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(Urgent by fax 2856 9902)

Mr Anthony CHU
Clerk to Public Accounts Committee
Legislative Council Complex
1 Legislative Council Road, Central
Hong Kong

3 January 2017

Dear Mr Chu,

Public Accounts Committee

Consideration of Chapter 8 of the Director of Audit's Report No. 67

Sewerage systems in rural areas

Thank you for your separate letters dated 20 December 2016 to Secretary for the Environment and Director of Environment Protection. I am authorised to provide a consolidated bilingual response from Environment Bureau and Environmental Protection Department in respect of the matters related to the captioned Report as per attached at **Annex**.

Yours sincerely,

(Daisy LO)
for Director of Environmental Protection

Encl

c.c. Director of Drainage Services (fax no. 2827 0287)
Director of Food and Environmental Hygiene (fax no. 2524 1977)
Director of Lands (fax no. 2525 4960)
Secretary for Financial Services and the Treasury (fax no. 2147 5239)
Director of Audit (fax no. 2583 9063)

Questions and Request for Information in respect of Chapter 8 of the Director of Audit's Report No. 67 Sewerage systems in rural areas

Response from Environment Bureau and Environmental Protection Department

Questions to be responded

PART 2: POLLUTION CONTROL IN UNSEWERED AREAS

1. High *E.coli* levels in many water control subzones

(a) Do the Environment Bureau ("ENB") and the Environmental Protection Department ("EPD") agree that, as reflected by the data in paragraphs 1.9 and 2.5 and Appendices A and B, discharge of untreated sewage from unsewered villages was a source of high *E. coli* levels in the rivers in the proximity? Taking into account the extremely large number of *E. coli* in many water control zones, do ENB and EPD agree that the river monitoring stations which were funded and operated by the Administration had failed to achieve the corresponding results as the discharge of untreated sewage from unsewered villages had all along rendered the safeguards for protecting the public from the risk of exposure to disease-causing microorganisms ineffective? If so, when will the Administration take measures to address the problem and details of these measures?

Response:

Environmental Protection Department (EPD) has implemented the Water Pollution Control Ordinance (WPCO) (Cap 358) and the Livestock Waste Control Scheme, and formulated 16 Sewerage Master Plans (SMPs) for the whole territory in 1980s. Through environmental law enforcement and implementation of the above schemes and plans, Hong Kong's water environment has been improved progressively. In 2015, 82% of our rivers were graded "Good" or above, compared with only 35% in 1986. The *E. coli* level of our rivers has also been reduced by 80% as compared with that in 1980s. The pollution load of most major rivers had been largely reduced by up to 96%.

Internationally, various parameters have been adopted for water quality protection due to different scientific considerations. Water Quality Objective (WQO) on *E. coli* is only one of the parameters used for water quality protection. Its main function is to safeguard the water bodies used for potable-water abstraction as well as primary-contact and secondary-contact recreational uses (such as swimming and rowing). The river water bodies in rural areas with high *E.coli* levels mentioned in the Audit Report are not intended for such uses. Hence, the human health risk due to the exposure to pathogens in these water bodies associated with the *E.coli* level higher than the WQO is not as important as the water bodies used for potable water abstraction or water sports activities involving human contact. All gazetted beaches which had been closed in the past due to high levels of *E. coli* have been re-opened as a result of the water quality improvements and full compliance with the required water quality standard for bathing

beaches.

Provision of public sewers to unsewered villages is one of the various means to further reduce the *E.coli* level in the nearby rivers. EPD will continue to pursue a multi-pronged approach to improve the water quality of the nearby rivers in the most efficient and cost-effective manner. Measures include strengthening the vetting of the design and performance of septic tank and soakaway (STS) systems for new village houses during the planning stage; taking enforcement actions against polluting STS systems; planning and implementing Village Sewerage Programmes in light of the available resources and the local situation; considering the provision of dry weather flow interceptors (DWFIs) at high risk or polluting areas; providing public toilets at unsewered rural areas; and arranging the cleansing of surface drainage systems, etc..

2. Problems of septic-tank-and-soakaway ("STS") systems

(a) Please explain the situation mentioned in Note 12 to paragraph 2.19. What were the details of the 24 projects mentioned in paragraph 2.19(c) and their respective project estimates? Can the Administration provide the project estimates of similar works for reference and comparison?

Response:

The total Approved Project Estimates (APEs) for the 24 projects under the Village Sewerage (VS) Programme is about $8 billion (in money-of-the-day prices). Apart from the works inside individual villages, the APEs also included costs for constructing trunk sewers, sewage pumping stations and sewage treatment works outside the villages, as well as other general expenditures such as site staff salary and consultancy fees, etc. As these projects involved about 40 work contracts, it would require substantial amount of resources and time for Drainage Services Department (DSD) to separate the costs solely related to the VS works from the APEs. Hence, having discussed with the Audit Commission (AC), DSD did not provide the APEs solely related to VS works as per AC's request. Please refer to **Table 1** for details of the 24 projects and their related APEs. Besides, since the scope, nature, works areas, construction time and requirements for each individual project are different, it is impracticable to provide the project estimates of similar works for reference and comparison.

(b) Would EPD and the Lands Department ("LandsD") explain whether manpower shortage was the cause for the failure to complete the work mentioned in paragraph 2.21(b)? If so, whether the problem could be ameliorated by providing additional manpower? If it could not, what were the reasons for not establishing a database or a register and not preparing a map of villages?

Response:

EPD considers the consultant's recommendation of setting up a database and arranging regular inspection of the STS systems of each of the 80,000 village houses in Hong Kong would require substantial manpower and extensive resources, which is not cost-effective and may result in over-regulation and nuisance to the villagers. As mentioned above, EPD will continue to pursue a multi-pronged approach to improve the river water quality in the most efficient and cost-effective manner. We consider it more appropriate and

cost-effective to improve water quality by strengthening the vetting of design and performance on STS systems of new village houses during planning stage; and taking enforcement actions against the polluting STS systems; installing DWFIs or other water quality improvement facilities at suitable locations, as well as implementing village sewerage programmes progressively.

(c) Can EPD advise why it did not have readily available information on the number and conditions of all dry-weather-flow interceptors ("DWFIs") being installed for unsewered village houses and squatters, as set out in paragraph 2.22(a)? Can EPD provide the aforesaid information now? What are the installation cost, annual expenditure and maintenance cost of each DWFI? Why had EPD not conducted a comprehensive assessment on the performance and effectiveness of all DWFIs in controlling pollution? Are there any measures in place to monitor the installation efficiency of DWFIs contractors? If so, what are the details?

Response:

Regarding the remarks in the Audit Report that EPD did not have readily available information on the number and conditions of all DWFIs being installed for unsewered villages and squatters, the information and data requested by the Audit contradicts our professional pollution control philosophy and analytical methods. As mentioned above, EPD has adopted a multi-pronged approach to improve water quality in the most efficient and cost-effective manner. The installation of DWFIs is one of the effective measures to improve water quality. As it requires substantial amount of resources and data analysis to assess every DWFIs being installed for unsewered village houses and squatters throughout Hong Kong, EPD does not have readily available information in this regard.

Primarily, EPD takes into account the recommendations of the SMPs, the downstream river water quality and beneficial uses of water bodies, and whether the best results can be achieved in the most cost-effective manner when deciding on the installation of DWFIs to divert the polluted flows from rivers or storm drains to foul sewers. This approach has been used in many locations (including bathing beaches in various districts, Shing Mun River and Tuen Mun River) to tackle pollution arising from unsewered areas covering squatters. This approach has been proved to be effective. With our continuous efforts made since 1980s, the number of gazetted beaches graded as “Good” has increased from 23% in 1986 to 61% in 2015. Moreover, all gazetted beaches in Hong Kong have achieved the bacteriological WQO since 2010. The water quality of rivers in Hong Kong has also been improving continuously in recent years. Based on the Water Quality Index (WQI), 48% were graded “Excellent” and 34% “Good” in 2015, as compared with only 9% “Excellent” and 26% “Good” in 1986. Among which, the water quality of the main channel of Shing Mun River in Shatin has been graded “Excellent” since 2008 while compliance with the WQO on *E. coli* was 75% in 2015. Besides, the *E. coli* level of Tuen Mun River has also been significantly reduced by 90% as compared with 1988. DWFIs have also been installed in coastal areas like Jordan Valley, Kai Tak for diverting polluted flows from storm drains to foul sewers. There are currently about 130 DWFIs in operation in Hong Kong, of which around 40 are installed in unsewered village houses and squatter areas. In future, we will install about 11 DWFIs in Yau Ma Tei and Tsuen Wan to further improve the environment.

In general, the cost of installing DWFIs for unsewered village houses varies according to their location, coverage and individual design. While the maintenance cost is relatively low, DSD does not have a breakdown of the recurrent maintenance expenditure of the DWFIs or other sewerage facilities.

(d) Does the Administration agree that the contents of the Water Pollution Control Ordinance (Cap. 358) ("WPCO") referred to in paragraphs 2.24(a) and (b) are contradictory? What were the justifications for introducing the amendments then to WPCO to make licensing non-mandatory requirement for sewerage works? What were the respective staff establishments for discharging licensing and enforcement functions in enforcing WPCO? Does the Administration agree that in the absence of mandatory control on the installation and operation of STS systems, EPD could not effectively control and prevent pollution caused by STS systems to the nearby rivers and environment? Did it involve a mismatch of resources in which public money had been wasted on manpower and operation without achieving results? If so, what were the details?

Response:

STS system is a cost-effective device commonly used by village houses in the rural areas of Hong Kong and other places. STS systems, if designed, operated and maintained properly, can effectively control pollution. As mandatory certification schemes are usually implemented to control major pollution sources, the licensing of STS systems is therefore not mandatory under the WPCO (Cap. 358). We consider that mandatory licensing and regular inspections of the small STS systems of some 80,000 village houses in Hong Kong require substantial resources and a large team of enforcement staff, which may also lead to over-regulation and nuisance to the villagers. It is more appropriate and cost-effective to improve water quality by strengthening the vetting of design and performance on STS systems of new village houses during planning stage; taking enforcement actions against polluting STS systems; installing DWFIs or other water quality improvement facilities at suitable locations as well as implementing village sewerage programmes progressively. As mentioned above, the Government will continue to pursue a multi-pronged approach to improve water quality in the most efficient and cost-effective manner, which has brought significant improvement in the overall water quality of Hong Kong.

(e) Regarding the situation mentioned in paragraph 2.28, what is the Administration's view on the effectiveness of the licensing scheme provided under WPCO? Had the Administration reviewed or identified the reasons for the low number of licenses issued? If it had, what were the details? For how many years had WPCO not been amended? Will the Administration examine and refine WPCO so that it can keep pace with the existing policies with a view to ameliorating the water pollution problem more effectively? Can existing policies/measures ensure effective operation of septic tanks, and what are the details?

Response:

Since licensing of STS systems is not mandatory under the WPCO (Cap. 358), there is no direct relationship between the number of licences issued and the effectiveness in pollution control. As mandatory certification schemes are usually applied for major pollution sources, we have no plan to make the licensing of STS systems of individual

village houses mandatory. STS systems, if designed, operated and maintained properly, can effectively control pollution. To avoid STS systems causing pollution to the nearby rivers and environment, EPD has issued the Guidance Notes on Discharge from Village Houses to help villagers operate their STS systems. Upon receipt of pollution complaints, EPD will inspect the STS systems and request the owners to make improvements. If there is no improvement and there is evidence of pollution to the nearby water bodies, EPD will consider taking legal actions.

As mentioned above, there are more efficient and cost-effective ways to improve water quality, which has brought significant improvement in the overall water quality of Hong Kong.

3. Requirements for some STS systems not on par with EPD practice note

(a) According to paragraph 2.36 and Table 1 in paragraph 2.37, the village-house sewerage requirements stipulated under a certificate of exemption ("CoE") issued by LandsD for pertinent drainage works in the New Territories were more lax than those stipulated under the "Drainage Plans subject to comment by EPD" issued by EPD in 1993 ("the 1993 Practice Note"), would the Administration explain the reasons for that? In connection with the above, does the Administration agree that the CoE conditions stipulated by LandsD were less effective than those stipulated under the 1993 Practice Note in preventing STS systems from polluting the environment? Please advise why the two departments did not standardize the aforesaid guidelines at the outset. Is there or will there be room for standardizing these guidelines? If so, please advise on the relevant details and timetable. If not, what are the reasons?

Response:

The two sets of guidelines, namely “Drainage Plans subject to Comment by the EPD” Practice Note for Professional Persons 5/93 (1993 Practice Note) issued by EPD in 1993, and the Certificate of Exemption (CoE) issued by the Lands Department (LandsD) for pertinent drainage works in the New Territories, are applicable to two different situations as set out below.

(i) Under the Buildings Ordinance (Chapter 123), developers are required to engage Authorized Persons (APs) to prepare and submit drainage plans to the Building Authority. To help APs in the design and preparation of drainage plans and facilitate the Building Authority in vetting and approving these plans, EPD promulgated the 1993 Practice Note to cover different types of pollution sources, including large-scale estates and small-scale villas. This Practice Note provides guidance on the design, construction and maintenance of STS, including percolation test and certification by an AP.

(ii) As New Territories Exempted Houses (NTEHs) are exempted from the Buildings Ordinance (Chapter 123), LandsD has set out separate technical requirements applicable to NTEHs when exercising its authority under the Buildings Ordinance (Application to the New Territories) Ordinance (Chapter 121).

Owing to site constraints, most applicants for redeveloping individual village houses had encountered practical difficulties in finding suitable locations for construction of STS

systems in conformation with the 1993 Practice Note. As a result, LandsD would consult EPD where necessary and set out appropriate requirements based on the actual situations. With proper operation and maintenance, STS systems built in accordance with the conditions of CoEs issued by the LandsD can also prevent environmental pollution effectively.

LandsD and EPD had set up a working group to review and explore how and in what aspects the variations between the two sets of requirements can be eliminated or reduced. The working group will accord priority to the aspects listed in Table 1 appended to paragraph 2.37 of the Director of Audit's Report and come up with recommendations as soon as possible.

(b) In connection with paragraph 2.38(i), can the Administration advise on the time required for completing the whole application process under normal circumstances? What were the respective numbers of successful and unsuccessful applications in the past? Had the Administration reviewed the administrative work involved in the whole application process to see if any parts of the process could be dispensed with so that the applications could be handled more promptly and efficiently?

Response:

EPD is responsible for the assessment of the soil percolation test report. Since the implementation of the new measure in December 2014, EPD has handled 6 applications in Hoi Ha referred by LandsD, among which 5 have been processed and approved. It took around 1 to 7 months to process the above applications. Some individual cases require longer processing time, mainly because the applicants had to provide supplementary information not included in the test reports. EPD has provided guidelines on the content and format of test reports to help reducing the processing time.

4. No licences issued for desludging of septic tanks and disposal of excretal matter

(a) Please provide the reasons why the 78 private operators mentioned in paragraph 2.47 had not been issued with licences, and advise whether they might operate the business only if they had been issued with licences. What was the total number of licence applications made to the Department for provision of septic tanks desludging and excretal-matter disposal services? What is the current number of licensed private operators? If an operator operates the aforesaid business without a licence, what actions and measures will the Administration take to combat and improve the situation?

Response:

Section 9 of the Waste Disposal Ordinance (Cap. 354) authorises the "Collection Authority" to provide collection service including desludging of septic tanks. Section 10 authorises the "Collection Authority" to set up a licensing system whereby licence can be issued to any person who provides collection service including desludging of septic tanks as mentioned in Section 9. The "Collection Authority" includes the Food and Environmental Hygiene Department (FEHD) and EPD.

In the past, due to limited collection services available in the market, apart from providing collection service for desludging of septic tanks, FEHD also provided charged

service where feasible for a few private premises at cost. With service from the market becomes available, FEHD now only provides service for government premises. The services required for private premises are provided by the market.

In light of the nature of various wastes, the Government has set up a licensing system for collection of chemical waste and clinical waste. However, as the sludge from septic tanks is not hazardous waste, there is no requirement for obtaining a licence for desludging of septic tanks. Currently, private operators do not require a licence to provide desludging services. They must, however, handle the sludge of septic tanks properly or else they will be prosecuted for illegal dumping. So far, there was no serious case of illegal dumping of septic tank sludge according to our records. We had one successful conviction involving fly-tipping of sludge of septic tanks over the past three years with a fine of $10,000 to the person involved.

EPD and FEHD will follow up on the Audit's recommendations on stepping up the Government's monitoring of desludging of septic tanks and will consult the relevant trades on the way forward as appropriate. EPD is compiling a list of private operators. Upon receipt of the operators' consent, it will be uploaded to the website and updated progressively for public's information.

5. Ineffective action taken to prevent illegal dumping of excretal matter

(a) What is EPD's view on the effectiveness of installing surveillance cameras as mentioned in paragraph 2.53? For cases of unsuccessful prosecution, was it due to a lack of resources to procure sufficient cameras, or were there other reasons? If EPD and the Food and Environmental Hygiene Department ("FEHD") continue to adopt this approach of installing surveillance camera systems at more blackspots of illegal dumping of waste, including excretal matter, what are the estimated costs?

Response:

The "Pilot Scheme on Installation of Surveillance Cameras" aims to explore a cost-effective enforcement approach for monitoring black spots for fly-tipping of construction waste. The initial observations revealed that the installation of surveillance cameras at black spots helps deterring fly-tipping of construction waste by vehicles. It also helps providing useful information for identifying the fly-tippers. In order to formulate an implementation plan, EPD is now conducting a comprehensive review on the information and experience obtained from the Pilot Scheme, exploring the enhancement of the technical specifications of the surveillance cameras, and making reference to the investigation and enforcement methods of other government departments. Regarding the Audit's recommendations, EPD will install enhanced surveillance cameras at selected black spots if manpower and resources are available to facilitate combating fly-tipping of construction waste. As the review of the relevant Pilot Scheme is still in progress, budget estimate is not available at present.

PART 3: PLANNING AND IMPLEMENTATION OF VILLAGE SEWERAGE PROGRAMMES

6. Need to prevent uncontrolled discharge of untreated sewage from residential squatters

(a) Does EPD agree that the study reports mentioned in paragraph 3.5 served as sufficient proof that the lack of control on untreated sewage generated from squatters had caused pollution to the nearby rivers or water bodies? If so, what should be done to improve the situation?

Response:

Discharge of untreated wastewater generated in the squatters is one of the pollution sources in the river catchments. The Government will continue to pursue a multi-pronged approach to improve the water quality of the nearby rivers in the most efficient and cost-effective manner. Village sewerage programmes will be implemented in the light of available resources and the local situation. Provision of DWFIs at high risk or polluting areas and public toilets at unsewered rural areas, and cleansing of surface drainage systems will also be considered.

As mentioned above, the Government has implemented the WPCO and the Livestock Waste Control Scheme, and formulated 16 SMPs for the whole territory in 1980s to improve the water quality of Hong Kong. Through environmental law enforcement and implementation of the above schemes, the river water quality of Hong Kong has been significantly improved. In 2015, 82% of our rivers were graded "Good" or above, compared with only 35% in 1986. The *E. coli* level has also reduced by 80% as compared with that in 1980s. The pollution load of most major rivers had been largely reduced by up to 96%.

(b) Can EPD advise on the reasons accounting for the slow progress of the works mentioned in paragraph 3.9? Which types of sewerage systems are being used by the 59% squatters in Squatter Area A which have not yet been connected to public sewers? In the aforesaid squatter area, were there any residents who had refused to carry out public sewerage connection works or were unaware of the commencement of the works? If there were, what were the respective numbers of such residents? Are there any squatters in the aforesaid squatter area for which public sewerage connection works are still underway? If there are, what is the number of such squatters and what are the reasons for that? Does EPD agree that it is unsatisfactory that, up to June 2016 when more than five years had passed since the completion of the relevant works, only 41% of the squatters in the area had been connected to public sewers? If so, how will EPD follow up and improve the situation?

Response:

Under the arrangement of the Village Sewerage Programmes, the Government is responsible for installing public sewers up to the boundaries of private land, and house owners need to connect their sewerage to the public sewers at their own cost. The sewer connection rate at Squatter Area A is low mainly because the residents expressed that they had encountered substantial financial and technical difficulties. The progress

of sewer connection works is therefore relatively slow.

Since the completion of the sewerage works, EPD has been proactively following up on the sewer connection works in that Squatter Area, including erecting promotion banners and sending letters to remind residents to carry out sewer connection works. Briefing sessions and home visits to the needy residents were arranged in collaboration with the local District Councilors, representatives of squatter residents and DSD with a view to explaining the benefits of sewer connection to environmental hygiene and residents, as well as providing technical assistance, etc.

With the above measures in place and the efforts of various parties, local residents in the Squatter Area A were all aware of the commencement of sewer connection works. We have also observed that local residents were helping each other to carry out sewer connection works progressively. The connection rate has been rising gradually to 41% over the past few years. In November 2016, the EPD issued letters again to remind the local residents to carry out sewerage works and received telephone inquiries from about 10 residents who indicated willingness or arrangement to carry out the connection works. If the sewer connection works were completed from the above residents, the connection rate will be further increased to 45%.

To control pollution caused by domestic sewage discharged from the Squatter Area to nearby streams, public toilets have been provided for use by squatter residents and regular cleansing of the related surface stormwater drains has been conducted to maintain environmental hygiene. A DWFI has also been installed downstream before entering the Tuen Mun River to divert the wastewater from the Squatter Area to the Tuen Mun Pillar Point Sewage Treatment Works for treatment. EPD will continue to step up publicity and strengthen collaboration with the local District Councilors to promote sewer connection.

7. Slippages in implementing village sewerage projects

(a) Regarding the situation mentioned in Table 2 in paragraph 3.15 and paragraph 3.16, do EPD and the Drainage Services Department agree that the long delays in completing the village sewerage programmes did not only delay improvements to be made to village sewerage in rural areas, and the hygiene and environment problems caused by the less-than-satisfactory sewerage systems in these areas would persist? If so, how will the departments improve the situation?

Response:

The Village Sewerage Projects are one of our key efforts in improving river water quality. However, the planning and implementation of village sewerage is complex and difficult in general as it involves issues relating to private land resumption and technical difficulties associated with the laying of sewers in narrow and congested village passages. To reduce slippage due to objections from stakeholders, the Government will continue to maintain close liaison with village representatives and villagers, and to secure their support in aspects like technical design with a view to resolving diverged views as early as possible for the commencement of the project. With the support from DSD, EPD will implement the Village Sewerage Projects as soon as practicable subject to the availability of resources and the circumstances.

(b) Would EPD advise whether the costs of Project A and Project B mentioned in paragraph 3.22 had exceeded their original Approved Project Estimates as a result of the delays? If so, what were the details? If not, what were the reasons for that?

Response:

Through controlling the expenditure of the concerned projects by DSD, the actual completion time of Projects A and B did not affect or cause exceedance of the original approved budget.

PART 4: SEWER CONNECTION OF VILLAGE HOUSES

8. Inadequate actions taken to cause house owners to carry out sewer-connection works

(a) Table 5 of paragraph 4.7, Case 1, Case 2 and paragraph 3.9 only set out the details of sewer connection of the village houses in Village A, Village B and Squatter Area A. Can EPD provide the details of the sewer-connection works of Villages C, D and E, including the amounts of funding approved, and the reasons for not connecting to public sewers?

Response:

EPD has been continuously liaising with the village house owners to secure their support for timely and successful completion of house connection voluntarily. The overall connection rate, including villages which have sewer-connection works underway, was 88% (i.e. over 10 000 village houses connected). This indicates that this practice is very effective overall. However, the progress at a few locations is relatively low due to specific reasons. The total funding for the sewer connection works of Villages C, D and E is $14 million. In Village C, there are a total of 25 houses suitable for sewer connection. As at December 2016, 17 of them have completed sewer connection and the connection rate has increased from 28% in June 2016 to 68% at present. For the remaining 8 village houses, connection works have not been carried out because the owners were either planning to rebuild their houses shortly or they reside overseas most of the time. As for Villages D and E, all the 24 premises which are suitable for connection to public sewers are squatter huts. The remaining 8 squatter huts have not been connected mainly because their owners are of old age or have financial difficulties. EPD will continue to follow up the situation.

(b) Can EPD advise on the reasons for the village representatives of 49 village houses in Case 1 in paragraph 4.11 raising objections to the public sewerage works? As public sewers had been provided for seven village houses, what were the reasons for the owners of these village houses not completing the sewer connection works in the end? Is it EPD's usual practice to abandon the plan to provide public sewers for village houses whenever it faces opposition from house owners concerned? Do the "Enforcement Guidelines on Sewer Connection" have any legal effect? If they do, what are the relevant details? If not, is it the non-legally binding nature of the guidelines that has rendered EPD's enforcement actions unsatisfactory, or are there other reasons for that?

Will EPD consider the handling of and follow-up actions taken for Case 1 in paragraph 4.11 unsatisfactory? If so, will EPD take follow-up actions again in respect of Village A in Case 1 in paragraph 4.11 by rearranging connection works or offering help to improve the situation? If it will, what are the estimated works costs for that?

(c) According to EPD's response in respect of Case 1 in paragraph 4.11, it was because no discharge of waste water from the seven village houses and no pollution to the environment had been observed that EPD had not taken further follow-up and enforcement actions in respect of their connection to public sewers. However, as it had been more than 10 years since detailed study, review, audit, etc., were conducted for the works project and funding was then approved, will EPD conduct a review in this respect and make improvements, so as to avoid the recurrence of such a waste of public money and manpower resources? Had any administrative loopholes on the part of EPD been involved in the failure of the sewer connection in Village A to achieve the intended results? If so, when will EPD conduct a review and how will it make improvements in this respect?

Response: (for b & c)

After amendment to the project scope of Case 1, the two elderly homes were connected to the sewers. From the pollution control point of view, 90% of sewage in the village has been properly connected to public sewers. For the remaining 7 village houses, the village representatives and the house owners had been objecting strongly to the connection works. EPD and the relevant departments met the village representatives and the owners of the village houses and conducted site visits in October and November 2016 respectively. In view of the environmental improvement brought by the sewer connection works of other villages, the village representatives and the villagers concerned now changed their mind and indicated willingness to carry out the connection works. DSD and EPD have discussed the works details with the villagers concerned and would strive to commence the works in early 2017. EPD will closely follow up the progress.

EPD’s experience in implementing public sewerage connection works in New Territories since the 1990’s showed that proactive liaison and dialogue with house owners / residents, village representatives and related stakeholders are important to resolve practical difficulties on sewer connection works, as well as to secure their commitment and cooperation. The effectiveness of the work is also reflected in the high overall connection rate and the continuous improvement of river water quality. The Enforcement Guidelines on Sewer Connection is our internal operational guideline which is designed to facilitate the progress of the overall sewer connection works along the department’s mission. We have initiated appropriate enforcement actions targeting at those villages with low connection rates or lacking progress even after long duration of communication. We will update the Enforcement Guidelines on Sewer Connection to strengthen the enforcement.

(d) Can EPD advise on the total number of village houses in Village B in Case 2 in paragraph 4.11, and among them, the number of village houses which had decided not to carry out sewer-connection works and the reasons for that? What were EPD's follow-up actions in the light of this situation? Are there any village houses in Village B for which the relevant works are still underway? If there are, how many? Will EPD

consider the handling of and follow-up actions taken for Case 2 unsatisfactory? If so, how will EPD follow up and improve the situation specifically?

Response:

In Village B, there are a total of 62 houses suitable for sewer connection. As at December 2016, 29 houses have been connected to sewers, representing a connection rate of 47%. To expedite the sewer-connection works of the remaining houses, EPD met with the village representatives again in September and November 2016 to understand their concerns and provide technical solutions. EPD is actively verifying the views of the house owners, and has made clear that it will require the owners to complete the connection works as soon as practicable through issuance of statutory notices under the WPCO. The EPD will consider prosecution if the house owner has not commenced the sewer connection works after the statutory notice expires.

(e) For Village B in Case 2 in paragraph 4.11, can EPD advise on the total number of house owners who were usually residing overseas? Was the incompleteness of such information attributable to staff establishment problem? If so, what were the details? If not, why had EPD not provided the Audit with all the information about the relevant village houses?

Response:

EPD has been liaising with the village representatives of Village B. In the two meetings with EPD in September and November 2016, the village representatives still failed to provide more addresses of the houses with owners living overseas, and claimed that there were other reasons for not carrying out the sewer-connection works, including concerns about their affordability of the connection costs, plan to rebuild their houses in the near future, or limited knowledge about the rural sewerage scheme, such as the details and cost of the sewer connection works, information on eligible contractors, improvement to the environment and local hygiene and the legal responsibility of the household owner or tenant. EPD is taking active steps to confirm the specific situation of the remaining house owners so as to take forward the sewer connection works. EPD will issue statutory notices to mandate the owners to carry out the works when necessary.

9. Incomplete database on sewer-connection information

(a) Does EPD agree with the Audit's recommendation in paragraph 4.15? If it does, what measures will it take to follow up on Audit's recommendation?

Response:

EPD agrees with the Audit’s recommendations on the need for accurate and timely entry of information into the database. EPD will review and refine the existing database, and will issue reports periodically on the progress of sewer connection works so that its staff can take follow-up actions and input the relevant information into the computerized database in a timely manner.

– End –

Table 1

	PWP Item No./Description	Scope of Works	Approved Project Estimate ($M)
1	4396DS Sewerage in Nam Wa Po and Wai Tau Tsuen	(a) about 7.3 kilometres (km) of sewers ranging from 150 millimetres (mm) to 300 mm in diameter for two unsewered areas in Tai Po, namely Nam Wa Po and Wai Tau Tsuen; (b) two sewage pumping stations (SPSs) at Nam Wa Po and Wai Tau Tsuen in Tai Po; (c) about 170 metres (m) of twin rising mains of 150 mm in diameter in association with construction of the SPS at Nam Wa Po; and (d) ancillary works.	319.1
2	4386DS Village sewerage in Kau Lung Hang San Wai, Kau Lung Hang Lo Wai and Tai Hang, and southern trunk sewer between Wai Tau Tsuen and Nam Wa Po	(a) about 11 kilometres (km) of sewers ranging from 150 millimetres (mm) to 350 mm in diameter for three unsewered areas in Tai Po, namely Kau Lung Hang San Wai, Kau Lung Hang Lo Wai and Tai Hang; (b) about 1.5 km of gravity trunk sewers ranging from 250 mm to 450 mm in diameter along Tai Wo Services Road West between Wai Tau Tsuen and Nam Wa Po; (c) one sewage pumping station (SPS) at Tai Hang in Tai Po; (d) about 125 metres (m) of twin rising mains of 200 mm in diameter in association with construction of the SPS in (c) above; and (e) ancillary works.	316.8
3	4375DS Sewerage in Ping Kong, Fu Tei Pai and Tai Wo	(a) about 8.3 kilometres (km) of sewers for the three unsewered areas, namely Ping Kong, Fu Tei Pai and Tai Wo; (b) about 500 metres (m) of gravity trunk sewers along Tai Wo Service Road East; (c) two sewage pumping stations (SPSs), one at Ping Kong and the other at Tai Wo; (d) about 250 m of twin rising mains in association with construction of the two SPSs in (c) above; and (e) ancillary works.	226.8
4	4359DS North District Sewerage Stage 1 Phase 2B	(a) about 11 kilometres (km) of sewers, ranging from 150 millimetres (mm) to 400 mm in diameter for 12 unsewered areas1 in North District; (b) three sewage pumping stations, respectively in San Wai, Tung Kok Wai and Wing Ning Tsuen; and (c) about 1.4 km of rising mains, ranging from 100 mm to 250 mm in diameter, in association with the construction of the three sewage pumping stations in (b) above.	185.0
5	4378DS North District sewerage stage 2 part 2A — Pak Hok Lam trunk sewer and Sha Tau Kok village sewerage	(a) about 2 kilometres (km) of gravity trunk sewers along Sha Tau Kok Road (Shek Chung Au Section); (b) about 10 km of sewers for the nine unsewered areas, namely Muk Min Tau, Nga Yiu Tau, San Tsuen, Shan Tsui, Sheung Tam Shui Hang, Ha Tam Shui Hang, Tsiu Hang, Wu Shek Kok and Yim Tso Ha; (c) one sewage pumping station (SPS) at Wu Shek Kok; (d) about 300 metres (m) of twin rising mains in association with construction of the SPS in (c) above; and (e) ancillary works.	272.1

Table 1

	PWP Item No./Description	Scope of Works	Approved Project Estimate ($M)
6	4365DS Tolo Harbour Sewerage of Unsewered Areas, Stage 1, Phase 2C	(a) about 31.2 kilometres (km) of branch sewers for collecting sewage from 16 unsewered areas in Sha Tin and Tai Po, namely Tung Lo Wan, Pai Tau, Sheung Wo Che (including Ha Wo Che), Lok Lo Ha, Tai Lam Liu, Wu Kai Sha, Tai Mei Tuk, Wong Chuk Tsuen, Lung Mei, Ting Kok, Lo Tsz Tin, Wai Ha, Po Sam Pai, San Tau Kok, Lai Pek Shan San Tsuen and Shuen Wan Lei Uk; and (b) about 1.2 km of trunk sewers largely along Tai Po Road – Tai Wo to collect sewage from the Hong Lok Yuen area which is currently not served by public sewers.	381.4
7	4395DS Tolo Harbour Sewerage of Unsewered Areas, Stage 2, Phase 1	(a) about 11.7 kilometres (km) of sewers ranging from 150 millimetres (mm) to 300 mm for nine unsewered areas in Sha Tin, namely Siu Lek Yuen, Ngau Pei Sha, Tsok Pok Hang, Sha Tin Heights, Fui Yiu Ha, Kwai Tei New Village, Sha Tin Fishermen's New Village (also known as Ah Kung Kok Fishermen Village), Kau To and Tin Liu, as well as two unsewered areas in Tai Po, namely, Ha Wun Yiu and Shan Tong; (b) one sewage pumping station (SPS) at Kau To in Sha Tin; (c) about 130 metres (m) of twin rising mains of 100 mm in association with construction of the SPS in (b) above; and (d) ancillary works.	364.7
8	4382DS Sewerage at Clear Water Bay Road, Pik Shui Sun Tsuen and West of Sai Kung Town	(a) about 12.8 kilometres (km) of sewers ranging from150 millimetres (mm) to 300 mm in diameter for 11 unsewered areas, namely Kap Pin Long, Nam Shan,Pak Kong, San Uk, Sha Kok Mei, Tai Ping Village, Tai Shui Tseng, Wo Tong Kong, Lung Wo Tsuen, Pik Shui Sun Tsuen and in the vicinity of Fei Ngo Shan Road; (b) about 3.6 km of gravity trunk sewers ranging from 225 mm to 450 mm in diameter along Clear Water BayRoad from Shun Chi Street to Razor Hill Road and around Pik Shui Sun Tsuen; (c) one sewage pumping station (SPS) at Pik Shui Sun Tsuen; (d) about 900 metres (m) of twin rising mains ranging from150 mm to 350 mm in diameter – (i) at Pik Shui Sun Tsuen in association withconstruction of the SPS in (c) above; (ii) along sections of Clear Water Bay Road near Tseng Lan Shue and Pak Shek Wo; and (e) ancillary works.	359.0
9	4397DS Outlying Islands Sewerage, Stage 2 - Lamma Village Sewerage Phase 2, Package 1	(a) about 9.1 kilometres (km) of sewers ranging from 150 millimetres (mm) to 250 mm in diameter for 13 unsewered areas in Yung Shue Wan of Lamma Island, namely Sha Po New Village, Sha Po Old Village, Yung Shue Wan Back Street, Tai Shan West, Tai Shan East, Tai Shan Central, Ko Long, Tai Yuen Village, O Tsai, Po Wah Yuen, Yung Shue Long New Village, Yung Shue Long Old Village and Tai Peng; (b) one sewage pumping station (SPS) at O Tsai; (c) about 50 metres (m) of twin rising mains of 100 mm in diameter in association with construction of the SPS in (b) above; and (d) ancillary works.	340.2

Table 1

	PWP Item No./Description	Scope of Works	Approved Project Estimate ($M)
10	4387DS Upgrading of Mui Wo sewage treatment works and sewerage at Mui Wo town centre and Wang Tong	(a) upgrading of the existing Mui Wo STW to a capacity of 3700 cubic metres (m3) per day; (b) upgrading of about 2.0 kilometres (km) of existing gravity trunk sewers with larger pipes ranging from 300 millimetres (mm) to 750 mm in diameter in Mui Wo town centre; (c) construction of about 2.9 km of sewers ranging from 150 mm to 250 mm in diameter for two unsewered areas in Mui Wo, namely Wang Tong and Yue Kwong Chuen; and (d) ancillary works.	967.2
11	4208DS Outlying Islands sewerage stage 1 phase 1 part 1 - Ngong Ping village sewerage works	(a) about 2.6 kilometres of gravity sewers; (b) about 170 metres of twin rising mains and two small underground sewage pumping chambers; and (c) ancillary works including landscape works.	25.8
12	4126DS Sham Tseng sewerage, stage 3	(a) construction of one sewage pumping station in Tsing Lung Tau; and (b) construction of about 5.5 kilometers (km) of sewers in nine villages, namely Sham Tseng East Village, Sham Tseng Commercial New Village, Sham Tseng Kau Tsuen, Sham Tseng San Tsuen, Shu On Terrace, Tsing Fai Tong New Village, Pai Min Kok Village, Yuen Tun Village and Tsing Lung Tau Tsuen.	45.0
13	4370DS Village sewerage at Wang Chau of Yuen Long	(a) about 9 kilometres (km) of sewers for collecting sewage from nine unsewered areas in Wang Chau of Yuen Long, namely Lam Uk Tsuen, Yuk Yat Garden, Yeung Uk Tsuen, Tung Tau Wai, Tung Tau Wai San Tsuen, Chung Sam Wai, Fuk Hing Tsuen, Sai Tau Wai and Ting Fook Villas; (b) a sewage pumping station near Tung Tau Industrial Area; and (c) ancillary works.	219.2
14	4384DS Yuen Long and Kam Tin sewerage, stage 3 package 2	(a) about 6.5 kilometres (km) of sewers ranging from 300 millimetres (mm) to 450 mm in diameter for six unsewered areas, namely Nam Pin Wai, Sai Pin Wai, Tai Tong Tsuen, Tsoi Uk Tsuen, Wong Uk Tsuen and Ying Lung Wai; (b) about 3.6 km of gravity trunk sewers ranging from 300 mm to 450 mm in diameter in the vicinity of the areas mentioned in (a) above; and (c) ancillary works.	213.4
15	4230DS Outlying Islands sewerage stage 1 phase 1 part 2 - Yung Shue Wan sewerage, sewage treatment works and outfall	(a) provision of about 3.3 kilometres (km) of sewers in six villages of YSW, namely Po Wah Yuen, Sha Po New Village, Tai Yuen New Village, Kam Shan Terrace, Sha Po Old Village and Ko Long, together with the associated geotechnical works along the proposed sewer alignments; (b) provision of a secondary sewage treatment work (STW) with treatment capacities of 2850 cubic metres per day at YSW, together with the associated sludge treatment and odour control facilities as well as the slope stabilisation works for the STW site; (c) provision of a submarine outfall of length 500 metres (m) at YSW; and	347.5

Table 1

	PWP Item No./Description	Scope of Works	Approved Project Estimate ($M)
16	4234DS Outlying Islands sewerage, stage 1 phase 2 — Sok Kwu Wan sewage collection, treatment and disposal facilities	(a) provision of about 1.8 km of sewers in two villages of SKW, namely Chung Mei and Sok Kwu Wan, together with the associated geotechnical works along the proposed sewer alignments; (b) provision of a secondary sewage treatment work (STW) with treatment capacities of 1430 cubic metres per day at SKW, together with the associated sludge treatment and odour control facilities as well as the slope stabilisation works for the STW site; (c) provision of a submarine outfall of length 750 metres (m) at SKW; and (d) provision of two pumping stations and two twin rising mains with a total length of about 1 km at SKW.	353.7
17	4371DS Sewerage in Western Tuen Mun	(a) about 7.0 kilometres (km) of trunk sewers along Ming Kum Road, Tsing Wun Road, Lung Mun Road and Tsing Lun Road; (b) a new sewage pumping station at the junction of WongChu Road and Tsing Wun Road; (c) about 7.0 km of village sewers at Tseng Tau Sheung Tsuen and a part of Tsing Shan Tsuen; and (d) ancillary works.	1340.0
18	4374DS Tuen Mun sewerage, stage 1 - village sewerage in Tsing Chuen Wai and Tuen Tsz Wai	(a) about 1.5 kilometres of sewers with diameters from 150 millimetres (mm) to 225mm to serve part of the areas of Tsing Chuen Wai and Tuen Tsz Wai in Tuen Mun; and (b) ancillary works.	21.7
19	4404DS Tuen Mun Sewerage - Castle Peak Road Trunk Sewer and Tuen Mun Village Sewerage	(a) about 3.7 kilometres (km) of sewers with diameters ranging from 200 millimetres (mm) to 600 mm for three unsewered areas, namely Kei Lun Wai, Yeung Siu Hang and Lam Tei; (b) one sewage pumping station (SPS) at Lok Chui Street; (c) about 720 metres (m) of twin rising mains with diameter of 350 mm along Castle Peak Road – Tai Lam and in association with construction of the SPS in (b) above; (d) about 200 m of branch sewers with diameter of 225 mm along Lok Yi Street and Lok Chui Street; and (e) ancillary works.	722.5
20	4373DS Lam Tsuen Valley sewerage—stage 1	(a) about 16 kilometres (km) of sewers for the 14 unsewered areas, namely Chuen Shui Tseng, Chung Uk Tsuen, Fong Ma Po, Hang Ha Po, Kau Liu Ha, Ko Tin Hom, Lam Tsuen San Tsuen, Lung A Pai, Pak Tin Kong, San Uk Pai, San Uk Tsai, Tin Liu Ha, Tong Min Tsuen and Wo Tong Pui; (b) two sewage pumping stations (SPSs), one at Tin Liu Ha and the other at Tong Min Tsuen; (c) about 550 metres (m) of twin rising mains in association with construction of the two SPSs in (b) above; and (d) ancillary works.	274.4

Table 1

	PWP Item No./Description	Scope of Works	Approved Project Estimate ($M)
21	4332DS Lam Tsuen Valley sewerage, stage 2	(a) about 17.2 kilometres (km) of sewers ranging from 150 millimetres (mm) to 225 mm in diameter for 13 unsewered areas, namely Chai Kek, Ma Po Mei, Ng Tung Chai, Pak Ngau Shek Sheung Tsuen, Pak Ngau Shek Ha Tsuen, Ping Long, San Tong, Sha Pa, She Shan Tsuen, Shui Wo, Tai Mong Che, Tai Om and Wo Liu; (b) four sewage pumping stations (SPSs) at Ma Po Mei, Pak Ngau Shek, Sha Pa and She Shan Tsuen respectively; (c) about 1.0 km of twin rising mains of 150 mm in diameter in association with the construction of the SPSs in (b) above; and (d) ancillary works.	588.3
22	4360DS Sewerage at Tseng Tau Chung Tsuen, Tuen Mun	(a) construction of about 6.8 km of trunk sewer ("the Western Interceptor Sewer", (WIS)) and the associated Tuen Mun North sewage pumping station and WIS sewage pumping station in Tuen Mun; and (b) provision of pumping stations and village sewerage to collect and convey sewage from 27 unsewered villages/areas in Tuen Mun to the main sewer system.	33.0
23	4052DS Ting Kau sewerage, stage 2	(a) construction of three sewage pumping stations and laying of a total of about 200 metres of twin rising mains at Approach Beach, Lido Beach and Ting Kau; and (b) construction of 1.6 kilometers (km) of sewers in Ting Kau Village.	64.9
24	4340DS Port Shelter sewerage stage 3 — Mang Kung Uk sewerage	(a) extension of the public sewer system to the Mang Kung Uk area, which involves the construction of about 4.2 kilometres (km) of trunk sewers and branch sewers, ranging from 225 millimetres (mm) to 300mm in diameter.	30.4
		Total ($M)	**8012.1**