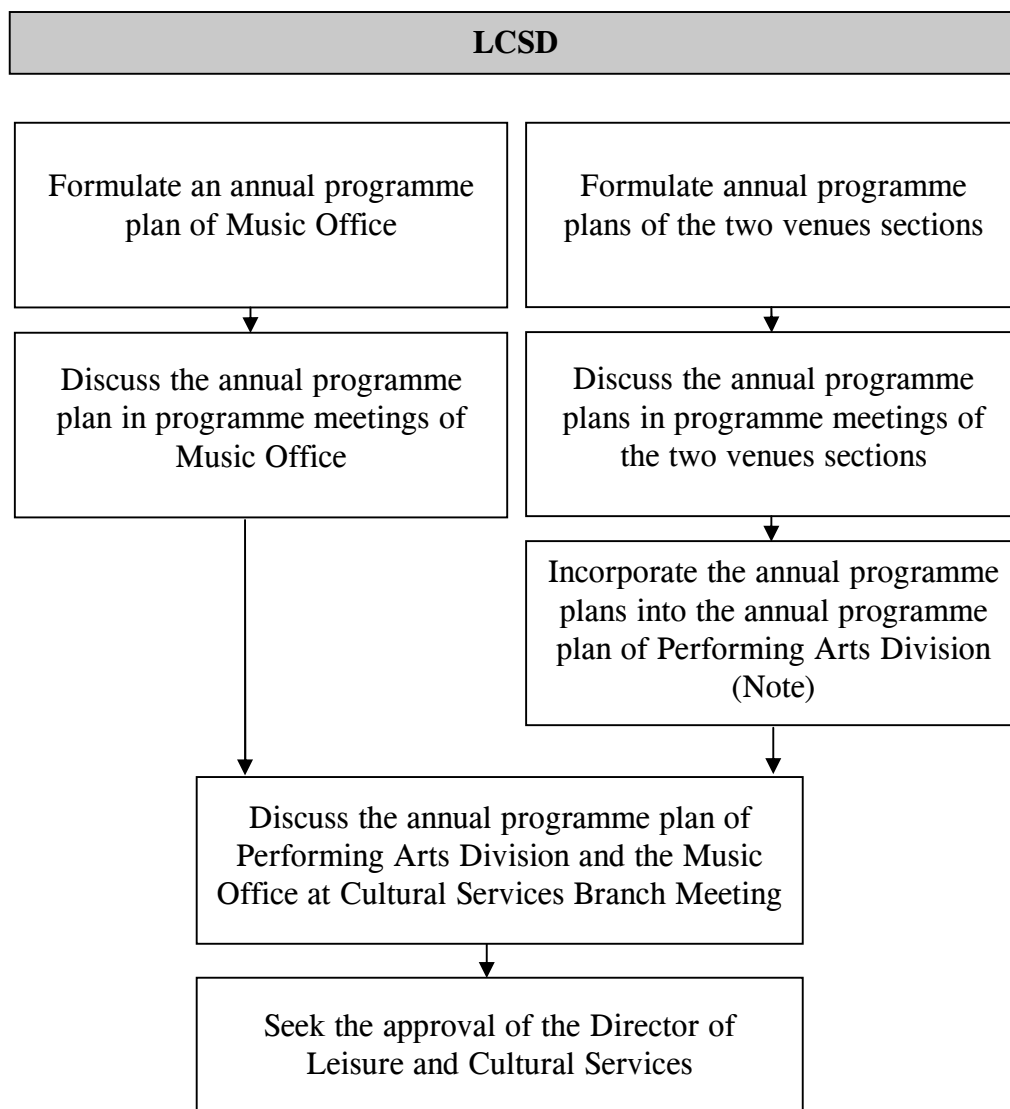
- (a) to draw up development strategies, including identifying new performing arts talents/groups; launching school-based and community-based cultural and arts events that are high-quality and educational, and that have the potential to widen the audience base; and reaching out to a broader audience spectrum in the district (Community Panel);*
- (b) to draw up development strategies, including identifying budding local performing arts talents/groups, supporting new and small-scale performing arts groups of relevant art categories to produce high quality programmes; and bringing high quality overseas programmes to Hong Kong with a view to broadening the artistic vista of local performing arts practitioners as well as audience (the 5 panels other than Community Panel);*
- (c) to consider, select and confirm programme proposals (all 6 Panels);*
- (d) to offer professional advice to programmes being planned for staging (all 6 Panels); and*
- (e) to study programme proposals that have been approved, are being considered or are not supported under current government mechanisms, and offer advice (all 6 Panels).*

## **Procedures for preparing annual programme plans**

### **1. Audience Building Office, Cultural Presentations Section and Festivals Office**



## 2. Music Office, Urban Venues Section and New Territories Venues Section



Source: Audit analysis of LCSD records

Note: For audience building activities conducted under the Venue Partnership Scheme, the related annual programme plan will also be endorsed by the Committee on Venue Partnership. The work of the Committee includes formulation of a detailed plan for the Venue Partnership Scheme, selection of venue partners, monitoring the performance of venue partners and review of the Scheme. For the present term of office (until October 2016), the Committee comprises a Chairperson and eight members (including experts on performing arts and the Chairperson of the Programme and Development Committee).

**Appendix D**  
(paras. 4.15 and  
4.17 refer)

**Costs of audience building activities of the Music Office  
(2011-12 to 2015-16)**

Type of activities	Cost (a) (\$ million)		No. of participants (b)	Cost per person reached (c) = (a)/(b) (\$)
2011-12				
Music training schemes	30.5	62 %	5,922	5,150
Outreach music interest courses	3.0	6 %	2,399	1,251
Other music activities	15.8	32 %	159,155	99
Overall	49.3	100 %	167,476	294
2012-13				
Music training schemes	31.7	62 %	6,173	5,135
Outreach music interest courses	3.1	6 %	2,534	1,223
Other music activities	16.3	32 %	184,752	88
Overall	51.1	100 %	193,459	264
2013-14				
Music training schemes	33.8	62 %	6,084	5,556
Outreach music interest courses	3.3	6 %	2,507	1,316
Other music activities	17.4	32 %	161,180	108
Overall	54.5	100 %	169,771	321
2014-15				
Music training schemes	34.9	62 %	6,224	5,607
Outreach music interest courses	3.4	6 %	2,593	1,311
Other music activities	18.0	32 %	177,692	101
Overall	56.3	100 %	186,509	302
2015-16				
Music training schemes	37.5	62 %	6,270	5,981
Outreach music interest courses	3.6	6 %	2,698	1,334
Other music activities	19.4	32 %	167,577	116
Overall	60.5	100 %	176,545	343

Source: Audit analysis of LCSD records

Remarks: Costs in the Table were direct costs (including staff costs and direct expenditures). Other overheads (e.g. administrative overheads and accommodation costs) were not included.



**Acronyms and abbreviations**

Audit	Audit Commission
HAB	Home Affairs Bureau
LCSD	Leisure and Cultural Services Department
m <sup>2</sup>	Square metres