

**SUPPLEMENTAL REPORT OF THE
PUBLIC ACCOUNTS COMMITTEE
ON
REPORT NO. 63 OF THE DIRECTOR OF AUDIT
ON
THE RESULTS OF
VALUE FOR MONEY AUDITS**

June 2015

P.A.C. Report No. 63A

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Introduction

The Establishment of the Committee The Public Accounts Committee is established under Rule 72 of the Rules of Procedure of the Legislative Council of the Hong Kong Special Administrative Region, a copy of which is attached in *Appendix 1* to this Report.

2. **Membership of the Committee** The following Members are appointed by the President under Rule 72(3) of the Rules of Procedure to serve on the Committee:

Chairman : Hon Abraham SHEK Lai-him, GBS, JP

Deputy Chairman : Hon Paul TSE Wai-chun, JP

Members : Hon CHAN Hak-kan, JP
Hon Alan LEONG Kah-kit, SC
Hon WONG Yuk-man
Hon NG Leung-sing, SBS, JP
Hon Kenneth LEUNG

Clerk : Anthony CHU

Legal Adviser : Timothy TSO

Procedure

The Committee's Procedure The practice and procedure, as determined by the Committee in accordance with Rule 72 of the Rules of Procedure, are as follows:

- (a) the public officers called before the Committee in accordance with Rule 72 of the Rules of Procedure, shall normally be the Controlling Officers of the Heads of Revenue or Expenditure to which the Director of Audit has referred in his Report except where the matter under consideration affects more than one such Head or involves a question of policy or of principle in which case the relevant Director of Bureau of the Government or other appropriate officers shall be called. Appearance before the Committee shall be a personal responsibility of the public officer called and whilst he may be accompanied by members of his staff to assist him with points of detail, the responsibility for the information or the production of records or documents required by the Committee shall rest with him alone;
- (b) where any matter referred to in the Director of Audit's Report on the accounts of the Government relates to the affairs of an organisation subvented by the Government, the person normally required to appear before the Committee shall be the Controlling Officer of the vote from which the relevant subvention has been paid, but the Committee shall not preclude the calling of a representative of the subvented body concerned where it is considered that such a representative could assist the Committee in its deliberations;
- (c) the Director of Audit and the Secretary for Financial Services and the Treasury shall be called upon to assist the Committee when Controlling Officers or other persons are providing information or explanations to the Committee;
- (d) the Committee shall take evidence from any parties outside the civil service and the subvented sector before making reference to them in a report;
- (e) the Committee shall not normally make recommendations on a case on the basis solely of the Director of Audit's presentation;
- (f) the Committee shall not allow written submissions from Controlling Officers other than as an adjunct to their personal appearance before the Committee; and

Procedure

- (g) the Committee shall hold informal consultations with the Director of Audit from time to time, so that the Committee could suggest fruitful areas for value for money study by the Director of Audit.

2. **Confidentiality undertaking by members of the Committee** To enhance the integrity of the Committee and its work, members of the Public Accounts Committee have signed a confidentiality undertaking. Members agree that, in relation to the consideration of the Director of Audit's reports, they will not disclose any matter relating to the proceedings of the Committee that is classified as confidential, which shall include any evidence or documents presented to the Committee, and any information on discussions or deliberations at its meetings, other than at meetings held in public. Members also agree to take the necessary steps to prevent disclosure of such matter either before or after the Committee presents its report to the Council, unless the confidential classification has been removed by the Committee.

3. A copy of the Confidentiality Undertakings signed by members of the Committee has been uploaded onto the Legislative Council website.

4. **The Committee's Report** This Report contains the Public Accounts Committee's supplemental report on Chapter 4 of Report No. 63 of the Director of Audit on the results of value for money audits which was tabled in the Legislative Council on 20 November 2014. Value for money audits are conducted in accordance with the guidelines and procedures set out in the Paper on Scope of Government Audit in the Hong Kong Special Administrative Region - 'Value for Money Audits' which was tabled in the Provisional Legislative Council on 11 February 1998. A copy of the Paper is attached in *Appendix 2*. The Committee's Report No. 63 was tabled in the Legislative Council on 11 February 2015.

5. **The Government's Response** The Government's response to the Committee's Report is contained in the Government Minute, which comments as appropriate on the Committee's conclusions and recommendations, indicates what action the Government proposes to take to rectify any irregularities which have been brought to notice by the Committee or by the Director of Audit and, if necessary, explains why it does not intend to take action. It is the Government's stated intention that the Government Minute should be laid on the table of the Legislative Council within three months of the laying of the Report of the Committee to which it relates.

Committee Proceedings

Meetings The Committee held a total of eight meetings and six public hearings in respect of the subjects covered in this Report. During the public hearings, the Committee heard evidence from a total of 16 witnesses, including one Director of Bureau and two Heads of Department. The names of the witnesses are listed in *Appendix 3* to this Report. A copy of the Chairman's introductory remarks at the first public hearing in respect of the Director of Audit's Report No. 63 on 8 December 2014 is in *Appendix 4*.

2. **Arrangement of the Report** The evidence of the witnesses who appeared before the Committee, and the Committee's specific conclusions and recommendations, based on the evidence and on its deliberations on the relevant chapter of the Director of Audit's Report, are set out in Part 4 below.

3. The video and audio record of the proceedings of the Committee's public hearings is available on the Legislative Council website.

4. **Acknowledgements** The Committee wishes to record its appreciation of the cooperative approach adopted by all the persons who were invited to give evidence. In addition, the Committee is grateful for the assistance and constructive advice given by the Secretary for Financial Services and the Treasury, the Legal Adviser and the Clerk. The Committee also wishes to thank the Director of Audit for the objective and professional manner in which he completed his Report, and for the many services which he and his staff have rendered to the Committee throughout its deliberations.

A. Introduction

The Audit Commission ("Audit") conducted a review of the administration of the air traffic control ("ATC") and related services by the Civil Aviation Department ("CAD"), in particular the implementation progress of the Air Traffic Management System ("ATMS") contract.

Background

2. According to the Audit Report, CAD is committed to a safe, efficient and sustainable air transport system. Its primary functions are three-fold:

- (a) provision of ATC services - CAD provides ATC services and flight information to flights arriving and departing Hong Kong International Airport and aircraft overflying the 276 000 square kilometres Hong Kong Flight Information Region;
- (b) regulation of the civil aviation industry - CAD sets aviation safety and security standards, oversees the compliance by the Airport Authority, airlines and aircraft maintenance organizations with such standards, and maintains a licensing system for aviation professionals; and
- (c) investigation of aircraft accidents or serious incidents - CAD conducts the investigation of civil aircraft accidents or serious accidents that occurred in Hong Kong with the objective of preventing recurrence.

3. The air traffic (in terms of aircraft movements) handled by CAD from 1998-1999 to 2013-2014 had increased from 177 759 by 113% to 378 617 for Hong Kong International Airport and from 70 561 by 217% to 223 775 for overflying traffic. According to Airport Authority Hong Kong, the Hong Kong International Airport, if operating as a three-runway system, will be able to meet the forecast traffic demand in 2030: 97 million passengers, 8.9 million tonnes of cargo and 602 000 flight movements a year¹. The Administration affirmed of the need of a three-runway system in March 2015. Against this background, it is imperative for CAD to continue providing safe and efficient ATC and other related services.

¹ Please refer to the publication by the Airport Authority Hong Kong at the following link: <http://www.newsletter.threerunwaysystem.com/2012issue01/index.html#eng>.

The Committee's Report

4. The Committee's Report sets out the evidence gathered from witnesses. The Report is divided into the following parts:

- Introduction (Part A) (paragraphs 1 to 9);
- Procurement and implementation of the new air traffic control system project (Part B) (paragraphs 10 to 94);
- Management of the precision runway monitor project (Part C) (paragraphs 95 to 102);
- Administration of air traffic control service related charges (Part D) (paragraphs 103 to 110);
- Administration of the mandatory occurrence reporting scheme (Part E) (paragraphs 111 to 121); and
- Conclusions and recommendations (Part F) (paragraphs 122 to 124).

Public hearings

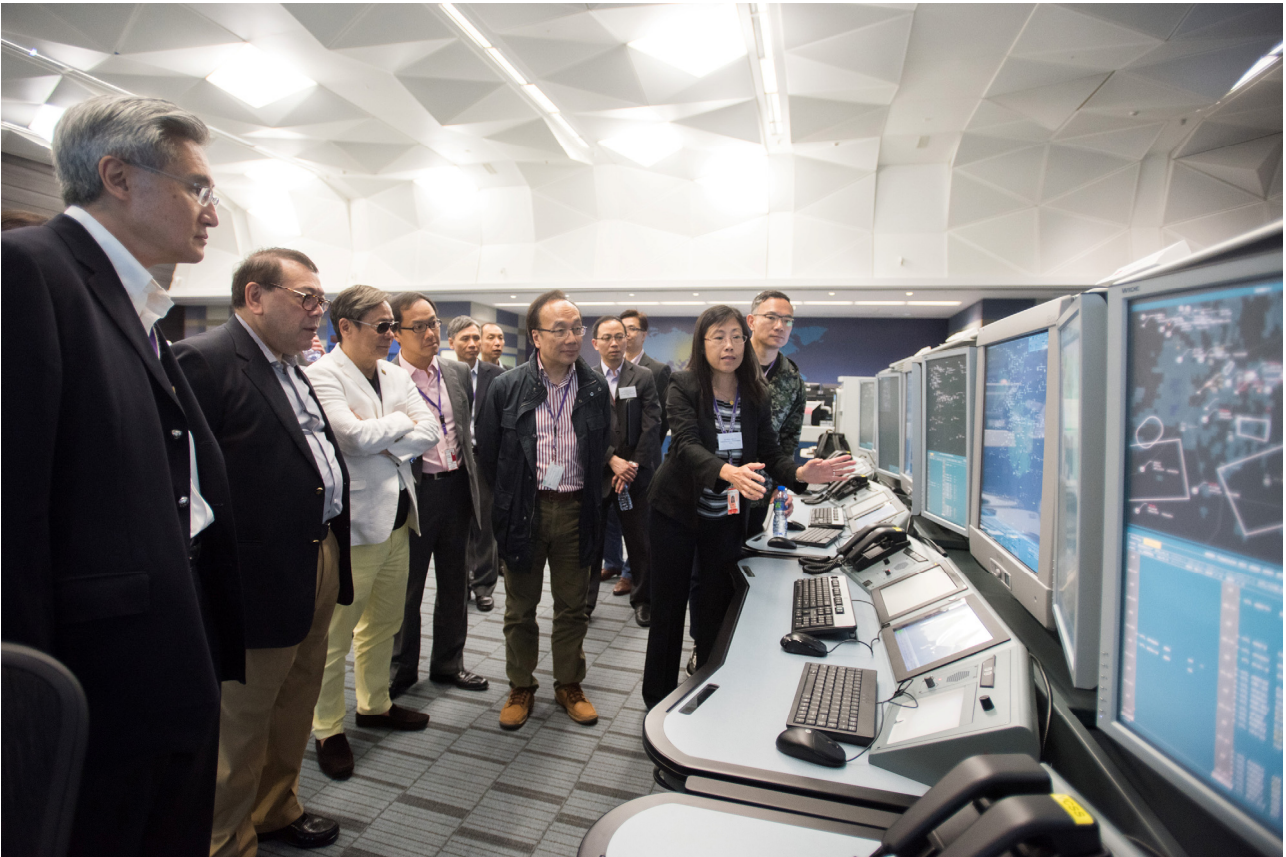
5. The Committee held a total of six public hearings from December 2014 to March 2015 to receive evidence on the findings and observations of the Director of Audit's Report ("the Audit Report").

Site visit

6. The Committee conducted a visit to CAD on 23 May 2015 to better understand the operation of the existing ATMS and the testing of the new ATMS. The Committee also visited the existing ATC centre and the new ATC building.²

² During the visit on 23 May 2015, the Committee noticed that on the sticker labels at the back of the display screens for the controller working positions at the new ATC building, it was printed "Made in USA" in English but "比利時製造" (Made in Belgium) in Chinese. CAD's attention was drawn to this irregularity.

Photograph 1



Representatives of CAD brief members of the Committee on the testing of the new ATMS during the visit on 23 May 2015

Submissions from members of the public

7. The Committee has received a number of submissions from members of the public giving views on the new ATC System project, in particular on the tendering process, tender evaluation, provisions in the Tender Document for replacement of ATMS ("Tender Document"), project implementation and the reliability of ATMS. While the Committee welcomes members of the public to give views on the subject under investigation, the Committee has followed the established practices that this Report only contains evidence obtained from witnesses at the public hearings as well as written submissions from witnesses providing supplementary information to their evidence.

Opening statement by the Secretary for Transport and Housing

8. **Professor Anthony CHEUNG, Secretary for Transport and Housing**, made an opening statement at the beginning of the Committee's public hearing on 9 December 2014, a summary of which is as follows:

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- regarding the delay in the replacement of the ATC system, he pointed out that enhancing aviation safety and ATC efficiency was the prime objective of the replacement of the system. The ATC system was a major and highly complex integrated system. Prior to its commissioning, the system had to go through comprehensive testing to ensure that it operated smoothly, safely and stably that could fully comply with the latest international requirements and meet the safety standards stipulated by CAD, which must not be compromised. The project for the ATC system was not an ordinary project of equipment replacement. The overseeing of the tendering and installation work should meet the highest international aviation standards, with a view to ensuring the system could cope with the latest development in aviation technology, and that it could operate in a safe and reliable manner; and
- the Transport and Housing Bureau ("THB") understood that the public were concerned about the replacement of the ATC system, in particular how the delay in commissioning the new system would affect the ATC operation, the operational reliability of the existing ATC system, etc., which had been pointed out in the Audit Report. CAD had accepted the various improvement recommendations made by the Director of Audit, and would continue to urge the Contractor of the ATMS ("the ATMS Contractor") to expedite action in rectifying the outstanding problems in the new system and monitor the remaining contract work more closely in order to minimize further delay of the project.

The full text of the Secretary for Transport and Housing's opening statement is in *Appendix 5*.

Opening statement by the Director-General of Civil Aviation

9. **Mr Norman LO Shung-man, Director-General of Civil Aviation**, made an opening statement at the beginning of the Committee's public hearing held on 9 December 2014, the summary of which is as follows:

- CAD accepted all the recommendations in the Audit Report;
- aviation safety was CAD's topmost priority. The new ATC system must meet stringent ATC requirements before commissioning. CAD would continue to urge the ATMS Contractor to expedite actions on rectifying the outstanding deficiencies/observations in the new system

and would closely monitor the remaining contract work to ensure minimum project delay;

- on the ageing of the existing ATC system, CAD had implemented appropriate measures and had stepped up maintenance efforts to keep it in smooth operation until the new ATC system was available;
- the main objective of the the precision runway monitor ("PRM") project, which was implemented almost 20 years ago, was to enable higher runway capacity for the new airport's two runways. Before the PRM radar could achieve its anticipated objective, CAD had achieved it by continuously optimizing ATC procedures, flight operations and meteorological conditions for approaches;
- during the 16 years from the commissioning of the new airport back in 1998 to the present, runway capacity had been increased to 66 movements per hour from 31 movements per hour. In 2015, it would further be increased to 68 movements per hour, exceeding the maximum capacity of 63 movements per hour for the dual runways estimated in the 1994 Airspace Design Study; and
- in managing major equipment projects in the future, CAD would strengthen project appraisal to ensure full evaluation of uncertainties and risks impacting on project viability.

The full text of the Director-General of Civil Aviation's opening statement is in *Appendix 6*.

B. Procurement and implementation of the new air traffic control system project

10. One of the major functions of CAD is to provide ATC services to flights arriving at or departing from the Hong Kong International Airport and aircraft overflying the Hong Kong Flight Information Region.

11. The ATC system, comprising advanced electronics systems, is an essential tool enabling air traffic controllers to provide safe, reliable, effective and efficient ATC services.

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12. In May 2007, CAD obtained funding of \$1.565 billion to replace its ATC system. According to the paper submitted by the Administration to the Legislative Council ("LegCo") Finance Committee ("FC")³, the existing ATC system would be approaching the end of its useful life by 2012 and the new ATC system was targeted for commissioning in December 2012. However, as at May 2015, it was not yet in operation.

13. CAD implemented the new ATC system project through eight major contracts, including the ATMS contract, the Air Traffic Services Data Management System contract, the Aeronautical Information Management System contract, the Aeronautical Messaging System contract, the Communication Backbone contract, the Communications and Recording System contract, the Relocation and Expansion of Air Traffic Services Message Handling System contract and the Ancillary and Technical Support Systems contract. Seven of the eight contracts were substantially completed on schedule, and there has been substantial delay in the implementation of the ATMS contract. This contract, with original contract value of \$486 million, is the most complex in terms of scope, design, system software development, functional and system interoperability requirements. As at May 2015, it had two contract variations with a total sum of \$89.2 million.

Delay in the implementation of the ATMS contract

14. The Committee noted with concern that there was a substantial delay in the implementation of the ATMS contract which was targeted for completion on 20 December 2013⁴, but slippages in the completion of various milestones of the ATMS contract were revealed in the Table 3 of the Audit Report. As such, the Committee enquired about the reasons for the slippages.

15. **Mr Simon LI Tin-chui, Deputy Director-General of Civil Aviation**, explained at the public hearings that:

- the slippage in the ATMS Contractor's submission of Detailed Design Document to CAD was due to the complexity of ATMS and its

³ Please refer to the paper submitted by the Economic Development and Labour Bureau to FC in May 2007 [LC Paper No. FCR (2007-08)9] for details.

⁴ According to Tables 2 and 3 of the Audit Report, tender invitation was issued in November 2009 and the ATMS contract was awarded in February 2011. The original target date of completion of Phase 1 ATMS and system integration was June 2013, but due to the second contract variation, it was extended for six months, until 20 December 2013.

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integration with other ATC systems, and a longer time required to resolve issues identified during the meeting of the Detailed Design Review ("DDR") in order to meet CAD's requirements; and

- the slippage in the ATMS Contractor's submission of Site Acceptance Tests Procedures to CAD was due to the change in the testing requirements of CAD. With experience gained during the Factory Acceptance Tests, it was agreed between CAD and the ATMS Contractor that scenario-based test should be included in the Site Acceptance Tests Procedures. The scenario-based test would enable more thorough checks on the system functions, performance and reliability as it would emulate live operations.

16. In reply to the Committee's request, **Director-General of Civil Aviation** provided a table setting out the reasons for slippages in various milestones of the ATMS contract in his reply dated 27 December 2014 (in *Appendix 7*).

17. The Committee was of the view that CAD, as a professional department, should have anticipated the complexity of the ATMS project. In addition, scenario-based test, which was an important test using live traffic, should have been included in the tender specifications of the new ATMS and CAD should have allocated sufficient time for completing this test in the first place.

18. The Committee was concerned about the three-and-a-half year serious delay of the ATMS project, i.e. from end 2012 (the end of usable life of the existing ATMS) to the estimated first half of 2016 (when the new ATMS and ATC System would be ready for operation) and the implications of the delay on the project costs. At the request of the Committee, **Director-General of Civil Aviation** provided a table setting out the reasons for slippages in various critical tasks of the implementation of the ATC system project in his reply dated 27 December 2014 (in *Appendix 8*) and a table comparing the actual figures with the estimated capital cost for the replacement of ATC system in his reply dated 12 December 2014 (in *Appendix 9*).

19. The Committee noted that CAD had stated in its reply dated 12 December 2014 (in *Appendix 10*) that "the original schedule for the procurement and testing of the new ATC system might be a bit too ambitious". In this connection, the

Committee asked for CAD's basis to make this statement. **Director-General of Civil Aviation** stated in his letter dated 24 December 2014 (in *Appendix 11*) that:

- according to the overseas experience, it normally took more than two-and-a-half years from contract award to completion for similar large-scale ATC system replacement. For instance, it took six years for Singapore to replace their ATC centre, with three years' delay incurred. Likewise, the Swanwick ATC centre in the United Kingdom, which was responsible for the southern airspace covering the Heathrow airport, took about 11 years to replace their ATC centre and suffered about six years' delay;
- with hindsight, CAD considered that it would be more desirable if some buffer periods had been included in the original implementation plan of the ATC system project to cater for the additional time required to resolve any possible unforeseen issues that might arise during the implementation of such sophisticated and complicated system; and
- CAD would draw lessons from this case.

Tendering exercise for the procurement of the new ATMS

20. According to Table 3 and paragraph 2.13 of the Audit Report, there were a large number of deficiencies/observations identified during the Factory Acceptance Tests of the ATMS contract and there were slippages in the completion of various milestones of the ATMS contract. As such, the Committee looked into whether CAD had selected a suitable contractor to provide the new ATMS as well as whether the tendering exercise had been conducted properly, fairly and impartially. CAD was requested to explain in details the procurement process of the new ATMS.

21. **Director-General of Civil Aviation** stated at the public hearings and in his letter dated 27 December 2014 (in *Appendix 12*) that CAD had strictly followed the rules and procedures as stipulated in the Government Stores and Procurement Regulations ("SPR") and the World Trade Organization Government Procurement Agreement ("WTO GPA") throughout the procurement of ATMS to ensure fairness and impartiality in the tendering exercise. At the request of the Committee, **Director-General of Civil Aviation** provided a flowchart showing the steps leading to the award of the tender for the ATMS contract in his reply dated 27 December 2014 (in *Appendix 13*).

Preparation and formulation of Tender Document for the procurement of ATMS

22. Regarding the preparation and formulation of Tender Document, **Director-General of Civil Aviation** explained in his letters dated 12 and 27 December 2014 (in Appendix 10 and Appendix 12) that:

- the tender document for procurement of the new ATC system were developed by CAD in accordance with SPR. The tender document set out the technical requirements for the new system, including a stable and reliable system architecture, enhanced flight information and data processing capability, highly automated with advanced safety net features, precise flight trajectory prediction function, etc. These requirements were formulated based on the latest technical, operational and safety standards adopted worldwide in regard to ATC system, as well as the experience in operating the existing ATC system. The objective was to enhance the processing capacity and functions of the new ATC system in compliance with the latest International Civil Aviation Organization ("ICAO") requirements;
- prior to developing the tender document, CAD had conducted comprehensive market research on the ATC system, and paid fact-finding visits to overseas major ATC centres to exchange views with the ATC personnel there and learnt from their experience. This allowed CAD to acquire more in-depth understanding on the latest technical, operational and safety standards adopted worldwide in operating ATC system, thereby facilitating the incorporation of latest technology and safety requirements into the tender document;
- CAD also consulted the aviation industry about its plan to replace the ATC system, including the International Air Transport Association, the Hong Kong Air Traffic Control Association, and the Panel on Economic Services (renamed as the "Panel on Economic Development" ("ED Panel") in October 2007) of LegCo. From 2007 onwards, CAD discussed and collected views of the ATC personnel in various areas, including new system project planning, system functions, human-machine interface, operation workflow, implementation and transition etc., and incorporated the collected views into the tender document to ensure that the new ATC system could meet CAD's operational needs and requirements; and
- regarding whether a higher weighting than 40% could be adopted for the technical score, CAD had explored during the preparation of the

tender document for the ATC system project in 2008 with Government Logistics Department ("GLD") on the feasibility, especially for the ATMS contract, but was advised that a higher technical weight would not necessarily ensure a higher quality of the service/product to be delivered by the successful supplier and a value for money purchase had to be ensured. GLD also advised that the setting of mandatory requirements and essential requirements under the marking scheme before calculating the technical/price score would instead guarantee that only those capable contractors with quality proposals would be awarded with the contracts. In view of GLD's advice, CAD adopted 40% weighting for technical score and 60% for price score in accordance with SPR for a value for money procurement for ATMS,⁵ which was eventually approved by the Central Tender Board⁵ ("CTB").

Tender invitation

23. The Committee noted from paragraph 5 of the memorandum dated 8 December 2010 from GLD to the Chairman of CTB (in *Appendix 14*) that 45 local suppliers and 43 suppliers from places outside Hong Kong were invited to submit tender proposals for providing the new ATMS, and five offers from five suppliers outside Hong Kong were received. In this regard, the Committee asked:

- based on what criteria and through what channels the supplier list of 45 local suppliers and 43 overseas suppliers for the ATMS tender exercise was compiled;
- whether it was common for open tenders to have a low response rate, i.e. only five tenders proposals received out of more than 80 invitations sent out; and
- the number of suppliers invited to submit proposals for the tender for procuring the existing ATMS in the early 1990s, and the number of tender proposals received.

24. **Ms Maisie CHENG Mei-sze, Director of Government Logistics,** explained in her letter dated 12 January 2015 (in *Appendix 15*) that:

⁵ CTB was chaired by the Permanent Secretary for Financial Services and the Treasury and comprised the representatives from the Financial Services and Treasury Bureau ("FSTB") and GLD, etc.

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- GLD maintained lists of local and overseas suppliers of various goods and related services to facilitate the issue of tender notifications. Suppliers could apply for inclusion in the relevant GLD supplier lists according to the nature of goods/services they provided;
- with a view to widening the source of supply and obtaining the most cost-effective tender proposals, the Government adopted open tendering in 2009 for the procurement of ATMS. Apart from publishing the relevant tender notice in the Government Gazette and on the website of GLD, the Government also invited all local and overseas suppliers of GLD listed under the product group of "radar apparatus, including navigational aid radars" to participate in the tender exercise;
- compared with previous open tenders for procuring highly specialized, complicated and technical system, the response rate of this tender was not considered low; and
- the procurement of the existing ATMS in 1993 was arranged through two stages, i.e. a prequalification tender exercise and a restricted tender exercise. During Stage 1, a prequalification tender exercise was arranged to invite interested suppliers to conduct a System Definition Study at no cost to the Government. CAD had arranged an open tender for the prequalification exercise. According to CAD's record, 30 suppliers had been invited to tender and subsequently a total of five proposals were received. Upon completion of the System Definition Study, CAD had shortlisted three suppliers. The then Government Supplies Department was requested by CAD to arrange a restricted tender exercise by inviting these three suppliers in Stage 2 for the implementation of ATMS. As a result, all three invited suppliers submitted proposals for the Stage 2 tender in June 1994.

25. **Director of Government Logistics** supplemented at the hearing that, at the time when the tender for the procurement of the new ATMS was issued in 2009, the arrangements for prequalification were rarely adopted by the Administration in tenders of major systems except for public works.

Tender evaluation

26. As regards the tender evaluation process for the new ATMS, **Director-General of Civil Aviation** stated at the public hearings and in his letter dated 27 December 2014 (in Appendix 12) that:

- through an open tender exercise, a total of five tender proposals were received for the ATMS contract. The five tenders received were assessed by a tender assessment panel ("TAP") comprising 11 experienced engineering and ATC personnel of CAD⁶. TAP adopted a two-envelope approach, which was a requirement stipulated in SPR and a government-wide practice, as stipulated in the Tender Document. Under this approach, TAP first conducted a technical assessment of each tenderer's proposal and calculated the technical score. After completion of the technical assessment and obtaining agreement from GLD, GLD then provided TAP with the price information of the tender proposals to calculate the price score;
- regarding the marking scheme of the ATMS tender exercise, a weighting of 40% for technical score and 60% for price score was adopted. The marking scheme was developed in accordance with SPR⁷ and approved by CTB, and clearly stipulated in the Tender Document during the stage of tender invitation; and

Technical assessment results

- after the technical and price evaluation of the tenders by TAP, the tender proposal with the highest score was recommended for consideration and approval by CTB. Since the proposal submitted by the Contractor of the existing ATMS obtained the highest overall score, the ATMS contract was recommended to be awarded to the Contractor and the recommendation was subsequently approved by CTB⁸.

6 Please refer to paragraph 17 of CAD's reply dated 12 December 2014 (in Appendix 10) for the posts of the 11 members of TAP.

7 SPR stipulates that departments should normally adopt a 30% - 40% weighting for technical score, as against a weight of 60%-70% for price score and departments should note that a higher technical weighting would not necessarily ensure a higher quality of service or goods to be delivered by the successful tenderer.

8 Please refer to the Tender Assessment Report (in Appendix 14) submitted by GLD to CTB for details.

Experience of TAP members

27. In response to the Committee's enquiry about the competency and relevant experience of TAP members in conducting the tender evaluation for the ATMS contract, **Director-General of Civil Aviation** replied at the public hearings that:

- although only two of the TAP members had been involved in the procurement of the existing ATMS, TAP comprised experienced engineers from the Air Traffic Engineering and Standards Division of CAD who had been involved in the procurement of a number of subsystems as well as CAD's operational controllers who had been involved in carrying out evaluation and training duties;
- at the beginning of this project, TAP members had paid visits to overseas major ATC centres and attended international conferences relating to ATC system; and
- he believed that the members of TAP had the competency to conduct the tender assessment for the ATMS contract in a professional manner.

28. As to whether CAD had implemented any measures in respect of the new ATMS tender to regulate post-service employment of its staff (including those on non-civil service contract ("NCSC")) to ensure that they would not take up any post-service work which might constitute real or potential conflict of interest with their previous duties in CAD, **Director-General of Civil Aviation** explained in his letter dated 25 March 2015 (in *Appendix 16*) that:

- under the prevailing control regime stipulated by the Civil Service Bureau, directorate civil servants leaving government service (e.g. on retirement, resignation, completion of agreement) were required to obtain prior permission before they could take up any outside work during the prescribed restriction periods, so as to ensure that civil servants leaving the Civil Service did not take up work which might constitute actual, potential or perceived conflict of interest with their former government duties or which could undermine the image of the Civil Service or embarrass the Government;
- staff employed under NCSC terms were also subject to the control under the Prevention of Bribery Ordinance (Cap. 201), which criminalized bribery and corrupt transactions in both the public and

private sectors, and the Official Secrets Ordinance (Cap. 521), which controlled the unauthorized disclosure of official information; and

- in respect of the new ATMS tender, CAD had followed strictly the rules and procedures in SPR. All TAP members had signed declaration and undertaking to confirm no conflict of interest prior to the conduct of the tender assessment exercise. The composition of TAP was also approved by CTB.

Due diligence

29. On the question of whether CAD had conducted due diligence to assess that all five tender proposals were in compliance with the mandatory requirements as stipulated in the Conditions of Tender, **Director-General of Civil Aviation** explained in his letter dated 12 January 2015 (in *Appendix 17*) that CAD had strictly followed the evaluation procedures as laid out in the Conditions of Tender, which were in line with international and industry practices. CAD verified compliance of the tenderers' proposed systems against all the essential requirements through checking their submitted documents, clarification with the tenderers, and solicitation of information, including the user feedback, system performance and tenderer performance, etc., through questionnaires. CAD also conducted visits to the factory sites of all the five tenderers (with same set of checklist items sent in advance to all the tenderers) to verify that their proposed systems could meet the relevant essential requirements.

30. The Committee noted from the Conditions of Tender that the Government reserved the right to conduct visits to the factory(ies) and reference site(s) of all the tenderers who have passed Stage 2 evaluation to verify compliance with the essential requirements⁹. In this connection, the Committee enquired whether CAD had conducted visits to the reference site(s) of all the tenderers who have passed Stage 2 evaluation.

31. **Director-General of Civil Aviation** said at the public hearings and explained in his letter dated 12 January 2015 (in *Appendix 17*) that CAD had not conducted visit to the reference sites of the tenderers during the technical assessment stage but TAP had conducted site visits to factories of all the five tenderers that had

⁹ According to Clause 8.2 of Part II of the Tender Document, "[s]ite visits to the factory(ies) and reference site(s) of any Tenderer who has passed Stage 2 evaluation in Clause 24.1 may be required so as to enable the Government to inspect the operational equipment as proposed in its tender in the course of the evaluation."

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met the mandatory requirements in the Tender Document. TAP had also devised and issued a set of questionnaire inviting written responses from users of the reference sites provided by the tenderers. This was considered to be a more efficient and cost-effective arrangement given the following considerations:

- in view of the complexity and highly technical nature of ATMS, it would be more effective for CAD to conduct factory visits to assess the technical capability of the tenderers as more specific and comprehensive on-site tests or inspections of the systems of the tenderers could be conducted, and questions could be raised with the tenderers on the spot, which could facilitate direct communications and clarifications with the tenderers; and
- a factory setup would provide a more suitable environment for the tenderers to demonstrate their latest technology and the essential features of ATMS, especially those safety-critical ones, with the use of test beds or simulators.

32. The Committee also enquired whether CAD had solicited comments from users of the ATMS Contractor's Proposed System regarding its performance prior to the award of the ATMS contract, **Director-General of Civil Aviation** stated at the public hearings and in his letters dated 12 January 2015 (in Appendix 17) and dated 18 February 2015 (in **Appendix 18**) that:

- the ATMS Contractor's Proposed System was currently used by airports in Dubai as well as the airports in Delhi, Mumbai and Chennai of India. ATMS designed and manufactured by the ATMS Contractor using the same crucial sub-systems as the Proposed System were also widely used in Germany, the United States and Canada;
- the said Dubai and Indian airports had not commenced the operation of the Proposed System at the time when CAD awarded the ATMS contract to the Contractor in February 2011. As such, CAD had not sought comments from the Dubai and Indian airports prior to the award of the ATMS contract. Moreover, CAD had strictly followed the tender evaluation procedures as laid down in the Tender Document and sent questionnaires only to those reference sites which were provided by the tenderers to solicit users' feedback on the tenderers' systems; and

- CAD sent questionnaires to the reference sites at Germany and Canada provided by the ATMS Contractor to solicit users' feedback on the technical, operational and stability performance of the Contractor's Proposed Systems, and its performance, etc. The two systems used at these sites were installed with core components of the ATMS Contractor's Proposed System, namely the Surveillance Data Processing ("SDP") and Flight Data Processing ("FDP") Systems, which were critical core components in ATMS in supporting ATC operations. SDP System was used to monitor the location of flights on radar, while FDP System was used to process the flight plans filed by airlines.

33. The Committee noted that there were some media reports related to the unsatisfactory performance of the ATMS Contractor's Proposed System at the airports in India in 2010. As such, the Committee enquired whether CAD and GLD were aware of any articles/reports in the media concerning the performance of the ATMS Contractor's Proposed System at airports in Delhi, Mumbai or Chennai of India prior to the award of the ATMS contract in February 2011.

34. **Director-General of Civil Aviation** stated in his letter dated 25 April 2015 (in *Appendix 19*) that CAD understood that the Indian newspapers referred to at the Committee public hearings were media reports of 2010 related to the performance of the ATMS Contractor's Proposed Systems at the Indian airports. According to the Airport Authority of India, the ATMS Contractor's Proposed Systems at the Indian airports, namely Delhi, Mumbai and Chennai, only commenced operations from July to September 2011. According to CAD record, CAD had not received any media reports in the Indian newspapers as mentioned before the award of the ATMS contract in February 2011. **Director of Government Logistics** also stated in her letter dated 15 April 2015 (in *Appendix 20*) that according to GLD's record, GLD had not received any information or document concerning reports on the use of the ATMS Contractor's Proposed System in Indian airports before the ATMS contract was awarded.

35. Referring to the media report concerning the disappearance of the aircraft of Mr David Cameron, Prime Minister of the United Kingdom, from the screen of ATMS used by the airport of New Delhi on 28 July 2010, the Committee asked whether similar incidents had occurred during testing of the new ATMS.

36. **Director-General of Civil Aviation** stated at the public hearing on 28 March 2015 that the cause of the disappearance of an aircraft from the screen of an ATMS was a very complicated issue, and that he was unable to comprehend the circumstances of the incident without a technical analysis report. He further stated that CAD had been communicating with the airport authority in New Delhi since 2013 and was informed that there was no problem with the ATMS used by the New Delhi Airport.

37. After the public hearing on 28 March 2015, **Director-General of Civil Aviation** confirmed in his reply dated 5 May 2015 that during one of the testing scenarios of the Site Acceptance Tests conducted for the new ATMS in late September 2014, there was an incident in which a number of aircrafts disappeared from the test screen for 10 seconds before they were reinstated on-screen again. In this regard, the Committee queried why the Director-General of Civil Aviation had not advised the Committee about the occurrence of such incident during the public hearing on 28 March 2015.

38. In reply, **Director-General of Civil Aviation** explained in his letter dated 15 May 2015 (in *Appendix 21*) that:

- CAD had no information of the circumstances, technical analysis or rectification of the said incident at New Delhi Airport. For any complex and large-scale system such as ATMS, even using the same system from the same manufacturer, there could be many causes, including causal factors attributable to external systems or human factors, leading to an apparently similar phenomenon;
- the new ATMS in Hong Kong was different with the installation in New Delhi in terms of system complexity, configuration, adaptation, and interfaces with other ATC systems;
- without being privy to the ATMS system at New Delhi Airport or details of the incident, CAD was unable to confirm if observations of similar nature of failure had occurred during the testing of the new ATMS;
- CAD's recorded observations could be specific to the new ATMS in Hong Kong. As the cause of failure of the new ATMS during testing could be different from the incident in New Delhi, CAD could not draw a conclusion that they were similar incidents; and

- the momentary loss of targets for about 10 seconds from the screen of the new ATMS in late September 2014 had been positively identified and subsequently rectified in November 2014 with no recurrence since then, CAD therefore had not advised the Committee about the occurrence of such incident during the public hearing on 28 March 2015.

39. The Committee noted that according to Clause 8.1 of Part II of the Tender Document, the tenderers were required to provide a list of reference site(s) of one or more ATMS(s) which the tenderer had supplied, installed and assisted in the commissioning for the purposes of ATC and the ATMS at any one of the aforementioned reference site(s) must have been operated as the "main" system in at least one ATC centre. However, the ATMS Contractor only provided reference sites using the core components of its Proposed System. As such, the Committee enquired, besides the ATMS Contractor, whether all of the other tenderers who passed Stage 2 evaluation had provided reference sites using the full version of their proposed systems.

40. **Director-General of Civil Aviation** stated at the public hearings and in his letter dated 25 March 2015 (in Appendix 16) that:

- the Tender Document had not specified that tenderers who had passed Stage 2 evaluation had to provide reference sites using the full version of their proposed systems; and
- two out of the five tenderers who had passed Stage 2 assessment had provided reference sites which had installed core components of their proposed systems only.

41. In response to the Committee's enquiry about whether the tenderers had provided reference sites using full version of their proposed system, **Director-General of Civil Aviation** admitted that some of the words used in the Tender Document were not clear, which might have made it easy for some tenderers to make use of the situation.

42. At the request of the Committee, **Director of Government Logistics** and **Director-General of Civil Aviation** provided a consolidated table showing the six stages of the tender evaluation of the ATMS contract, the corresponding tender

clauses and the evaluation activities carried out by TAP in each stage. The table is in *Appendix 22*.

Tendering terms and process

43. The Committee noted from Clause 3.1 of Part VII of the Tender Document for the procurement of the new ATMS that the Contractor was required to provide an ATMS that could accommodate the concurrent operations of 120 controller working positions. In this connection, the Committee asked why CAD only required the tenderers to provide an ATMS with a track record of having no less than 40 ATC centre air traffic controller working positions in one ATC centre in Clause 8.1 of Part II of the Tender Document.

44. **Director-General of Civil Aviation** said at the public hearings and explained in his letter dated 15 January 2015 (in *Appendix 23*) that:

- since CAD considered that around 40 to 50 ATC controller working positions would be required for the new ATC centre, the requirement that a reference system in a tenderer's proposal should be equipped with a minimum of 40 ATC controller working positions in one ATC centre was incorporated into the Tender Document; and
- the remaining 70 to 80 ATC controller working positions would be allocated to the backup centre, operational main tower and the backup ATC tower.

45. The Committee also noted from Clause 8.1 of Part II of the Tender Document that the tenderers were required to provide serviceability/availability figures showing that the system was put in service for no less than six consecutive months any time within the last 10 years preceding the Tender Closing Date. In view of the fact that six months might not fully reflect the capability and performance of the system to handle the fluctuation in air traffic due to seasonal changes, the Committee enquired about:

- the reason for using "no less than 6 consecutive months" as the minimum track record requirement in Clause 8.1 Part II of the Tender Document; and

- the minimum track record requirement for procuring the existing ATMS in 1993.

46. **Mr Richard WU Chi-kwong, Assistant Director-General of Civil Aviation (Air Traffic Engineering Services), and Mr HUI Man-ho, Chief Electronics Engineer (Technical Support) of CAD**, said at the public hearings on 28 March and 15 January 2015 respectively, and **Director-General of Civil Aviation** explained in his letter dated 12 January 2015 (in Appendix 17) that:

- based on operational experience and the experience of CAD during the Chek Lap Kok Hong Kong International Airport project, CAD had set down a mandatory requirement on the track records of the systems submitted by the tenderers and considered that a six-month period should be sufficient to identify key anomalies that might arise in the system;
- in the Tender Document for the procurement of major ATMS by Thailand and Singapore, the tenderers were only required to provide an operational reference site and there was no minimum operation track record requirement;
- for the existing ATMS, the tenderers were required to provide serviceability/availability figures of the systems similar to the proposed system for the previous 12 months, but it was not a mandatory requirement; and
- with experience gained over the years, CAD adopted a no-less than six months' mandatory requirement for the new ATMS tender. This minimum operation period was also adopted in the Tender Document of other major ATC systems.

47. According to Clause 8.4 of Part II (Conditions of Tender) of the Tender Document (in *Appendix 24 (pages 244 to 246)*), "a proposed System with no proven performance record will not be considered further", the Committee asked how the phrase "proven performance record" should be interpreted.

48. **Director of Government Logistics** stated in her letter dated 12 January 2015 (in Appendix 15) that:

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- the relevant Tender Document was prepared by CAD and vetted by GLD and the Department of Justice ("DoJ") before tender invitation;
- in the interpretation of a tender document, a clause must not be considered in isolation, but must be considered in the context with relevant provisions of the document. As such, the wording "A proposed System with no proven performance record will not be considered further" in the last sentence of Clause 8.4 must not be taken out in isolation, but must be read in context with the wording and spirit in Clause 8;
- Clause 8 was concerned with the provision of the tenderer's track records. According to Clause 8.1, a tenderer should provide track records to demonstrate its past experience and compliance with certain mandatory requirements for the purposes of the Stage 2 assessment. According to Clause 8.2, a tenderer should also provide track records including reference site(s) which the Government might conduct site visit when necessary, so as to evaluate the tenderer's compliance with the essential specifications for the purposes of the Stage 3 assessment; and
- there were four sentences in Clause 8.4. "A proposed System with no proven performance record will not be considered further" in the last sentence was a reference to the preceding sentence. According to the first two sentences of Clause 8.4, the Government might contact any users of the reference sites whose details were provided by the tenderer under Clause 8.2 for supplementary information, so as to prove that the tenderer had the capability to provide a system that could meet the essential specifications in the Tender Document. The third sentence of Clause 8.4 stated that in the event that the reference from a user indicated the system proposed could not meet with the essential specifications, the tenderer should provide explanations and a new user reference to prove the performance of the system. Therefore, the "proven performance record" in the fourth sentence of Clause 8.4 referred to performance record of the system in the user reference in the previous sentence.

49. Since it was clearly stated in Clause 8.4 of Part II of the Tender Document that "[a] proposed System with no proven performance record will not be considered further", the Committee queried why CAD awarded the contract to the Contractor

who proposed a new System with no proven performance as it was not yet in operation prior to the award of the ATMS contract.

50. **Director-General of Civil Aviation** stated at the public hearings and explained in his letter dated 15 January 2015 (in Appendix 23) that:

- the Tender Document was issued after endorsement from GLD and DoJ. As explained by GLD, Clause 8.4 should be interpreted with consideration given to the full text and spirit under Section 8 of Part II of the Tender Document;
- when CAD conducted the tender exercise for the new ATMS in 2011, an unsuccessful tenderer alleged that the Proposed System provided by the ATMS Contractor had failed to meet the requirement of possession of "proven performance record" as specified in the Tender Document, hence in breach of the relevant provision of the WTO GPA. In accordance with the relevant provisions of the WTO GPA, the Government had immediately referred the complaint to the Review Body on Bid Challenges¹⁰, a dedicated and independent body established under the WTO GPA, for review. After review of the case, the Review Body found that the System proposed by the Contractor possessed the necessary "proven performance record". The Review Body had not seen any unfairness or bias which the Government had operated on any tenderer including the complainant. The complaint was therefore dismissed;
- the term "System" in fact was not referred to a specific ATMS or a whole set of systems proposed by a tenderer. It should be interpreted to mean "a basket of systems and sub-systems" and the core component system should have been used by some ATC centres previously; and
- systems from the ATMS Contractor were widely used at airports in the United States, Germany and Canada. Although carrying different model numbers, the main functions and the latest technologies of such systems were identical to those of the new ATMS. Presently, the ATMS Contractor's Proposed System was in use at Dubai Airport as

¹⁰ According to the reply dated 15 January 2015 from CAD (in Appendix 23), the Review Body provides a dedicated, independent and impartial avenue to review challenges by suppliers who are involved in the relevant procurement against any alleged breach of the WTO GPA during the procurement process. It is served by a Secretariat within the Trade and Industry Department, and comprises 12 members selected from a wide spectrum of society, including legal, engineering, accountancy fields, and are appointed by the Secretary for Commerce and Economic Development.

well as three Indian airports. The average daily departure/arrival flights were around 1 000 at Dubai Airport, 900 at Delhi Airport in India, and 1 100 at Hong Kong International Airport.

51. At the request of the Committee, **Director-General of Civil Aviation** provided the Decision of the Review Body on Bid Challenges (in Appendix 24) regarding the complaint lodged by an unsuccessful tenderer of the ATMS contract concerning the requirement of possession of "proven performance record" by the ATMS Contractor.

52. In reply to the Committee's enquiries about the drafting of Clause 8.4 of the Part II of the Tender Document, **Director of Government Logistics** stated in her letter dated 15 April 2015 (in Appendix 20) that:

- according to SPR, if a goods or services contract had an estimated value exceeding \$100 million, the department must send the tender documents to DoJ for vetting before the issue of the tender. GLD would also vet the tender documents from the perspective of good procurement practice;
- CAD sent the first version of the tender documents for the new ATMS ("first version") to DoJ and GLD for vetting via its email dated 13 May 2009 in accordance with the above requirements of SPR. The last sentence of Clause 8.4 of the first version was "A proposed System with no proven performance (that meet the requirements in the Specifications) will not be considered further.";
- according to GLD's record, DoJ's comments on and proposed amendments to CAD's first version were issued via email dated 12 June 2009. DoJ requested CAD to confirm whether in accordance with the mandatory requirements in Appendix B (of Part II (the Conditions of Tender)) of the first version, it was not necessary for a tenderer to have experience in supplying and installing air traffic management system which was the same model as the one proposed for that tendering exercise. DoJ also pointed out that the last sentence of Clause 8.4 of the first version, "A proposed System with no proven performance (that meet the requirements in the Specifications) will not be considered further.", appeared slightly clumsy. DoJ suggested that in deciding whether the wording in the brackets was needed, CAD should consider whether the product literature and the statement of compliance

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provided by a tenderer would be sufficient to prove that the system complied with the specifications, and whether the system must have been used elsewhere before it could be accepted;

- according to GLD's record, CAD responded via its email dated 24 June 2009 to DoJ's comments on and proposed amendments to the first version. In response to DoJ's advice on Clause 8 above, CAD agreed that the reference to the same model be removed from Clause 8, to be consistent with the mandatory requirements in Appendix B (of Part II (the Conditions of Tender)), and agreed with DoJ's proposed wording on Clause 8.4 for amending the last sentence as "A proposed System with no proven performance records will not be considered further."; and
- GLD had not commented on or proposed amendments to Clause 8 of the first version.

Liquidated damages arising from delay in the implementation of the contract

53. As regards the ATMS contract provisions relating to liquidated damages¹¹ arising from delay in the implementation of the contract, **Director-General of Civil Aviation** stated at the public hearings and in his letters dated 15 January 2015 (in Appendix 23) and 25 March 2015 (in Appendix 16) that:

- the clause providing for the payment of liquidated damages arising from delay were included during the tender preparation and had been reviewed by GLD (from the usual procurement angle) and DoJ (from the legal perspective);
- according to the established legal principles concerning determination of liquidated damages, the amount had to be based on a genuine estimate of the losses which would be suffered by Government arising from the delay of the project. The losses included extra costs for maintenance charges for the existing system (including stocking specialized spare parts for the existing system and software maintenance for the existing system), and any extra manpower required for operating the existing system to ensure continued safety and efficiency and so on. CAD had made reference to these items of losses in arriving at the daily rate

¹¹ The relevant contract provisions on liquidated damages arising from delay in the implementation of the new ATMS contract is in Appendix 17 (page 180).

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chargeable as liquidated damages for each of Phases 1 and 2 ATMS¹². This was in line with the established approach adopted by Government in tender documents to avoid any argument that the amount was extortionate and was a penalty and was therefore not legally enforceable;

- determination of compensation was in accordance with GLD's usual practice for large-scale/complex systems, and the details of consideration on genuine pre-estimation of loss provided by DoJ, and was based on the associated daily cost of maintaining the operation of the existing system for each of day of delayed delivery of the new system (up to a maximum of 100 days); and
- according to the relevant contract provision, the ATMS Contractor would be required to pay a total maximum of around \$5 million in the case of delay in Phase 1 of the ATMS contract, and up to a maximum of around \$3 million in the case of delay in Phase 2 of the ATMS contract.

54. Responding to the Committee's enquiries as to GLD's usual practice for determining the liquidated damages for large-scale/complex systems and whether there were changes made between the relevant clauses in the tender documents of the new ATMS and the existing ATMS, **Director of Government Logistics** explained in her letter dated 20 March 2015 (in *Appendix 25*) that:

- in determining the liquidated damages for delays in the completion dates for large-scale/complex systems, it was the Government's practice that the user department would assess the genuine pre-estimate of loss of the concerned system on a case-by-case basis. The amount, subject to a cap, was set either at a fixed daily or weekly amount or percentage of the one-off cost / the contract value; and
- for the last and present purchases of ATMS, the methods of determining the liquidated damages in the contract conditions were generally the same, i.e. CAD determined the liquidated damages, subject to a cap, based on the genuine pre-estimate of loss per day at that time. However, due to the different implementation plans of the two systems, the liquidated damages were based on the delays in the completion dates of different parts of the systems. In the last contract, the liquidated damages were based on the delays in the completion

¹² According to Note 1 to Table 1 of the Audit Report, the ATMS contract work comprised two phases. Phase 1 contract work referred to the operation of the new ATC centre in the CAD headquarters and Phase 2 contract work referred to the conversion of the existing air-side ATC centre into a back-up centre.

dates of the simulator and the system¹³. Under the current contract, liquidated damages were based on the delays in the completion dates of Phases 1 and 2 of the system.

55. The Committee noted that while the contract provisions on liquidated damages for the procurement of the existing ATMS required the Contractor to pay a maximum of around \$20 million (US\$2,630,040) for delay in providing the simulator and the system, the new ATMS contract only required the same Contractor to pay up a maximum of around \$8 million in the case of delay in the implementation of Phases 1 and 2 of the new ATMS contract.

56. According to CAD, the amount of liquidated damages had to be based on a genuine estimate of the losses which would be suffered by Government arising from the delay of the project, and the ATMS Contractor is also the contractor for the existing ATMS. In this regard, the Committee asked about the extra costs incurred and paid to the contractor to ensure the continued safe and efficient operation of the existing ATMS and extra manpower expenditure required for operating the existing ATMS, arising from the late delivery of the new ATMS project.

57. **Director-General of Civil Aviation** stated in his letter dated 25 April 2015 (in Appendix 19) that:

- the average annual expenditure on system maintenance of the existing ATMS in 2013 and 2014 was \$5.9 million. This amount included a one-off enhancement measure for the existing ATMS conducted in 2014 to enhance the system's capability to handle the increasing volume of air traffic to ensure its safe and reliable operations; and
- the average annual manpower cost to maintain the operation of the existing ATMS was around \$9.5 million in 2013 and 2014. Such manpower cost would be incurred in any case for operating the existing ATMS, or for the new ATMS upon its commissioning.

58. The Committee was also very concerned whether extra cost would be incurred to extend the warranty periods of the other seven major contracts for

¹³ A copy of the relevant contract provisions on liquidated damages for the purchase of the existing ATMS is in *Appendix 26*.

implementing the new ATC system project¹⁴ as a result of the delay in the implementation of the ATMS contract.

59. **Director-General of Civil Aviation** stated in his letter dated 15 May 2015 (in *Appendix 27*) that:

- seven out of the eight major systems of the new ATC system had been substantially completed, two of the systems had been in operation since 2013 and others would be put into use by phases from 2015. These systems were now operating to support the existing ATC equipment operations and training of the air traffic controlling officers. Upon the commencement of the new ATMS, they would be fully integrated with the new system;
- the commencement and expiry of the warranty periods of these systems were independent from the implementation of the new ATMS contract. No extra costs were incurred in extending the warranty periods for these systems as a result of the delay of the implementation of the new ATMS contract; and
- there were provisions in the contracts allowing CAD to procure maintenance services for all the systems after the expiry of the warranty period.

60. At the request of the Committee, **Director-General of Civil Aviation** provided in his reply dated 15 May 2015 a table setting out the duration and expiry date of the warranty period of the eight major contracts under the ATC system project (in *Appendix 28*).

61. The Committee noted from paragraph 1.6 of the Audit Report that CAD set up a dedicated project team to oversee the preparation and implementation of the new CAD headquarters project and the ATC replacement project. In this connection, the Committee enquired about the manpower situation and expenditure of this project team.

¹⁴ CAD implemented the new ATC system project through eight major contracts. Please refer to Table 1 of the Audit Report for details.

62. **Director-General of Civil Aviation** stated in his letter dated 25 April 2015 (in Appendix 19) that:

- for the implementation of the new CAD headquarters project and the ATC system replacement project, an Assistant Director-General of Civil Aviation ("ADGCA") post was established on 1 October 2007 to head a dedicated Project Team, following the approval from FC of LegCo in May 2007. The post had lapsed in March 2013. The supervision and implementation work of the ATC system replacement project had since been undertaken by an ADGCA in addition to his other duties;
- the Project Team was supported by seven civil service posts created on a time-limited basis and other serving CAD officers through internal redeployment, as well as officers appointed on time-limited NCSC terms. In addition, a Senior Architect and a Senior Electrical and Mechanical Engineer were temporarily seconded from the Architectural Services Department and the Electrical and Mechanical Services Department respectively to support the Project Team with their professional advice. The total number of staff in the Project Team varied at different stages of the project. As the project progresses, the Project Team had gradually reduced its staff complement. As at April 2015, the Project Team had 24 members¹⁵;
- the revised completion date for the new ATMS as stated in the contract signed with the ATMS Contractor was December 2013¹⁶. The manpower cost for time-limited posts and NCSC staff of the Project Team from January 2014 to end March 2015 was \$23.3 million. No additional expenses were incurred for redeploying existing staff of CAD to work on the ATC system replacement project; and
- the actual manpower costs for the Project Team in 2013-2014 and 2014-2015 were \$28.5 million and \$29.1 million respectively and these figures included the manpower cost for time-limited posts, NCSC posts and CAD staff redeployed to the Project Team.

15 Please refer to Appendix 19 for the details of the manpower situation and expenditure of the Project Team for involving in the CAD headquarters project and ATC system replacement project from 2007-2008 financial year.

16 According to Table 3 of the Audit Report, this is a revised target completion date which had been extended for six months due to the second contract variation.

System requirements of the new ATMS

63. On the question of whether CAD had changed the system requirements for the new ATMS in the Tender Document from that of the existing ATMS, **Director-General of Civil Aviation** explained at the public hearings and in his letter dated 15 January 2015 (in Appendix 23) that:

- there was no change in the system requirements in the new ATMS Tender Document from the existing ATMS. Based on the operational experience of the existing ATMS, CAD had incorporated more detailed concrete system requirements into the Tender Document and the Contractor was required to provide both system hardware and software for the new ATMS, same as in the case of the existing ATMS;
- there were currently over 20 ATC controller working positions at the existing ATC centre. Upon review of the operational experience of the existing ATMS and anticipating future growth in air traffic, CAD considered that around 40 to 50 ATC working positions would be required for the new ATC centre. Thus, the requirement that a reference system in a tenderer's proposal should be equipped with a minimum of 40 ATC controller working positions was incorporated into the Tender Document; and
- the new ATMS was required to have greatly enhanced processing capability and functions as compared to the existing ATMS. The new ATMS could handle 8 000 flight plans daily, roughly five times of that of the system in use at the existing ATC centre. The new ATMS could also simultaneously monitor 1 500 air or ground targets, roughly 1.5 times of the existing system, capable to cope with future air traffic growth.

64. The Committee noted that the ATMS contract would be implemented in two phases, namely Phase 1 and Phase 2 which involved different systems. At the request of the Committee, **Director-General of Civil Aviation** provided in his reply dated 25 March 2015 (in *Appendix 29*) a table setting out the milestones with details of corresponding system(s) involved/to be involved in each milestone starting from the completion of Phase 1 to the completion of Phase 2 in the Implementation Plan of the ATMS contract.

Financial vetting

65. The Committee noticed that the Tender Document stipulated that the successful contractor had to provide 15 years of maintenance services to the new ATMS and enquired whether the Administration had conducted financial vetting of the tenderers to assess their financial capability to complete the contract. **Director-General of Civil Aviation** replied that CAD had strictly followed GLD's tender procedures in the procurement of ATMS. In this connection, **Director of Government Logistics** explained that according to the relevant regulations, it was not necessary to conduct financial vetting for contracts for the supply of goods. As the one-off costs of the ATMS contract was more than 10 times of the recurrent maintenance costs, it was considered as a contract for the supply of goods and CAD was not required to conduct financial vetting of the tenderers.

66. The Committee was of the view that the Administration was too rigid for not taking into consideration the actual amount of the recurrent maintenance cost in determining whether to conduct financial vetting of tenderers for contracts for the supply of goods, in particular special consideration should be given to contracts for specialist systems with long support and maintenance services included in the contracts.

Implementation of the ATMS contract

Deficiencies/observations identified by CAD in ATMS

67. As reported in paragraph 2.13 of the Audit Report, there were numerous deficiencies/observations identified during the Factory Acceptance Tests of ATMS, i.e. 204 deficiencies/observations were recorded between 18 June and 18 July 2012. Although those deficiencies/observations had been rectified with only 23 still outstanding by June 2013, another 104 deficiencies/observations were newly identified during the verification process. In view of the successful rectification of a large number (181) of deficiencies/observations and the ATMS Contractor's undertaking to rectify and verify all the remaining 127 outstanding deficiencies/observations (23 plus 104) by the Site Acceptance Tests stage, CAD conditionally accepted the Factory Acceptance Tests results in June 2013, 11 months later than the original target completion date.

68. In view of the large number of deficiencies/observations identified during the Factory Acceptance Tests of ATMS, the Committee was concerned whether

CAD had consulted GLD regarding the acceptance of the Factory Acceptance Tests results conditionally.

69. **Director-General of Civil Aviation** explained in his letter dated 18 February 2015 (in Appendix 18) that in June 2013, the ATMS Contractor had resolved about 90% of the outstanding items identified during the Factory Acceptance Tests. The remaining ones were not critical to the technical and operational performance of ATMS. CAD considered that the Contractor had demonstrated that the system was generally compliant with the requirements specified in the Final Specifications of the contract, and thus considered the Factory Acceptance Test result as generally acceptable to CAD. This arrangement was made in accordance with Clauses 2.2 and 2.4.5 of Schedule 6 of Part V of the Tender Document the ATMS contract. Moreover, according to SPR, controlling officers were responsible for the management of the contract awarded. Therefore, CAD had not consulted GLD on this.

70. The Committee was also very concerned about the safety of the new ATMS. In this regard, **Director-General of Civil Aviation** said at the public hearings and explained in his letters dated 12 December 2014 (in Appendix 10), 27 December 2014 (in Appendix 12), 25 April 2015 (in Appendix 19) and 27 May 2015 (in *Appendix 30*) that:

- the deficiencies/observations items identified by CAD during the Factory Acceptance Tests did not imply that the new ATMS was not functioning properly nor it was unsafe. Given the stringent acceptance tests and the complexity of the new ATMS, it was unavoidable that some deficiencies/observations items were identified. The purpose of the test was to ensure that ATMS manufactured by the large overseas ATC system supplier could adapt to the local air traffic management environment, and the system could operate safely, stably and reliably;
- as at April 2015, all the 204 deficiencies/observations recorded during the Factory Acceptance Tests conducted in June to July 2012 had been rectified by the ATMS Contractor. During the Site Acceptance Tests conducted in August to November 2014, about 1 000 follow-up items were recorded on site. Of these follow-up items, about 80% of them were minor in nature and would not affect the safety and the commencement of operation of the new ATMS. CAD had been closely monitoring the performance of the Contractor, and had

requested the Contractor to take all possible measures to expedite the rectification of the remaining 20% (i.e. 200 items) outstanding priority items. The ATMS Contractor had been working closely with CAD in putting additional resources to address the 200 outstanding priority items in question. As at 15 May 2015, there were about 14 outstanding priority items which would be rectified/addressed by the Contractor before end-June 2015; and

- it was not uncommon to have deficiencies/observations items identified during acceptance test in ATC system replacement projects in other countries. Similar observations were also recorded during the testing of the existing ATC system prior to its implementation at the Hong Kong International Airport.

71. At the request of the Committee, **Director-General of Civil Aviation** provided a breakdown of the 308 deficiencies/observations items by their nature in his reply dated 27 December 2014 (in paragraph 16 of Appendix 12).

Two contract variations

72. The Committee noted from Table 2 and paragraph 2.6 of the Audit Report that after the ATMS contract was awarded to the Contractor in February 2011, CAD and the ATMS Contractor had already identified areas for improvement in the new ATMS to enhance operational efficiency and on safety grounds a few months during the DDR stage in mid-2011. After various discussions with the ATMS Contractor, CAD in January 2012 submitted a request to GLD to seek GLD Tender Board's approval for acquiring additional requirements in ATMS by way of contract variation.

73. The Committee further noted from paragraphs 2.9 and 2.12 of the Audit Report that during the procedure evaluation and training sessions of ATMS (commencing in August 2012), CAD identified the need to implement further system enhancements to improve the operational efficiency as well as to meet new requirements of the ICAO Global Air Navigation Plan¹⁷ ("GANP") and Regional

¹⁷ According to Note 7 of the Audit Report, ICAO's GANP sets out the regulatory requirements, procedures and technology associated with performance improvement initiatives. Through the implementation of Aviation System Block Upgrades framework in GANP, it was expected that civil aviation could achieve global harmonisation, increased capacity, enhanced operational efficiency and improved environment globally.

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Performance-based Navigation Implementation Plan ("PBN")¹⁸. In June 2013, CAD submitted a request to the GLD to seek the GLD Tender Board's approval for a second contract variation to implement further system enhancements. After the issue of the second contract variation in October 2013, the target completion dates of some milestones in the contract were correspondingly adjusted¹⁹. The total sum of two contract variations was \$89.2 million (i.e. 18 % of the original contract value).

74. Against the above background, the Committee asked about:

- the justifications for having two contract variations for the procurement of ATMS;
- the reason why those essential requirements were not included in the contract in the first place;
- whether CAD was aware of those additional/new requirements at the time of preparing the tender specifications for the ATMS contract; and
- the source of funding to cover the two contract variations in the procurement of ATMS.

75. **Director-General of Civil Aviation** stated at the public hearings and in his letters dated 27 December 2014 (in Appendix 12), 12 January 2015 (in Appendix 17) and 15 January 2015 (in Appendix 23), and **Deputy Director-General of Civil Aviation** and **Mr Richard WU Chi-kwong, the then Chief Electronics Engineer (Projects) of CAD**, supplemented at the public hearings on 15 December 2014 and 6 January 2015 that:

- CAD believed that the enhancement of the new ATMS prior to its commissioning was more cost effective and would help reduce safety risk associated with system changes if implemented after system commissioning;
- for the two contract variations to enhance the new ATMS, CAD had strictly followed the relevant rules and procedures under SPR. Both

18 According to Note 8 of the Audit Report, the PBN for the Asia and Pacific Region provides a high-level strategy for the evolution of the navigation applications to be implemented in the short term (2008-2012) and medium term (2013-2016).

19 The contractual dates of completion of two milestones were extended for six months. Please refer to Table 3 of the Audit Report for details of the target and actual completion dates of various milestones of the ATMS contract.

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contract variations had been reviewed and approved by GLD. CAD had followed the relevant procedures in submitting its requests to GLD with detailed relevant information and pricing;

- the funding for the two contract variations was provided from the budget approved by FC in 2007;
- CAD reckoned that there should not be any further contract variation prior to the commissioning of the new ATMS;

Contract Variation 1

- the Tender Document was finalized as early as April 2009. Immediately after the award of contract in February 2011, system DDR commenced. Due to the large scale and complexity of the contract and stringent contractual requirements, there had been a substantial lapse of time following drafting of the Tender Document and request for contract variation to GLD in January 2012. During that period, ICAO had provided new requirements with greater details and specific guidelines on regional contingency plans for operation by air space users and airport users to handle different emergency situations (such as when an ATMS was malfunctioning or operating in degraded mode), which would involve additional data exchange and synchronization;
- meanwhile, from its operational experience of the existing ATMS in use, CAD also noted the need to enhance other functions of the new ATMS, including "Missed Approach" procedures, Air Traffic Services Interfacility Data Communication ("AIDC") and operational efficiency enhancements. In view of operational efficiency, training efficiency, air traffic safety and the latest ICAO requirements, CAD recognized the need for system enhancements to better equip ATMS to handle various emergency situations, including the ability for ATC staff to continue to provide ATC services, further strengthening flight safety;
- since commencement of the system design in 1994 up to January 2015, a total of 23 software changes had been made to the existing ATMS for system enhancements, and CAD anticipated that further enhancements would also be made to the new ATMS after the commissioning of the system;

Enhancement of the Ultimate Fallback System

- CAD had specified in the Tender Document that ATMS should consist of three major sub-systems, namely a Main ATMS system, a Fallback ATMS system and an Ultimate Fallback System ("UFS"). UFS had been specified in the Tender Document as a separate system with software and system architecture fully independent from those of the Main ATMS and Fallback ATMS systems. The purpose of including UFS in the Tender Document was to mitigate the risk of encountering a total system failure of ATMS when both the Main and Fallback ATMS systems failed at the same time, thus ensuring flight safety. The requirements for the UFS in ATMS were on par with similar system setup and best practices adopted in major ATC centres overseas, such as the United States, Germany, Norway, etc.;
- CAD had looked into the relevant requirements of ICAO and the developments of the ATC systems in the region during tender preparation, and considered that it would be sufficient to set out in the Tender Document of ATMS that UFS be equipped with basic ATC functions in the event of failure of the two Main and Fallback ATMS systems;
- after the award of the ATMS contract in February 2011, ICAO further concluded to formulate a Regional Air Traffic Management Contingency Plan in September 2011 to provide a systematic contingency response framework in the Asia-Pacific Region. The framework set out greater details and more concrete guidance to airspace and aerodrome users to facilitate operations under various ATC contingency situations, such as ATC system failure or degradation. In the light of this new ICAO development, CAD had reviewed the system requirements for UFS in the Tender Document and the ATMS contract, and considered it necessary to enhance such requirements so as to better equip the new ATC system with more enhanced capability to handle contingency situations to ensure flight safety;

Additional simulator training and input operator positions

- the provision of around 32 simulator training and input operator positions in the original contract of the new ATMS was to ensure efficient operation of the air traffic management services at the Hong Kong Flight Information Region while professional training was

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provided to ATC staff. According to CAD's plan, the Simulator System of ATMS was to be utilized for training air traffic controllers on approach control, en-route control and terminal control as well as evaluation of ATC procedures. With continuing review of operational experience of the existing ATMS by CAD's ATC staff, CAD had reviewed in details the training needs for operating the new system and recognized the need to incorporate terminal control into the training programmes so as to better equip ATC staff to cope with the sustained air traffic growth in the long term;

- CAD agreed that it would have been desirable to incorporate such requirements when drafting the Tender Document;

Interoperability with the neighbouring ATC centres

- the new ATMS would be equipped with the latest version of AIDC (version 3.0). However, it would not be able to exchange data with the neighbouring ATC centres that were using a lower version of AIDC. In order to ensure interoperability with the neighboring ATC centres, enhancement had to be made to the new ATMS to enable it to be compatible with the lower versions of AIDC used by different neighboring ATC centres; and

Contract Variation 2

- ICAO promulgated the requirements for the Asia Pacific Regional PBN in September 2011, and endorsed GANP with the Aviation System Block Upgrades ("ASBU") framework during the 12th ICAO's Air Navigation Conference for enhancement of safety, airspace capacity and efficiency. In accordance with the recommendations endorsed during the conference, ICAO had requested its members to finalize the alignment of regional air navigation plans with GANP by May 2014, and focus on implementation of ASBU according to operational needs. Hong Kong, being a regional aviation hub, was required to timely implement the relevant requirements in accordance with the ICAO's recommendations and the actual operational needs in order to enhance safety, airspace capacity and efficiency.

76. In reply to the Committee's request, **Director-General of Civil Aviation** provided the details and the cost of each item in the two contract variations in his

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replies dated 12 January 2015 (in *Appendix 31*) and 17 February 2015 (in *Appendix 32* and *Appendix 33*).

77. As to why CAD had not conducted a fresh tender exercise for procuring UFS, **Director-General of Civil Aviation** stated in his letter dated 27 December 2014 (in Appendix 12) that, given the contract with the ATMS Contractor already stated the requirement of having a UFS in place, in order to enhance functions of UFS so as to meet the latest ICAO's initiative, CAD considered that it would be justified and more cost-effective to acquire the enhancements through variation of contract instead of conducting a fresh tender exercise. CAD had therefore followed the stipulations in SPR and sought DoJ's advice (from WTO GPA perspective) and GLD Tender Board's approval for the contract variation with a view to enhancing the requirements of UFS.

78. Since the price score had accounted for 60% of the overall score in the assessment of the tenders, the Committee asked whether it would be unfair to other tenderers for CAD to procure additional items through two contract variations, which had caused a significant change in the total value of the contract, i.e. from \$486 million to \$575.2 million, after the award of the contract to the ATMS Contractor. **Director-General of Civil Aviation** advised at the public hearings that even if the contract was awarded to the tenderer with the second highest overall score, CAD would also need to procure the additional items through two contract variations in 2012 and 2013 respectively, and CAD could not guess the price that could have been offered by this tenderer for the two variation orders in 2012 and 2013.

Criteria on whether and when an enhancement to ATMS should be made

79. Responding to the Committee's enquiry as to the criteria on whether and when an enhancement to ATMS should be made, in particular for enhancements arising from new ICAO's initiatives, and whether it was a must for all countries to implement ICAO's initiatives and the consequences of not implementing these initiatives, **Director-General of Civil Aviation** stated at the public hearings and explained in his letter dated 12 January 2015 (in Appendix 17) that:

- in implementing an enhancement on ATMS, CAD's key considerations were compliance with international stipulations, aviation safety, operational needs and cost-effectiveness;

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- whenever ICAO promulgated an initiative (e.g. GANP, the Regional Air Traffic Management Contingency Plan etc.) for enhancement of safety and operational efficiency, all states/administrations were required to map out plans to implement the initiatives, taking into account the operational efficiency, aviation safety and cost-effectiveness;
- it was not a must for all countries to implement ICAO's initiatives. CAD could "file a difference" with ICAO if ICAO's initiatives were not implemented, and this "difference" would be made public. It would not be in Hong Kong's interests as an aviation hub of not implementing such initiatives; and
- as the new ICAO requirement came out during project stage, it would be more cost-effective and of lower safety risks for the new measures to be incorporated before the system was put in operation as there would be greater synergy on software development/testing, and minimal impact on operations.

80. At the request of the Committee, **Director-General of Civil Aviation** provided in his reply dated 13 February 2015 (in *Appendix 34*) a list of the countries in the Asia-Pacific Region and other regions of the world which had adopted the Air Traffic Management contingency arrangements referred to in paragraph 2.7 (a) of the Audit Report.

Assessment of the performance of the ATMS Contractor

81. On the question of whether CAD had assessed the performance of the ATMS Contractor prior to submitting the request for the first contract variation, **Director-General of Civil Aviation** stated in his letter dated 12 January 2015 (in *Appendix 17*) that prior to submitting the request for the first contract variation to GLD in January 2012, CAD had considered the contractor's performance based on the following facts:

- since award of new ATMS contract in February 2011, the ATMS Contractor had timely submitted the monthly progress reports, and its performance was satisfactory;
- the ATMS Contractor had timely submitted the acceptance test procedures for the computer-based training system, and conducted the test as scheduled;

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- during DDR, the ATMS Contractor had engaged a team of professional system and software engineers, particularly those who had sound knowledge and experience in the existing ATMS, to participate in DDR. The ATMS Contractor demonstrated professionalism in the system design, and devoted a lot of efforts to incorporate the discussed requirements into the detailed design documents of the system; and
- the ATMS Contractor was also the contractor of the existing ATMS and the service provider of the software maintenance support service of the existing ATMS. The performance of the existing system was stable and reliable whilst the Contractor's performance had been satisfactory to CAD.

Guidelines to deal with contract variations

82. As to whether CAD's procurement strategy of the new ATMS with two variation orders had achieved the best value for money and how the Administration would ensure that the variation orders were justified and the process was conducted in an open and fair manner, **Mr YEUNG Tak-keung, Deputy Secretary for Financial Services and the Treasury (Treasury)**³ stated at the public hearings and **Secretary for Financial Services and the Treasury** explained in his letters dated 29 December 2014 and 13 January 2015 (in *Appendix 35* and *Appendix 36*) that:

- the Government had clear guidelines for bureaux/departments to deal with contract variations to ensure that they were properly conducted. As stipulated in SPR, contract variations should be avoided as far as possible and should normally be used as a stop-gap measure. Under no circumstances might a department vary a contract which would result in the approved commitment or approved project estimate being exceeded. For contract variations amounting to new procurements covered by WTO GPA, the procuring department shall ensure that all relevant requirements of WTO GPA were complied with and seek advice from DoJ if needed. There were different levels of authorities for approval of contract variations of different nature and value. The department should copy the approved contract variations to the Director of Audit for record;
- the ATMS contract was awarded by GLD on behalf of CAD. Under SPR, for goods and service contracts awarded by GLD on the advice of CTB, the GLD Tender Board was the approving authority for variations with the accumulated value of the variations up to 30% of

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the original contract value. According to the information provided by CAD to the GLD Tender Board, the two contract variations to the ATMS contract were required to meet the higher international standards on air traffic management, new requirements of ICAO and the operational needs of the future air traffic growth in Hong Kong. CAD had confirmed that they were not aware of these additional/new requirements at the time of preparing the tender specifications for the ATMS contract. The additional/new requirements were essential to meet CAD's operational requirements and hence a genuine need of procurement;

- Clause 9.4 of the Part IV of the Tender Document for ATMS stated clearly that where a change of the system or services was requested by the Government to overcome an actual or likely failure of the Contractor to meet any of the contract requirements, the Contractor shall not be entitled to any increase in the total system price or maintenance charges. When approving CAD's applications for the two contract variations involving increase of the total system price and/or maintenance charges, the GLD Tender Board was satisfied that Clause 9.4 was not applicable and that the additional/new requirements to ATMS were essential to meet CAD's operational requirements and hence a genuine need of procurement;
- ATMS was a highly complex and mission-critical system. Installation of any enhancements required modifications of the proprietary software developed by the ATMS Contractor, which had the exclusive intellectual property rights over the source codes. According to CAD, there was no other potential and suitable supplier with such technical expertise which could arrange software customization and development for the additional/new requirements of ATMS. In the absence of any reasonable alternative, procuring the additional/new requirements by contract variation with the ATMS Contractor was the only viable option;
- CAD had also sought legal advice on the appropriateness to procure the additional/new requirements by contract variations from WTO GPA's perspective. For protection of the intellectual property rights of the products provided by the ATMS Contractor, and for reasons of compatibility and interchangeability with the existing functions of ATMS, no legal objection to procuring the additional/new requirements by contract variations was received;

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- the ATMS Contractor had provided proposals for the contract variations with detailed costs and manpower requirements for evaluation by the Government. After comparing the prices quoted in the proposals and those in the ATMS contract, CAD had confirmed that the quoted prices were fair and reasonable for the Government to accept as they were no less favourable than the existing contract rates. CAD had also evaluated the manpower requirements to ensure that these were commensurate with the work required;
- in considering the two contract variations concerned, the GLD Tender Board had critically examined the justifications provided by CAD to ensure that the process was conducted in a fair manner and the Government's interest was duly protected. When granting approval for the contract variations, the GLD Tender Board had nevertheless remarked that it was unsatisfactory for a procuring department to seek multiple contract variations and requested CAD to review its tendering strategy and better plan its purchases in the future; and
- against the above, FSTB was content that the contract variations were approved in accordance with the established procedures and guidelines in this respect.

Engagement of external experts

83. In view of the complexity involved in the implementation of the ATMS contract, the Committee asked whether consideration had been given by CAD to engaging external experts to assist in the procurement of ATMS.

84. **Director-General of Civil Aviation** explained in his letter dated 12 January 2015 (in Appendix 17) that during the early stage of system procurement, CAD had looked into the need and suitability on engagement of external experts. However, given the tight time frame and the highly technical nature of the project, it would be more cost-effective and efficient to make use of CAD staff who would be in a better position to communicate the users' requirements and needs directly to the contractor. In addition, CAD considered that engaging external consultants would involve higher costs due to extra coordination and supervision of the consultant.

Termination of contract

85. According to Clauses 44.1.1 and 44.1.2 of Part IV of the Tender Document for the procurement of the new ATMS, "the Government shall be entitled to terminate the Contract by serving a 14 days' notice in writing on the Contractor if the Contractor persistently or flagrantly fails to carry out the whole or any part of the Services punctually or in accordance with the terms and conditions of the Contract; or the Contractor fails to observe or perform any of its obligations under the Contract and (in the case of a breach capable of being remedied) has failed to remedy the breach to the satisfaction of the Government Representative within 30 days (or such longer period as the Government Representative may, in its sole discretion, allow) after the issuance by the Government Representative to the Contractor of a notice in writing requiring it to do so." ²⁰ As such, the Committee asked whether CAD would consider terminating the contract with the Contractor in case that the Contractor had failed to provide a safe, reliable and stable System by the first half of 2016 or any other indicative date to be set by CAD.

86. **Director-General of Civil Aviation** stated at the public hearing that CAD would not terminate the contract with the Contractor since CAD had the confidence that the new ATC system would be ready for operation in first half of 2016.

87. The Committee further enquired about the basis that allowed CAD to have confidence that the new ATC system would be ready for operation in first half of 2016, given that the ATMS system has been delayed for at least three-and-a-half years from the original target date of end 2012.

88. **Director-General of Civil Aviation** replied in his letter dated 25 April 2015 (in Appendix 19) that:

- with additional resources from the ATMS Contractor devoted to the project, progress had been made by the ATMS Contractor in rectifying the outstanding deficiencies/observations of the new ATMS. All the deficiencies/observations recorded during the Factory Acceptance Test had been rectified by the ATMS Contractor. Separately, around 90% of the priority items identified during the Site Acceptance Test had been rectified/addressed. The remaining ones were expected to be ready for verification by mid-2015. In addition, simulation training for air traffic controlling officers had commenced in early 2015;

²⁰ An extract of Clauses 44 and 45 of Part IV of the Tender Document is in *Appendix 37*.

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- given the latest progress of the new ATMS, CAD expected completing all the acceptance test events of the new ATMS by the third quarter of 2015, followed by full-fledged training for air traffic controlling officers. Upon completion of training, the new ATC centre would commence operation; and
- in view of the development above, CAD was confident that the new ATC centre would be ready for operation in the first half of 2016.

89. **Director-General of Civil Aviation** supplemented in his letter dated 27 May 2015 (in *Appendix 38*) that to ensure the ATC operational staff would be confident and competent in using the new ATMS smoothly, effectively and safely after its formal commencement of operation, CAD had already commenced providing simulation training on system functionalities of the new ATMS in January 2015 for the ATC operational staff to familiarize themselves with the functions of the new ATMS. At the request of the Committee, **Director-General of Civil Aviation** provided a detailed work plan of transition of the existing ATMS to the new ATMS (in *Appendix 39*).

Supervisory role of THB and report to LegCo

90. In response to the Committee's enquiries about the actions taken by THB in supervising the procurement of ATMS by CAD and whether THB had reported to LegCo about the two contract variations and delays in implementing the ATMS contract, **Mr YAU Shing-mu, Under Secretary for Transport and Housing**, stated at the public hearings and **Secretary for Transport and Housing** explained in his letters dated 24 December 2014 and 12 January 2015 (in *Appendix 40* and *Appendix 41*) that:

- THB, through its regular meetings with the Director-General of Civil Aviation, received reports regularly from the Director and other key Directorate officers of CAD on the major work of CAD, including progress on the replacement of the ATC system. Apart from the said meetings, THB also maintained close contact with CAD regarding the progress of the ATC system and related work;
- since the tendering process of the ATC system took longer time than anticipated, and coupled with the delay in the commissioning date of the new CAD headquarters building, CAD anticipated in the first half of 2010 that the commissioning date of ATMS would be deferred from

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the original estimate of December 2012 to 2013, and reported the development to THB. Subsequently, CAD set out in the contract of ATMS that the completion date of ATMS was mid-2013; and

- as regards the implementation of the ATMS contract, THB was informed in the second half of 2012 that, considering the results of the Factory Acceptance Tests of ATMS which indicated that follow-up actions were required on a number of outstanding issues, the commissioning date of the new ATC centre would be affected. THB, through its meetings with CAD, had repeatedly requested CAD while ensuring the smooth operation, safety and stability of the new system to step up its efforts to enhance its supervision of the work of the ATMS Contractor, and settle the outstanding issues of the new ATC system as soon as possible to minimize the delay. In order to expedite the project, CAD had adopted the following improvement measures:
 - (a) establishing a steering committee chaired by the Deputy Director-General of Civil Aviation on the new ATC centre and system project in April 2013 to enhance monitoring of the progress of the replacement of ATMS, and give timely instructions on key issues;
 - (b) visiting the ATMS Contractor's plant in Boston of the US between October and November 2013 by CAD staff responsible for the project to discuss and examine the items being enhanced as well as the outstanding issues and operational details of ATMS;
 - (c) conducting meetings between the Director-General of Civil Aviation/Deputy/Assistant Director-General of Civil Aviation and the ATMS Contractor's senior management in Hong Kong in November 2013 and May, August and October 2014. At the meetings, CAD requested the ATMS Contractor to take all possible measures to minimize the delay of the project, including the deployment of additional resources and personnel with relevant experience, settling outstanding issues of ATMS as early as possible, and submitting a practicable implementation plan for the project;
 - (d) conducting weekly teleconferences between the subject ADGCA and Chief Electronics Engineer and the ATMS Contractor's senior management since early 2014, with a view to reviewing

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the project progress, adjusting work priorities and human resources, etc., to tackle the major issues in a timely manner, and enhance communication and collaboration between the two sides; and

- (e) as per CAD's request, the ATMS Contractor's project management and professional personnel came to Hong Kong on several occasions since early 2014 to discuss with CAD staff the outstanding issues of ATMS. The expert project team of the Contractor stayed in Hong Kong for four weeks between April and May 2014 to expedite the completion of the Site Acceptance Tests.

91. In response to the Committee's enquiry about whether THB and CAD had reported the progress of the ATC replacement project to LegCo, **Secretary for Transport and Housing** provided in his reply dated 12 January 2015 (in Appendix 41) copies of the relevant documents submitted to LegCo by THB and CAD since they were aware of the delay in the commissioning date of the new ATC centre in 2010. The Committee, however, noted that:

- in response to the queries regarding the new ATC system from members of FC during the examination of the Estimates in 2010 and 2011 and in the paper for briefing ED Panel on relevant policy initiatives in the Chief Executive's 2011-2012 Policy Address, CAD/THB had advised members that the new ATC centre was scheduled for operation by the end of 2013;
- in the paper for briefing ED Panel on relevant policy initiatives in the Chief Executive's 2013 Policy Address and in response to the questions regarding the replacement of the ATC system from a member of FC during the examination of the Estimates in 2013, THB/CAD further advised members that the earliest operation of the new ATC centre was estimated to be in the second quarter of 2014 without mentioning about the delay in the implementation of the ATMS contract; and
- it was only until July 2013 that CAD provided a reply to an enquiry from a member of the ED Panel explaining the reasons for the delay in the implementation of the ATMS contract and advised members that the earliest operation of the new ATC centre was estimated to be in second half of 2014.

Way forward

92. The Committee noted with concern that the existing ATC system was operating above its planned capacity, with frequency of surveillance data display problems increasing since 2011, but the new ATC system originally targeted for commissioning in December 2012 had experienced delay in implementation, and as at May 2015, the new ATC system was not yet in operation. In the light of this, the Committee asked for:

- the latest estimate of the date of commissioning of the new ATC system;
- the measures to be taken by CAD to expedite the project; and
- the contingency measures to deal with further delays.

93. **Director-General of Civil Aviation** stated at the public hearings and in his letter dated 12 December 2014 (in Appendix 10) that:

- seven out of eight system projects of the entire new ATC system had been substantially completed as scheduled. Two of the system projects had been put into operational use since 2013. Another five system projects were planned for operation in phases commencing 2015. CAD was making an all-out effort to work with the system contractor in testing the remaining ATMS. According to the current testing and problem rectification progress, the entire new ATC system is expected to be available in 2015 for training ATC personnel. After completion of all the training (9-12 months) and confirming the new ATC system could fulfill all the safety requirements, it was planned to commission the new ATC centre in the first half of 2016;
- CAD had been looking forward to early commissioning of the new ATC system. However, ATMS of the new ATC system was a highly complicated and sophisticated system requiring longer time than expected for conducting difference types of tests, which caused delay to the entire ATC replacement project;
- CAD would continue to urge the ATMS Contractor to expedite rectification of the outstanding problems in the new ATMS and closely monitor the remaining contract work to minimize further project delay. CAD would also request the ATMS Contractor to provide a closure

plan with a view to dealing with all the major issues of ATMS as soon as possible in 2015;

- as regards the existing ATC system, since 2011, CAD had worked closely with system suppliers and maintenance service providers to progressively implement a series of maintenance measures on the existing ATC system in order to sustain the reliable and efficient operation. In view of the delays in new ATMS project, commencing in 2014, CAD had stepped up efforts to strengthen its maintenance on the existing ATC system. Measures included upgrading the relevant surveillance data display workstations and optimizing radar signal inputs to alleviate system loading, etc. According to CAD's estimation, with the aforesaid measures in place, the existing ATC system should maintain safe and reliable operation to cope with the air traffic capacity in Hong Kong; and
- CAD had been attaching paramount importance to the issues mentioned in the Audit Report related to the existing ATC systems, such as surveillance data display problems (e.g. frozen/hang-up) at some controller positions. While such occurrences did not have substantial impacts on ATC, CAD had taken immediate and decisive measures to deal with the problems in order to upkeep the performance of the system.

94. In response to the Committee's enquiries about the contingency measures to be taken by THB to deal with any further delay in the replacement of the ATC system, **Under Secretary for Transport and Housing** stated at the public hearings that THB had all along been considering and preparing contingency measures to deal with further delay in the replacement of ATC system and a contingency strategy would be in place to deal with the situation. However, he considered that it inappropriate to reveal details at this juncture.

C. Management of the precision runway monitor project

95. In June 1996, CAD obtained funding approval from FC to procure additional special equipment and systems and construct additional facilities to support the operation of the second runway of the Hong Kong International Airport, including a PRM radar and a PRM tower.

96. The Committee noted from paragraphs 3.6 and 3.13 of the Audit Report that, before seeking funding from FC for the PRM radar in 1996, CAD had been made aware of the constraints in adopting independent mixed mode of operation²¹ to maximize the utilization of the capacity of the Hong Kong International Airport's dual runways by two consultancy studies in 1990 and 1994. In particular, the 1994 Study pointed out that there was no acceptable solution for total independent mixed mode of operation due to terrain obstructions, south and northeast of the Hong Kong International Airport. However, CAD proceeded with the procurement of the PRM radar in the belief that there might be advancement in technology to permit simultaneous independent operations and the PRM radar could then support independent mixed mode of operation. In the event, the expected changes in technology did not happen.

97. As a result, the PRM radar was only put into use for purposes other than supporting the independent mixed mode of operation of the Hong Kong International Airport's runways, i.e. for providing essential distance information, monitoring final approaches of aircrafts and monitoring missed approaches in relation to aircraft departures. Such other uses turned out to be supplemental and were discontinued after some 20 months to 4 years. The PRM radar had been put into standby mode from January 2005 onwards.

98. The Committee further noted from paragraph 3.15 of the Audit Report that, in the funding application of 1996, members of the LegCo Public Works Subcommittee ("PWSC")/FC were informed that the PRM radar was required for independent mixed mode of operation to enable full utilization of the capacity of the Hong Kong International Airport's dual runways. However, Members were not informed of the associated constraints in adopting the independent mixed mode of operation and the implementation of which was contingent on advancement in technology.

99. Against the above background, the Committee made the following enquiries with CAD:

- the processes which led to the decision on the procurement of the PRM radar;

21 According to paragraph 3.8(c) of the Audit Report, independent mixed operation mode would allow each runway to function separately and without coordination with operations on the other runway, as if the runways were two different airports.

- about the basis of CAD's belief that there might be advancement in technology to permit independent mixed mode of operation;
- why the associated constraints in adopting the independent mixed mode of operation and the implementation of which was contingent on advancement in technology had not been included in the funding application to LegCo in 1996;
- how many times the PRM radar had been used since it had been put into standby mode in January 2005; and
- whether CAD had established a mechanism to regulate the procurement of equipment.

100. **Director-General of Civil Aviation** stated at the public hearings and in his letter dated 24 December 2014 (in Appendix 11) that:

- due to the long time lapse and scattered handling offices of the PRM project, CAD was unable to produce full records of the processes which led to the procurement decision;
- available records showed that the then Director-General of Civil Aviation was aware of the problems involved in the procurement of the PRM radar;
- notwithstanding the terrain constraints identified by the consultants in 1990 and 1994 for adopting independent operations for the Hong Kong International Airport, the consultant in 1990 considered that by the time the Hong Kong International Airport commenced operation (i.e. in 1998), new technology or procedures of ICAO would be available to permit independent operations;
- the consultancy study in 1994 concerning the Airspace Design Study of the new Hong Kong International Airport was not able to identify a viable solution to overcome the terrain constraints. Yet, CAD at that time had not ruled out the possibility that new technological advancement and ICAO procedures would happen in the future for independent operations. In addition, CAD had taken into account the advice of the Airspace Design Consultancy Working Group which comprised aviation industry representatives, such as the International Air Transport Association, International Federation of Airline Pilots'

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Association, Government Flying Service, etc. in 1995, that advancement in aviation technology, namely the satellite navigation systems, might provide solutions for the independent mode of operations at Chek Lap Kok in future. CAD had therefore considered that PRM would be needed for monitoring the flight track of aircraft in both fully independent mode and segregated mode of operations at the Hong Kong International Airport;

- he confirmed that the associated constraints in adopting the independent mixed mode of operation and the implementation of which was contingent on advancement in technology or new ICAO procedures had not been included in the funding application to LegCo in 1996;
- with hindsight, he believed that it was not appropriate and was a mistake for CAD to inform FC members in the funding application in 1996 that the PRM radar would allow independent mixed mode of operation to enable full utilization of the capacity of the Hong Kong International Airport's dual runways, and it was wrong for CAD not to inform FC members of the other functions of the PRM radar;
- the PRM radar had not been used since it had been put into standby mode in January 2005;
- CAD agreed with Audit's views that cost-benefit analysis should be conducted before making major procurement decisions and both the pros and cons of a proposed project should be provided in the funding application to LegCo; and
- CAD had established mechanism in place to regulate the procurement of equipment. In response to the Audit Report, CAD had issued an internal memorandum reminding all relevant officers to strictly adhere to the approval processes in the procurement of major equipment.

101. As to whether the PRM tower at an estimated cost of \$100.9 million as mentioned in the Administration's paper to PWSC for the meeting on 12 June 1996 (in *Appendix 42*) was a dedicated structure to house the PRM radar, **Director-General of Civil Aviation** stated at the public hearings and in his letter dated 24 December 2014 (in *Appendix 11*) that the PRM Tower was not dedicated to housing the PRM radar. As set out in paragraphs 3(g) and 6 of the Administration's Paper to PWSC for the meeting on 12 June 1996, the 56-metre high PRM Tower

would function as the ancillary ATC tower and provide space for offices and equipment rooms for CAD and the Hong Kong Observatory, as well as observation/radio communication rooms for the Customs and Excise Department, and a radio equipment room with antenna for the Hong Kong Police Force. Such ancillary system and equipment were required to cover the second runway and support the ancillary ATC systems so that the essential functions could be maintained in case of any emergency affecting the normal operation of the ATC Tower and Complex constructed in the first phase of the new airport.

102. On the question of whether consideration would be given to reviewing the justifications for continuing putting the PRM radar in the standby mode which incurred an annual maintenance cost of \$200,000, including whether it would be more cost-effective to dispose of the PRM radar by reselling it, **Director-General of Civil Aviation** stated at the public hearings and in his letter dated 24 December 2014 (in Appendix 11) that CAD would conduct a review to determine the costs and benefits of maintaining the PRM radar on standby mode and consideration will be given to disposing of or reselling it.

D. Administration of air traffic control service related charges

103. The Committee noted from paragraph 1.8 of the Audit Report that under the Government's "user pays" principle, the amortized capital cost and the recurrent cost for providing ATC services was recovered through ATC service charges and en-route navigation charges. In this connection, the Committee asked how CAD could ensure that the Government's "user pays" principle was followed when determining the ATC service charges and en-route navigation charges and whether the capital cost of the new ATC system should be borne by present users or future users as only the latter group of users could directly benefit from the new system.

104. **Director-General of Civil Aviation** stated in his letter dated 25 April 2015 (in Appendix 19) that there was established Government-wide mechanism for the regular review of government fees and charges. CAD followed strictly the stipulated procedures promulgated by FSTB in the regular fee review with a view to ensuring that the "user pays" principle was followed when determining the ATC service charges and the en-route navigation charges. CAD strictly followed the Costing Manual published by the Director of Accounting Services in preparing and vetting the costing statements for the fee reviews on the ATC service charges and the en-route navigation charges and, where necessary, sought the advice from FSTB

and/or DoJ on the basis for including the relevant costs and imposing the revised charges on the users.

105. According to Table 6 of the Audit Report, the total amount of overdue en-route navigation charges was \$15.7 million as at 31 March 2014. The Committee enquired about the updated figure on the total overdue amount in January 2015. **Director-General of Civil Aviation** advised in his letter dated 12 January 2015 (in Appendix 17) that as at 7 January 2015, the total overdue amount of en-route navigation charges was \$21.3 million.

106. In reply to the Committee's enquiry regarding the actions taken by CAD to follow up on overdue en-route navigation charges, **Director-General of Civil Aviation** explained at the public hearings that:

- CAD had followed the procedures as stipulated in the Financial and Accounting Regulations, such as the issuance of reminders and warning letters, in dealing with overdue en-route navigation charges;
- regarding the largest default case, CAD had all along taken active follow-up actions to recover the outstanding amount. Apart from issuing reminders and warning letters to the airline, CAD had sent letters to the senior management of the company and sought the assistance of the civil aviation authority of the airline's home country. Two representatives from senior management of the airline had come to Hong Kong to discuss the matter with CAD; and
- CAD had also informed ICAO of this default case and raised the issue of overdue en-route navigation charges at a Conference of Directors General of Civil Aviation, Asia and Pacific Regions, with a view to formulating effective measures to tackle the problem.

107. In his reply dated 7 February 2015 (in *Appendix 43*), **Director-General of Civil Aviation** further explained that CAD had sought the advice of ICAO on overdue en-route navigation charges in 2013, and further raised the issue for discussion at the Conference of Directors General of Civil Aviation, Asia and Pacific Regions in November 2014. The Conference suggested that ICAO should facilitate the setting up of a mechanism for sharing information and best practices on the subject, and should continue identifying practical operational measures to deal with problems of overdue charges. ICAO had proposed to discuss the issue at its Air

Navigation Services Economics Panel in May 2015. CAD would closely monitor the development.

108. The Committee noted from paragraphs 4.17 and 4.18 that CAD had agreed with Audit's recommendation to take effective measures to prevent the loss of revenue in default en-route navigation charge cases, including demanding a security deposit or banker's guarantee from specific airline operators using the CAD's navigation services on a case-by-case basis having regard to their payment records. In this connection, the Committee enquired about the progress of implementing this measure.

109. **Director-General of Civil Aviation** replied in his letter dated 12 January 2015 (in Appendix 17) that CAD was exploring the criteria and details for implementation of demanding a one-month security deposit or banker's guarantee from specific airline operators using the CAD's navigation services on a case-by-case basis having regard to their payment records. **Director-General of Civil Aviation** further advised in his letter dated 7 February 2015 (in Appendix 43) that CAD had written to DoJ on 26 January 2015 to seek legal advice on the proposal. CAD would follow up closely with DoJ.

110. At the request of the Committee, **Director-General of Civil Aviation** provided in his reply dated 12 January 2015 (in *Appendix 44*) the details of the cases which involved an overdue en-route navigation charges of \$250,000 or more and the follow-up actions taken on these cases.

E. Administration of the mandatory occurrence reporting scheme

Long Outstanding cases

111. The Committee noted from paragraph 5.8 of the Audit Report that, as at 16 June 2014, there were 3 336 mandatory occurrence reporting ("MOR") cases (of which 2 189 were closed and 1 147 were outstanding cases) in the past five years. Ageing analysis of the 1 147 outstanding cases showed that 811 (71%) had remained outstanding for over one year. As at 12 August 2014, the number of outstanding cases has dropped to 634. In this regard, the Committee asked why the 811 cases had remained outstanding for over one year.

112. **Director-General of Civil Aviation** explained at the public hearing on 15 December 2014 that:

- regarding the 634 outstanding cases as at 12 August 2014, less than 30 cases remained outstanding;
- there were a large number of cases remaining outstanding in the past because the case officers had not updated the MOR database after taking follow-up actions on the cases; and
- in response to Audit enquiry, CAD had reviewed all the cases in the MOR database and updated the status of all completed cases.

113. As revealed in paragraph 5.21 of the Audit Report, of the 3 374 MOR cases, 634 were outstanding as at 12 August 2014. Ageing analysis of these 634 cases showed that 201 had remained outstanding for over four years. According to the dates of last action recorded in the MOR database, 117 of these 201 cases had no follow-up action recorded since 2009. In the light of this, the Committee asked for the measures that CAD would take to ensure that follow-up actions on long outstanding cases were taken and the MOR database was updated in a timely manner.

114. **Director-General of Civil Aviation** stated in his letter dated 24 December 2014 (in Appendix 11) that CAD had introduced periodic MOR review meetings since November 2014 to ensure that each MOR case had been adequately followed up by the organizations concerned and actions taken by respective CAD officers were captured in the database in a timely manner.

115. On the question of whether consideration would be given to writing off long outstanding MOR cases which required no further follow-up actions, **Director-General of Civil Aviation** stated in his letter dated 24 December 2014 (in Appendix 11) that:

- in respect of each MOR report, CAD would review and take follow-up actions based on the circumstances and causes of each individual case, in accordance with the established procedures as stipulated in the CAD MOR guidelines. Only when all the required actions had been taken and adequately followed up by the organizations concerned would the MOR case be closed; and

- on reviewing those cases identified as long outstanding, CAD had discovered that the investigation work on them had been completed by the respective organizations and subsequently accepted by CAD. However, the database was not updated timely to reflect the situation when the Audit conducted the audit on CAD. All those long outstanding cases were then closed.

Timeliness of reporting

116. As reported in paragraph 5.12 of the Audit Report, of the 3 374 MOR reports received by CAD from 2009-2010 to 2013-2014, 1 037 (31%) could not meet the statutory four-day-reporting rule. In this connection, the Committee enquired about:

- the reasons for the late MOR reports;
- the measures to be taken by CAD to improve the situation; and
- whether penalty was imposed on frequent non-compliant cases.

117. **Director-General of Civil Aviation** stated at the public hearings that:

- for minor MOR cases, operating personnel usually made reports to their respective airlines after they left Hong Kong and arrived at their destinations. The respective airlines then reported the cases to CAD. This might be the reason for the late MOR reports;
- CAD had reminded all airlines of the statutory four-day reporting rule;
- CAD had revised the MOR reporting form to facilitate reporting organizations/personnel to indicate the time when the occurrences came to their knowledge to facilitate the counting of the four-day-reporting period; and
- for frequent late MOR reporting cases, CAD would review the reasons of non-compliance and the seriousness of the cases and take necessary follow-up actions, such as holding meetings with the senior management of the operators concerned and the issuance of warning letters.

Airport vehicles not giving way to aircraft

118. The Committee noted from paragraph 5.20 of the Audit Report that the examination of the 412 medium risk MOR cases had revealed that the most frequent incidents were related to "airport vehicles not giving way to aircraft" (33 cases from January to December 2012). Among the 1 025 cases without risk level assigned/captured, there were 75 similar incidents. According to CAD, the Airport Standards Division had followed up all these cases using its monitoring regime on airport operation, and had conducted a review on these cases in January 2013. The review found that these cases often occurred in apron area involving slow-moving taxiing aircraft and vehicles, i.e. not meeting the reporting criteria of an obstruction in runways or aircraft manoeuvring areas as mentioned in CAD's guidelines on reportable occurrences. As such, CAD had ceased to categorize these cases as reportable occurrences since 2013. Audit noted from the records of the Airport Standards Division that during January 2013 and March 2014, there were 66 cases of "airport vehicles not giving way to aircraft". In other words, there were a total of 174 (33 + 75 + 66) such cases from 2009-2010 to 2013-2014. In this regard, the Committee enquired about the justifications for ceasing the categorization of these cases as reportable occurrences "airport vehicles not giving way to aircraft" and the follow-up actions taken on these cases.

119. **Director-General of Civil Aviation** advised at the public hearings that:

- all of the cases relating to "airport vehicles not giving way to aircraft" mentioned in the Audit Report were without safety implications;
- although CAD had ceased to categorize these cases as reportable occurrences since 2013, it had discussed all these cases with the Airport Authority Hong Kong; and
- the Airport Authority Hong Kong had recently reminded all airside drivers to observe the Airport Authority Bylaws regarding giving way to aircrafts and also reminded them of the penalty relating to this offence in the Airside Driving Offence Points Scheme.

Collation and usage of the information in MOR database

120. With reference to the experience gained on the MOR Scheme since the relevant guidelines were issued in 1999, the Committee asked the measures that CAD

would take to improve the collation of information for the MOR database, and subsequent analysis and follow-up actions with a view to improving air traffic safety.

121. **Director-General of Civil Aviation** explained in his letter dated 24 December 2014 (in Appendix 11) that:

- it was CAD's long standing pledge and commitment to sustain and improve the aviation safety standards of Hong Kong. With experience gained from operating the MOR Scheme and in line with the latest global aviation developments, CAD had taken a number of measures in recent years, to improve the collation and usage of the information for the MOR database with the aim of achieving continuous improvement in aviation safety;
- apart from the efforts made by CAD in the monitoring and follow up of the individual MORs by taking immediate actions as necessary, CAD had in recent years, made positive use of the information from the MOR database for safety education and promotion purposes;
- through monitoring and analysis of the trends and follow-up actions, safety information developed from the MOR database was disseminated to the aviation services providers and industry partners to promote knowledge of these occurrences so that others and the industry at large might learn from them. Specific advice, notices and safety publications were issued to provide the industry with relevant safety guidelines, recommendations and/or instructions;
- since 2013, CAD had established a holistic safety data review and analysis mechanism based on the available safety information, including the MOR data, in line with the latest global aviation developments. A safety committee comprising senior officers of different regulatory divisions of CAD was also established to regularly review and address any potential safety concerns and determine the actions required; and
- CAD agreed with the Audit on the need to strengthen the management of the MOR database and to improve the collation of the information for the MOR database so that it could provide accurate and up-to-date information to support MOR case management and trend analysis of significant aviation safety issues. It was CAD's aim to continue to

improve the MOR scheme and database with the ultimate objective of achieving continuous improvement in aviation safety.

F. Conclusions and recommendations

Overall comments

122. The Committee:

- emphasizes that:
 - (a) air safety, for the purpose of protecting life and property, must not be compromised under any circumstances;
 - (b) the provision of a safe, reliable, effective and efficient air traffic control ("ATC") system is of paramount importance to Hong Kong, and this is essential for Hong Kong to maintain itself as an international and regional aviation hub; and
 - (c) it is the constitutional role of the Legislative Council ("LegCo") in approving public expenditure under Article 73(3) of the Basic Law, and Article 64 of the Basic Law states that "[t]he Government of the Hong Kong Special Administrative Region must abide by the law and be accountable to the Legislative Council of the Region.....". As such, the Administration, to fulfil its constitutional duty under Article 64 of the Basic Law, must provide accurate, complete and not misleading information on public expenditure to LegCo and its committees for approval. In addition, it is incumbent on the Administration to report timely and in a proper manner to the Finance Committee ("FC") of LegCo and the relevant Panels of LegCo for any substantial delay in the implementation of the approved proposals. It is also important for the Administration to obtain FC's approval, where necessary, for any subsequent substantial variations in relation to the approved funding proposals;
- is gravely concerned that air safety might have been or will be seriously compromised because, according to the paper submitted by

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the Administration to FC²², the existing ATC system would reach the end of its usable life in 2012. Some components were already out of production and the system was being sustained through redeployment of existing parts where possible. Members of FC were also informed that replacement of the ATC system was required in order to ensure the continued provision of safe, reliable, efficient and effective ATC services in line with air traffic growth. The new ATC system was targeted for commissioning in December 2012. However, as at May 2015, the new ATC system was not yet in operation and the latest estimate was that the new system would only be ready for operation in the first half of 2016;

- held a total of six public hearings from December 2014 to March 2015 to receive evidence on the findings and observations of the Director of Audit's Report ("the Audit Report"). The Committee conducted a visit to the Civil Aviation Department ("CAD") on 23 May 2015 to better understand the operation of the existing Air Traffic Management System ("ATMS") and the testing of the new ATMS;
- has received a number of submissions from members of the public on the administration of the ATC and related services and for fairness to all parties concerned, has warned itself that it should not admit any of the submissions or any information received by the Committee as evidence per se;
- has allowed witnesses reasonable opportunities to be heard during public hearings and to provide further evidence, either orally or in writing;
- has made its conclusions and recommendations based only on evidence received by the Committee, including information in the Audit Report and evidence given by the witnesses (either orally or in writing);

Procurement and implementation of the new ATC system project

Implementation of the new ATC system project

- notes that in May 2007, CAD obtained funding of \$1.565 billion to replace its ATC system by a new ATC system which would be

²² Please refer to the paper submitted by the Economic Development and Labour Bureau to FC in May 2007 [LC Paper No. FCR (2007-08)9] for details.

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implemented through eight different major contracts. Seven of the eight contracts were completed on schedule, but there has been substantial delay in the implementation of the ATMS contract;

- further notes that, according to paragraph 2.3 of the Audit Report, this ATMS contract, with original contract value of \$486 million, is the most complex in terms of scope, design, system software development, functional and system interoperability requirements;
- finds it appalling and totally unacceptable that the existing ATC system, according to the Administration, ought to have been retired by December 2012 owing to the anticipated end of production of some components, its inability to support some of the functionalities common in state-of-the-art ATC systems and its limited functionality and capacity which inhibited inter-operability with other ATC systems in the neighbouring cities. CAD would not be able to meet mounting challenges in providing safe and reliable ATC services using the existing ATC system as evidenced by the following:
 - (a) as revealed in the Audit Report²³, the existing ATC system has been operating above its planned capacity, with frequency of surveillance data display problems increasing since 2011. However, as at May 2015, no new, safe and reliable ATC system as represented by CAD to LegCo is in operation and the latest estimate was that the new system would only be ready for operation in the first half of 2016;
 - (b) the delay of at least three-and-a-half years (from December 2012 to the first half of 2016) in the replacement of the existing ATC system with a usable life which, according to CAD, should have ended in 2012, might pose a serious threat to Hong Kong's aviation safety and might have an adverse impact on Hong Kong's position as an international and regional aviation hub; and
 - (c) in the light of the delay, public money of more than \$33 million²⁴ has been spent on average each year since 2013 to ensure the

23 Please refer to paragraph 2.19 of the Audit Report for details.

24 This amount comprised the annual maintenance cost of the existing ATMS at \$5.9 million and the annual manpower expenditure for the Project Team involved in the CAD Headquarters project and ATC system replacement project at around \$28 million. The new CAD Headquarters was completed in 2012.

continued safe and efficient operation of the existing ATMS and on the ATC replacement project;

Procurement of the new ATMS

- strongly condemns CAD's incompetence and negligence in managing the procurement and implementation of the new ATMS project which has been delayed for at least three-and-a-half years, as evidenced by the following:
 - (a) CAD, as the department responsible for providing ATC services, had seriously underestimated the complexity involved in the implementation of this safety-critical and complex system with a total estimated contract value of \$1.0332 billion²⁵ as it had admitted that "the original schedule for the procurement and testing of the new ATC system might be a bit too ambitious"²⁶;
 - (b) CAD did not engage or seek any external expert to assist in the procurement of the new ATMS despite the complexity involved;
 - (c) CAD's procurement of the new ATMS with two contract variations had caused a significant change in the total value of the contract, i.e. from \$486 million to \$575.2 million, which might give rise to criticism of unfairness to other tenderers²⁷ as the price score had accounted for 60% of the overall score in the assessment of the tenders;
 - (d) CAD obtained FC's approved funding of \$1.565 billion for the new ATC system project²⁸. The total tender price of the eight contracts under the project was \$944 million, but another \$89.2 million of the remaining fund was spent on the two contract variations of the ATMS contract without informing LegCo;

25 Please refer to Table 1 of the Audit Report for a breakdown of the total estimated contract value of \$1.0332 billion for the eight major contracts for implementing the new ATC system project.

26 Please refer to the reply dated 12 December 2014 from CAD (in Appendix 10) for details.

27 Five tenderers have submitted proposals in response to the tender invitation for the procurement of the new ATMS.

28 Please refer to the paper submitted by the Economic Development and Labour Bureau to FC in May 2007 [LC Paper No. FCR(2007-08)9] for details.

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- (e) the Administration had not conducted financial vetting of the tenderers to assess their financial capability to complete the contract with a value of \$575.2 million, which required the ATMS Contractor to provide 15 years of maintenance services for the new ATMS;

Due diligence

- (f) CAD has not solicited comments regarding the performance of the new ATMS offered by the ATMS Contractor from the airports where the new ATMS was adopted and functioning in 2010²⁹ during the tender evaluation process. The ATMS contract was subsequently awarded to the ATMS Contractor in February 2011;
- (g) CAD had not conducted visits to the airports where the new ATMS was adopted and functioning in 2010, nor was it aware of the articles/reports in the media concerning the unsatisfactory performance of the new ATMS at these airports in 2010 prior to the award of the ATMS contract in February 2011;
- (h) CAD had not conducted visits to the reference sites provided by the tenderers during the tender assessment stage;

Tendering terms and process

- (i) although the ATMS Contractor was required to provide an ATMS that could accommodate the concurrent operations of 120 controller working positions, CAD only required the tenderers to provide an ATMS with a track record of having no less than 40 ATC centre air traffic controller working positions in one ATC centre in Clause 8.1 of Part II of the Tender Document for the procurement of the new ATMS;
- (j) contrary to the requirement of providing serviceability/availability figures of the systems similar to the proposed system for the previous 12 months by the tenderers

²⁹ According to paragraph 17 of the Decision of the Review Body on Bid Challenges (in Appendix 24), the Government Logistics Department pointed out that the system proposed by the ATMS Contractor had already been adopted and functioning in one or more airports, which was supported by two media articles reporting that the systems at two airports had successfully completed the Site Acceptance Test in December 2008, and that the system at one airport had successfully completed the Factory Acceptance Test in January 2009.

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during the tendering process of the existing ATMS, CAD only required the tenderers for the new ATMS to provide an ATMS with a minimum track record of not less than six months in Clause 8.1 of Part II of the Tender Document, as this short track record might not fully reflect the capability and performance of the new ATMS to handle the fluctuations in air traffic due to seasonal changes;

- (k) in Part II - Conditions of Tender, there is no information on how the term "System" should be interpreted while in Part IV - Conditions of Contract, the term "System" means "the air traffic management system to be implemented by the Contractor in accordance with the terms and conditions of the contract in two phases, Phase 1 ATMS and Phase 2 ATMS". Further, Clause 8.4 of Part II of the Tender Document provides that "A proposed System with no proven performance record will not be considered further". According to CAD, the term "System" should be interpreted to mean a basket of systems and sub-systems³⁰. However, such interpretation was not expressly provided in the Tender Document and the contract was subsequently awarded to an ATMS Contractor who proposed a new system that was not yet in operation³¹. This might be unfair to the tenderers or potential tenderers and might open up to abuse as it would be extremely difficult, if not impossible, for the tenderers or any parties who were interested in submitting tender proposals to be aware of the interpretation of the term "System" as intended by CAD prior to the award of the contract;

30 When CAD conducted the tender exercise for the new ATMS in 2011, an unsuccessful tenderer alleged that the Proposed System provided by the Contractor had failed to meet the requirement of possession of "proven performance record" as specified in the Tender Document, hence in breach of the relevant provision of the World Trade Organization Government Procurement Agreement ("WTO GPA"). In accordance with the relevant provisions of WTO GPA, the Government had referred the complaint to the Review Body on Bid Challenges, a dedicated and independent body established under the WTO GPA, for review. After review of the case, the Review Body found that the System proposed by the Contractor possessed the necessary "proven performance record". The Review Body had not seen any unfairness or bias which the Government had operated on any tenderer including the complainant. The complaint was dismissed. Please refer to the Decision of the Review Body on Bid Challenges (in Appendix 24) for details.

31 According to CAD's reply dated 18 February 2015 (in Appendix 18), Dubai and Indian airports, the current users of the Contractor's Proposed System, had not commenced the operation of the Contractor's Proposed System at the time when CAD awarded the ATMS contract to the Contractor in February 2011.

Factory Acceptance Tests

- (l) Factory Acceptance Tests were conducted from June 2012 to June 2013. There were numerous deficiencies/observations identified during the Factory Acceptance Tests, i.e. 204 deficiencies/observations were recorded in June and July 2012. Although those deficiencies/observations had been rectified with only 23 still outstanding by June 2013, another 104 deficiencies/observations were identified between August 2012 and June 2013. In view of the successful rectification of 181 of the deficiencies/observations and the ATMS Contractor's undertaking to rectify and verify all the remaining 127 outstanding deficiencies/observations (23 plus 104) by the Site Acceptance Tests stage, CAD conditionally accepted the Factory Acceptance Tests results in June 2013, 11 months later than the original target completion date. CAD's acceptance of the Factory Acceptance Tests conditionally when there were still a large number of outstanding deficiencies/observations has put CAD in a very unfavourable position. Such acceptance was not made in accordance with Clause 12 of Part IV of the Tender Document for the procurement of the new ATMS³²;

Scenario-based test

- (m) scenario-based test, which was an important test using live traffic, was not included in the contract. It was agreed between CAD and the ATMS Contractor only after the Factory Acceptance Tests were conducted that scenario-based test should be included in the Site Acceptance Tests Procedures, which were originally due for submission on 11 April 2012. Since March 2013, the ATMS Contractor had made several submissions of the Site Acceptance Tests Procedures which were agreed in May 2014. As a result, the Site Acceptance Tests, which were on the critical path of the ATMS contract, only commenced in

³² According to Clauses 12.1 and 12.2 of Part IV of the Tender Document for the procurement of the new ATMS, "Factory Acceptance Tests in accordance with Schedule 6 shall be carried out at the time specified in such Schedule and the Implementation Plan", and "[s]hould the System fail to pass any Factory Acceptance Tests by being found not to comply with the Final Specifications, the Contractor shall remedy the defects and/or deficiencies and the relevant test(s) shall be repeated within a reasonable time but in any event not exceeding 4 weeks. Any repeat testing shall not, however, relieve the Contractor of its obligations to meet Implementation Plan dates including Key Dates and the Completion Date".

mid-August 2014, 10 months later than the revised target completion date of the Site Acceptance Tests³³;

Site Acceptance Tests

- (n) during the Site Acceptance Tests of the new ATMS commenced in mid-August 2014, about 1 000 follow-up items were recorded on site and according to CAD, about 80% of them were minor in nature. For the remaining 20% priority items, the ATMS Contractor has rectified 90% of them by March 2015. As at 15 May 2015, there were about 14 outstanding priority items which would be rectified/addressed by the Contractor before end-June 2015;

Contract variations

- (o) CAD had failed to include certain requirements in the system specifications of the Tender Document of the new ATMS as those requirements could have been anticipated with careful planning and foresight. Some of these requirements include the enhancement of the Air Traffic Services Interfacility Data Communications interface and the simulator system expansion by increasing the number of simulator training and input operator positions from 32 to 48. The failure has resulted in two contract variations (with the first contract variation requested only 11 months after the award of the ATMS contract) with a total cost of \$89.2 million (i.e. 18% of the original contract value) incurred for the new ATMS to meet additional/new requirements as well as a delay in the implementation of the ATMS contract;
- (p) there was no established mechanism to determine whether and when an enhancement to ATMS should be made, in particular for enhancements arising from newly recommended requirements from the International Civil Aviation Organization;

³³ According to paragraph 2.12 of the Audit Report, the target completion dates of some milestones in the ATMS contract have been revised (i.e. by an extension of six months) due to the second contract variation. Please refer to Table 3 of the Audit Report for the target and actual completion dates of various milestones of the ATMS contract as at October 2014.

Liquidated damages

- (q) according to CAD, the ATMS Contractor is also the contractor³⁴ for the existing ATMS and CAD has to pay around \$5.9 million a year to the ATMS Contractor for upgrading and maintenance works of the existing ATMS to ensure the continued safe and efficient operation of the existing system beyond 2012 (the original target date for commissioning the new ATMS). Under Clause 17.2 of Part IV of the Tender Document, the ATMS Contractor is only required to pay up to a maximum of around \$5 million and \$3 million in the case of delay in the implementation of Phases 1 and 2 of the new ATMS contract respectively³⁵. Hence, there is no incentive for the ATMS Contractor to expedite the delivery of the new ATMS;

- (r) contrary to the contract conditions on liquidated damages for the procurement of the existing ATMS which required the Contractor to pay a maximum of around \$20 million (US\$2,630,040) for delay in providing the simulator and the system³⁶, the new ATMS contract only required the ATMS Contractor to pay up to a maximum of around \$8 million (\$5 million + \$3 million) in the case of delay in the implementation of Phases 1 and 2 of the new ATMS contract; and

Termination of contract

- (s) according to Clauses 44.1.1 and 44.1.2 of Part IV of the Tender Document for the procurement of the new ATMS, "the Government shall be entitled to terminate the Contract by serving a 14 days' notice in writing on the Contractor if the Contractor persistently or flagrantly fails to carry out the whole or any part of the Services punctually or in accordance with the

34 Please refer to Appendix 17 for details.

35 According to Clause 17.2 of Part IV of the Tender Document, "If the Contractor fails to provide a Sub-System Ready for Service by the Completion Date, the Contractor shall pay to the Government within 7 days upon demand by the Government as and by way of liquidated damages and not as a penalty for any loss or damage sustained by the Government resulting from delay during the period from the Completion Date to the date on which the Contractor actually provides the Sub-System Ready for Service the sum of HK\$52,190 for each day or part of the day of such delay up to a total maximum of HK\$5,219,000 in the case of Phase 1 ATMS, and HK\$34,314 for each day or part of the day of such delay up to a maximum of HK\$3,431,400 in the case of Phase 2 ATMS."

36 A copy of the relevant contract conditions on liquidated damages for the purchase of the existing ATMS is in Appendix 26.

terms and conditions of the Contract; or the Contractor fails to observe or perform any of its obligations under the Contract and (in the case of a breach capable of being remedied) has failed to remedy the breach to the satisfaction of the Government Representative within 30 days (or such longer period as the Government Representative may, in its sole discretion, allow) after the issuance by the Government Representative to the Contractor of a notice in writing requiring it to do so." However, after a delay of 15 months in the implementation of the contract (from the revised contractual date of completion³⁷ (i.e. 20 December 2013) up to the end of March 2015), CAD has yet to formulate any plans in case it was necessary to terminate the contract with the ATMS Contractor;

- strongly condemns and deplores that the Director-General of Civil Aviation, as the head of CAD, had blatantly failed to perform his responsibilities and duties in ensuring that due diligence was conducted adequately and thoroughly, the conditions of the ATMS contract were set out clearly and appropriately, and the ATMS contract was implemented effectively, on schedule and in a cost-effective manner, as evidenced by the above findings;
- expresses grave concern and finds it unacceptable that the Transport and Housing Bureau ("THB"), as the Bureau overseeing the operations of CAD, had failed to perform its supervisory role to ensure an effective implementation of the new ATC system project by CAD;
- expresses grave concern and finds it unacceptable that despite that THB and CAD had mentioned from time to time about the progress of the implementation of the new ATC centre in the paper to the LegCo Panel on Economic Development ("ED Panel") regarding the annual Policy Address briefing as well as in the replies to queries from members of FC during the examination of the Estimates and from members of ED Panel³⁸, THB and CAD had neither informed FC of the two contract variations of the ATMS contract nor drawn members' attention to the substantial delay in the replacement of the ATC system,

³⁷ According to paragraph 2.12 of the Audit Report, the target completion dates of some milestones in the ATMS contract have been revised (i.e. by an extension of six months) due to the second contract variation. Please refer to Table 3 of the Audit Report for the target and actual completion dates of various milestones of the ATMS contract as at October 2014.

³⁸ Please refer to THB's reply dated 12 January 2015 (in Appendix 41) for details.

undermining the role of LegCo in monitoring Government expenditure effectively;

- expresses grave concern and finds it unacceptable that the new ATMS, with a delay of three-and-a-half years and with two contract variations, might deviate from the originally planned ATMS in 2011 when the tender was issued. Further, in the light of the said delay, the new ATMS might have compatibility problems with other systems in the ATC System, which might pose safety risks to ATC services in Hong Kong;
- has yet to be convinced with assurance and explanation by the Director-General of Civil Aviation demonstrating that he and CAD are capable of managing the ATMS project to work towards the target operation date of the new, safe and reliable ATC system in the first half of 2016;
- expresses grave concern and finds it unacceptable that in tendering major specialist systems, the user departments are wholly responsible for drafting the user requirements, tendering and contract provisions as well as the tender evaluation work. As such, despite that other related Government departments, including the Government Logistics Department and the Department of Justice were involved in vetting the tender document, these departments and the supervising bureau would not possess the necessary technical expertise to take up an effective monitoring and gatekeeping role to ensure that the Tender Document is drafted in an objective and impartial manner;
- expresses grave concern and finds it unacceptable that as only four international airports are using the new ATMS and some of the airports are already considering switching their ATMS to other new systems, there might be a genuine risk that the new ATMS in Hong Kong will become one of the remaining few users of the System worldwide by the time when the new ATMS is commissioned in Hong Kong. The ATMS Contractor will have difficulties and small economies of scale to provide efficient system support and maintenance services for the new ATMS;

Administration of the air traffic control and related services

- notes that:
 - (a) the Director-General of Civil Aviation admitted that some of the words used in the tender documents were not clear, which had made it easy for the tenderers to make use of the situation;
 - (b) CAD agreed that it would have been more satisfactory if CAD could anticipate some of the requirements in the two contract variations and include them into the tender specifications;
 - (c) CAD would continue to urge the Contractor to expedite actions on rectifying the outstanding deficiencies/observations in the new ATMS and would closely monitor the remaining contract work to minimize further project delay; and
 - (d) on the ageing of the existing ATC system, CAD had implemented appropriate measures and had stepped up maintenance efforts to keep it in smooth operation until the new ATC system is available;

- urges CAD to:
 - (a) ensure that the new ATMS must be safe, reliable and stable to be used, and that aviation safety must not be compromised under any circumstances;
 - (b) ensure that all the deficiencies/observations identified during the Factory Acceptance Tests and Sites Acceptance Tests must be completely and satisfactorily resolved prior to putting the new ATMS into operation;
 - (c) request the Contractor to take all possible effective measures to expedite the implementation of the new ATMS contract;
 - (d) closely monitor the performance of the Contractor and take pro-active effective measures to ensure that the Contractor settles the outstanding issues in a timely and satisfactory manner;
 - (e) closely monitor the existing ATC system and take pro-active effective measures to ensure the existing ATC system is timely maintained in good operational conditions until the new ATC system is commissioned;

Administration of the air traffic control and related services

- (f) consider formulating a contingency plan as soon as possible to deal with the termination of the ATMS contract in case that the Contractor has failed to provide a safe, reliable and stable system by the first half of 2016 or any other indicative date to be set by CAD/THB;
 - (g) consider engaging external experts to assist in the procurement of complex systems in the future;
 - (h) ensure that for future tenders, all foreseeable requirements are included in the tender specifications in the first place and the conditions of the contracts are formulated appropriately and clearly in order to achieve the best value-for-money purchase for the Government;
 - (i) ensure that for future tenders, the terms and conditions of the tenders must be interpreted in a fair manner, and any terms with interpretation which may appear to depart from a literal and plain meaning should be made known to all potential tenderers during the tender invitation as far as practicable;
 - (j) consider taking more effective measures as specified in the conditions of tenders (such as visit to reference sites in the case of procurement of the new ATMS) to assess the performance of the tenderers for future major procurement projects;
 - (k) update LegCo and/or obtain FC's approval, where applicable, in the future for any subsequent substantial variations in its approved funding proposals, such as contract variations or delays in the implementation of major projects; and
 - (l) develop a mechanism to determine whether and when an enhancement to ATMS should be made, in particular for enhancements arising from new requirements from the International Civil Aviation Organization;
- urges THB to:
- (a) consider engaging external and independent experts immediately to assess the safety and performance of the new ATMS as well as the likelihood of completing Phase 1 of the new ATMS contract by the ATMS Contractor in the first half of 2016, and

Administration of the air traffic control and related services

- then formulate a plan on the way forward for the ATC system replacement project accordingly based on the expert findings;
- (b) closely monitor the performance of CAD to ensure that there will be no further delay in the implementation of the ATC system replacement project;
 - (c) step up its supervisory role to ensure the effective implementation of major projects by CAD in the future; and
 - (d) update LegCo and/or obtain FC's approval, where applicable, in the future for any subsequent substantial variations in its approved funding proposals, such as contract variations or delays in the implementation of major projects;
- requests CAD and THB to update the LegCo ED Panel on the progress of the ATC project, in particular during the critical period in the coming months leading to the first half of 2016 when the new ATC system is expected to come into operation;
 - in light of the importance of air safety in protecting lives and properties, expects the Administration to take appropriate follow-up actions on the issues that were raised and came to Members' attention which may fall outside the remit of the Committee;

Management of the precision runway monitor ("PRM") project

- expresses strong resentment that CAD had failed in its responsibilities in ensuring public money spent on procuring new systems and equipment was good value for money, resulting in a gross waste of public money of about \$200 million, as evidenced by the following:
 - (a) the PRM radar at a cost of \$101.4 million, together with a building cum tower³⁹ at an estimated cost of \$100.9 million to house the radar, was commissioned in January 2000. However, the PRM radar had not been used to support the independent

³⁹ According to the paper submitted by the Administration to the Public Works Subcommittee in 1996 [LC Paper No. PWSC(96-97)19], this 56-metre high building cum tower would also function as the ancillary ATC tower and provide space for offices and equipment rooms for CAD and the Royal Observatory (the Observatory resumed its original name "Hong Kong Observatory" in 1997), observation/radio communication rooms for the Customs & Excise Department, and a radio equipment room with antenna for the Hong Kong Police Force. The base of the building would be enlarged to function as the ancillary ATC centre and provide accommodation for the ancillary ATC and meteorological equipment.

Administration of the air traffic control and related services

mixed mode of operation⁴⁰ of the Hong Kong International Airport's runways, i.e. the intended use of the PRM radar to maximise the runway capacity stated in the funding application to FC in June 1996. Instead it was used from March 2001 for providing essential distance information, monitoring final approaches of aircrafts and monitoring missed approaches in relation to aircraft departures;

- (b) the use of the PRM radar for monitoring missed approaches in relation to aircraft departures had been discontinued in December 2002, and the use of the PRM radar for providing essential distance information and monitoring final approaches of aircrafts had also been discontinued in January 2005. The PRM radar had been put into standby mode from January 2005 onwards;
 - (c) despite that CAD had been made aware of the constraints in adopting independent mixed mode of operation to maximise the utilization of the capacity of the Hong Kong International Airport's dual runways by two consultancy studies in 1990 and 1994, it still proceeded with the procurement of the PRM radar in the belief that there might be advancement in technology to overcome such constraints in the future. As the expected changes in technology had not happened, the PRM radar was only put into use for purposes other than supporting the independent mixed mode of operation of the Hong Kong International Airport's runway. Such other uses⁴¹ turned out to be supplemental and were discontinued after some 20 months to 4 years; and
 - (d) the annual maintenance cost of the PRM radar was \$1.1 million before it had been put into standby mode and was reduced to \$0.2 million from January 2005 onwards;
- expresses strong resentment that while members of the Public Works Subcommittee("PWSC")/FC were informed in the funding application

⁴⁰ According to paragraph 3.8(c) of the Audit Report, independent mixed operation mode would allow each runway to function separately and without coordination with operations on the other runway, as if the runways were two different airports.

⁴¹ Please refer to paragraphs 3.5 and 3.6 the Audit Report for details.

Administration of the air traffic control and related services

in 1996⁴² that the PRM radar was required for independent mixed mode of operation to enable full utilization of the capacity of the Hong Kong International Airport's dual runways, they were not informed of the apparent constraints in adopting the independent mixed mode of operation and the implementation of which was contingent on advancement in technology (if any);

- notes that in managing major equipment projects in the future, CAD would strengthen project appraisal to ensure full evaluation of uncertainties and risks impacting on project viability;
- urges CAD to:
 - (a) develop a mechanism to vet and approve the procurement of major equipment in the future to ensure that the equipment purchased are cost effective and public money are used in a prudent manner; and
 - (b) ensure in the future that both the pros and cons of a proposed project, including the potential risks inherent in the project and all relevant contingent factors, are provided in the funding application to enable LegCo Members to make an informed decision on whether to support the project;

Administration of ATC service related charges

- expresses serious concern that the amount of overdue en-route navigation charges has increased since 2009-2010, and as at 7 January 2015, the overdue amount of en-route navigation charges was \$21.3 million;
- notes that CAD would seek the Department of Justice's advice on the feasibility of demanding a security deposit or banker's guarantee for all airline operators on a case-by-case basis having regard to the operator's payment records;
- urges CAD to:
 - (a) take effective follow-up actions to recover the overdue en-route navigation charges as soon as possible;

⁴² Please refer to the paper submitted by the Director of Architectural Services to PWSC in June 1996 [LC Paper No. PWSC(96-97)19] for details.

Administration of the air traffic control and related services

- (b) expedite the progress in exploring the feasibility of demanding a security deposit or banker's guarantee from all operators on a case-by-case basis having regard to the operator's payment records; and
- (c) adhere to the Government's "user pays" principle in determining the ATC service charges and en-route navigation charges in the future;

Administration of the mandatory occurrence reporting ("MOR") scheme

- expresses concern that:
 - (a) the information in the MOR database, which is an important management tool for monitoring the progress of follow-up actions on reported hazardous or potentially hazardous occurrences and for trend analysis of significant aviation safety issues, was not accurate and not timely updated;
 - (b) CAD had not made use of the information in the MOR database for analysis with a view to improving air traffic safety; and
 - (c) no follow-up actions had been taken on 117 long outstanding cases since 2009;
- notes that:
 - (a) it was CAD's pledge and commitment to sustain and improve the aviation safety standards of Hong Kong. With experience gained from operating the MOR Scheme and in line with the latest global aviation developments, CAD has taken a number of measures in recent years to improve the collation and usage of the information from the MOR database with the aim of achieving continuous improvement in aviation safety; and
 - (b) CAD has agreed with the Audit recommendation on the need to strengthen the management of the MOR database and to improve the collation of the information for the MOR database so that it could provide accurate and up-to-date information to support MOR case management and trend analysis of significant aviation safety issues; and

- urges CAD to:
 - (a) take measures to ensure the accuracy of the MOR database at all times;
 - (b) ensure that follow-up actions on long outstanding cases are taken in a timely manner; and
 - (c) take effective measures to improve the collation of information for the MOR database, and the subsequent analysis and follow-up actions by making reference to the experience gained on the MOR Scheme since the relevant guidelines were issued in 1999, with a view to improving air traffic safety.

Specific comments

Procurement and implementation of the new ATC system project

123. The Committee:

- finds it appalling and totally unacceptable that:
 - (a) in 2007, FC was informed that the new ATC system was targeted for commissioning in December 2012 to replace the existing ATC system which was approaching the end of its usable life. However, as at May 2015, the new ATC system was not yet in operation mainly due to a delay in implementing the ATMS contract;
 - (b) a number of outstanding deficiencies/observations (including 76 carried forward from the Factory Acceptance Tests and 420 comments collected during user's training and testing sessions) remained to be followed up during the Site Acceptance Tests of the ATMS contract, which only commenced in mid-August 2014. As at April 2015, all the 204 deficiencies/observations recorded during the Factory Acceptance Test conducted in June to July 2012 had been rectified by the ATMS Contractor. According to CAD, of the 1 000 follow-up items recorded on site during the Site Acceptance Test conducted in August to November 2014, about 80% of them were minor in nature and

Administration of the air traffic control and related services

would not affect the safety and the commencement of operation of the ATMS. For the remaining 20% priority items, around 90% had already been rectified/addressed. As at 15 May 2015, there were about 14 outstanding priority items which would be rectified/addressed by the Contractor before end-June 2015; and

- (c) the ageing effect of the existing ATC system was becoming more apparent as evidenced by the increasing number of surveillance data display problems since 2011. Moreover, during the period from January to June 2014, there were a total of 122 days (67% of the 181 days) on which the number of active flight plans handled by the existing ATC system was above its planned capacity of 1 000;
- notes that the Director-General of Civil Aviation has agreed with the Audit recommendations in paragraph 2.23 of the Audit Report;

Management of PRM project

- expresses strong resentment that:
 - (a) the PRM radar costing \$101.4 million was only put into use for purposes other than supporting the independent mixed mode of operation of the Hong Kong International Airport's runways as originally intended. Such other uses⁴³ turned out to be supplemental and were discontinued after some 20 months to 4 years, and the PRM radar has been put into standby mode since January 2005; and
 - (b) before seeking funding approval for the PRM radar in 1996, CAD had been made aware of the constraints in adopting independent mixed mode of operation by two consultancy studies in 1990 and 1994. CAD's decision to procure the PRM radar was based on various assumptions, including advancement in technology which was outside CAD's control. Despite these uncertainties, there was no record to show that CAD had conducted necessary risk assessments and evaluated the project's viability;

⁴³ Please refer to paragraphs 3.5 and 3.6 the Audit Report for details.

Administration of the air traffic control and related services

- notes that the Director-General of Civil Aviation has agreed with the Audit recommendations in paragraph 3.16 of the Audit Report;

Administration of ATC service related charges

- expresses serious concern that:
 - (a) CAD had not analyzed the cost recovery situation after implementing the en route navigation charge level as recommended in each fees and charges review to ensure that the charge level was conducive to achieving the full cost recovery principle; and
 - (b) the amount of overdue en route navigation charges at year end had increased by 230% from \$4.7 million in 2009-2010 to \$15.7 million in 2013-2014;
- notes that the Director-General of Civil Aviation has agreed with the Audit recommendations in paragraph 4.17 of the Audit Report;

Administration of MOR scheme

- expresses concern that:
 - (a) while the MOR database is an important management tool for monitoring the progress of follow-up actions on MOR cases and for trend analysis of significant aviation safety issues, there were instances of delays in inputting data in respect of new cases and in updating case status, and incorrect classification of cases;
 - (b) of the 3 374 MOR reports received by CAD from 2009-2010 to 2013-2014, 1 037 (31%) did not meet the statutory four-day-reporting rule. Of the 1 037 late reports, 28% were received after 14 days (i.e. beyond the statutory retention period of data from a flight data recorder);
 - (c) of the 3 374 MOR cases, no risk level had been assigned to 967 cases, contrary to the laid down procedures; and

- (d) of the 634 MOR cases that were outstanding as at 12 August 2014, 201 had remained outstanding for over four years. 117 of these 201 cases had no follow-up actions recorded since 2009⁴⁴;
- notes that the Director-General of Civil Aviation has agreed with the Audit recommendations in paragraph 5.22 of the Audit Report; and

Way forward


- notes that the Director-General of Civil Aviation has agreed with the Audit recommendation in paragraph 6.7 of the Audit Report.

Follow-up action

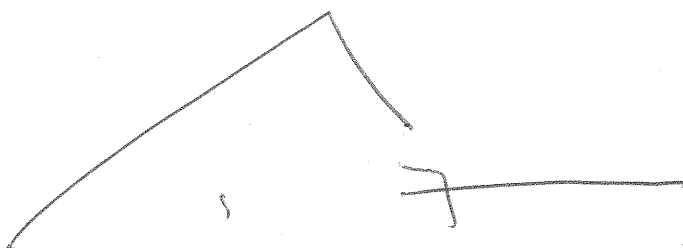
124. The Committee wishes to be kept informed of the progress made in implementing the various recommendations made by the Committee and the Audit Commission.

⁴⁴ According to the reply dated 24 December 2014 from CAD (in Appendix 11), CAD has conducted a detailed review of those cases identified as long outstanding. It was noted that the investigations of all of them had been completed by the respective organizations and subsequently accepted by CAD. However, the database was not updated timely to reflect the situation when the Audit Commission conducted the audit on CAD. All of those long outstanding cases were now closed.

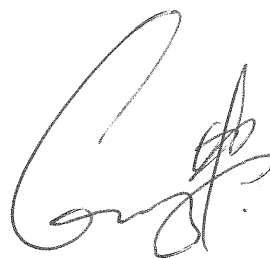
SIGNATURES OF THE CHAIRMAN,
DEPUTY CHAIRMAN AND MEMBERS OF THE COMMITTEE



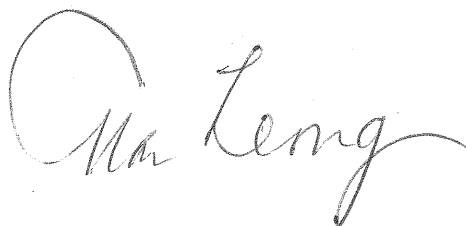
Abraham SHEK Lai-him
(Chairman)



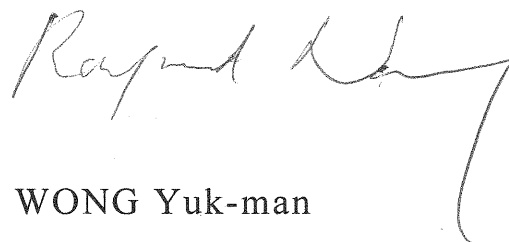
Paul TSE Wai-chun
(Deputy Chairman)



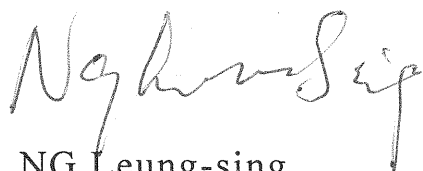
CHAN Hak-kan



Alan LEONG Kah-kit



WONG Yuk-man



NG Leung-sing



Kenneth LEUNG

21 May 2015

**CHAPTER IN THE DIRECTOR OF AUDIT'S REPORT NO. 63
DEALT WITH IN THE PUBLIC ACCOUNTS COMMITTEE'S REPORT**

**Director of
Audit's Report
No. 63**

**P.A.C.
Report No. 63A**

Chapter

Subject

Part

4

Administration of the air traffic control and
related services

4

**RULES OF PROCEDURE OF
THE LEGISLATIVE COUNCIL OF
THE HONG KONG SPECIAL ADMINISTRATIVE REGION**

72. Public Accounts Committee

(1) There shall be a standing committee, to be called the Public Accounts Committee, to consider reports of the Director of Audit –

- (a) on the accounts of the Government;
- (b) on such other accounts required to be laid before the Council as the committee may think fit; and
- (c) on any matter incidental to the performance of his duties or the exercise of his powers as the committee may think fit.

(2) The committee shall also consider any report of the Director of Audit laid on the Table of the Council which deals with examinations (value for money audit) carried out by the Director relating to the economy, efficiency and effectiveness of any Government department or public body or any organization to which his functions as Director of Audit extend by virtue of any Ordinance or which receives public moneys by way of subvention.

(3) The committee shall consist of a chairman, deputy chairman and 5 members who shall be Members appointed by the President in accordance with an election procedure determined by the House Committee. *(L.N. 214 of 2005)*

(3A) The chairman and 2 other members shall constitute a quorum of the committee. *(L.N. 214 of 2005)*

(3B) In the event of the temporary absence of the chairman and deputy chairman, the committee may elect a chairman to act during such absence. *(L.N. 214 of 2005)*

(3C) All matters before the committee shall be decided by a majority of the members voting. Neither the chairman nor any other member presiding shall vote, unless the votes of the other members are equally divided, in which case he shall give a casting vote. *(L.N. 214 of 2005)*

(4) A report mentioned in subrules (1) and (2) shall be deemed to have been referred by the Council to the committee when it is laid on the Table of the Council.

(5) Unless the chairman otherwise orders, members of the press and of the public shall be admitted as spectators at meetings of the committee attended by any person invited by the committee under subrule (8).

(6) The committee shall meet at the time and the place determined by the chairman. Written notice of every meeting shall be given to the members and to any person invited to attend a meeting at least 5 clear days before the day of the meeting but shorter notice may be given in any case where the chairman so directs.

(7) *(Repealed L.N. 214 of 2005)*

(8) The chairman or the committee may invite any public officer, or, in the case of a report on the accounts of or relating to a non-government body or organization, any member or employee of that body or organization, to give information or any explanation or to produce any records or documents which the committee may require in the performance of its duties; and the committee may also invite any other person to assist the committee in relation to any such information, explanation, records or documents.

(9) The committee shall make their report upon the report of the Director of Audit on the accounts of the Government within 3 months (or such longer period as may be determined under section 12 of the Audit Ordinance (Cap. 122)) of the date on which the Director's report is laid on the Table of the Council.

(10) The committee shall make their report upon the report of the Director of Audit mentioned in subrule (2) within 3 months (or such longer period as may be determined by the Council) of the date on which the Director's report is laid on the Table of the Council.

(11) Subject to these Rules of Procedure, the practice and procedure of the committee shall be determined by the committee.

**Paper presented to the Provisional Legislative Council
by the Chairman of the Public Accounts Committee
at the meeting on 11 February 1998 on
Scope of Government Audit in the
Hong Kong Special Administrative Region -
'Value for Money Audits'**

SCOPE OF WORK

1. The Director of Audit may carry out examinations into the economy, efficiency and effectiveness with which any bureau, department, agency, other public body, public office, or audited organisation has discharged its functions.

2. The term "audited organisation" shall include -
 - (i) any person, body corporate or other body whose accounts the Director of Audit is empowered under any Ordinance to audit;
 - (ii) any organisation which receives more than half its income from public moneys (this should not preclude the Director from carrying out similar examinations in any organisation which receives less than half its income from public moneys by virtue of an agreement made as a condition of subvention); and
 - (iii) any organisation the accounts and records of which the Director is authorised in writing by the Chief Executive to audit in the public interest under section 15 of the Audit Ordinance (Cap. 122).

3. This definition of scope of work shall not be construed as entitling the Director of Audit to question the merits of the policy objectives of any bureau, department, agency, other public body, public office, or audited organisation in respect of which an examination is being carried out or, subject to the following 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.

GUIDELINES

4. 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 these Guidelines, he will not comment on policy decisions of the Executive Council and the Legislative Council, save from the point of view of their effect on the public purse.

5. 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.

6. The Director of Audit may also -

- (i) consider as to whether policy objectives have been determined, and policy decisions taken, with appropriate authority;
- (ii) consider whether there are satisfactory arrangements for considering alternative options in the implementation of policy, including the identification, selection and evaluation of such options;
- (iii) 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;

- (iv) consider as to whether there is conflict or potential conflict between different policy aims or objectives, or between the means chosen to implement them;
- (v) 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
- (vi) be entitled to exercise the powers given to him under section 9 of the Audit Ordinance (Cap. 122).

PROCEDURES

7. The Director of Audit shall report his findings on value for money audits in the Legislative Council twice each year. The first report shall be submitted to the President of the Legislative Council within seven months of the end of the financial year, or such longer period as the Chief Executive may determine. Within one month, or such longer period as the President may determine, copies shall be laid before the Legislative Council. The second report shall be submitted to the President of the Legislative Council by the 7th of April each year, or such date as the Chief Executive may determine. By the 30th April, or such date as the President may determine, copies shall be laid before the Legislative Council.

8. The Director's report shall be referred to the Public Accounts Committee for consideration when it is laid on the table of the Legislative Council. The Public Accounts Committee shall follow the rules governing the procedures of the Legislative Council in considering the Director's reports.

9. A Government minute commenting on the action Government proposes to take in respect of the Public Accounts Committee's report shall be laid on the table of the Legislative Council within three months of the laying of the report of the Committee to which it relates.

10. In this paper, reference to the Legislative Council shall, during the existence of the Provisional Legislative Council, be construed as the Provisional Legislative Council.

**Witnesses who appeared before the Committee
(in order of appearance)**

Professor Anthony CHEUNG	Secretary for Transport and Housing
Mr Joseph LAI Yee-tak	Permanent Secretary for Transport and Housing (Transport)
Mrs Sharon YIP LEE Hang-ye	Deputy Secretary for Transport and Housing (Transport)
Mr Norman LO Shung-man	Director-General of Civil Aviation
Mr Simon LI Tin-chui	Deputy Director-General of Civil Aviation
Mr Victor LIU Chi-yung	Assistant Director-General of Civil Aviation (Air Services and Safety Management)
Mr Raymond LI Kwok-chu	Assistant Director-General of Civil Aviation (Air Traffic Engineering Services)*
	Assistant Director-General of Civil Aviation (Air Traffic Management)**
Mr Richard WU Chi-kwong	Chief Electronics Engineer (Projects) Civil Aviation Department*
	Assistant Director-General of Civil Aviation (Air Traffic Engineering Services)**
Mr John WONG Chun-kwong	Chief Treasury Accountant Civil Aviation Department
Mr YAU Shing-mu	Under Secretary for Transport and Housing
Mr Desmond WU Chia-chun	Acting Principal Assistant Secretary for Transport and Housing (Transport)
Mr HUI Man-ho	Chief Electronics Engineer (Technical Support) Civil Aviation Department
Miss Monica CHEN	Principal Assistant Secretary for Transport and Housing (Transport)

Ms Maisie CHENG Mei-sze

Director of Government Logistics

Mr YIP Man-chung

Controller (Procurement)
Government Logistics Department

Ms Katherine CHAN

Principal Supplies Officer (Procurement 1)
Government Logistics Department

* for the hearings held between 9 December 2014 and 15 January 2015.

** for the hearings held on 11 March 2015 and 28 March 2015.

**Introductory Remarks by
Chairman of the Public Accounts Committee,
Hon Abraham SHEK Lai-him, GBS, JP
at the First Public Hearing of the Committee
in respect of the Director of Audit's Report No. 63
on Monday, 8 December 2014**

Good morning, ladies and gentlemen. Welcome to the Public Accounts Committee's public hearing relating to Report No. 63 of the Director of Audit on the results of value for money audits, which was tabled in the Legislative Council on 20 November 2014.

2. The Public Accounts Committee is a standing committee of the Legislative Council. It plays the role of a watchdog over public expenditure through consideration of the reports of the Director of Audit laid before the Council on the Government's accounts and the results of value for money audits of the Government and those organisations which receive funding from the Government. The consideration by the Committee of the Director's reports involves gathering evidence relevant to the facts contained in the Director's reports, so that the Committee may draw conclusions and make recommendations in a constructive spirit and forward-looking manner. I also wish to stress that the objective of the whole exercise is such that the lessons learned from past experience and our comments on the performance of the public officers or other personnel concerned will enable the Government to improve its control over the expenditure of public funds, with due regard to economy, efficiency and effectiveness.

3. The consideration of the Director's reports follows an established process of public hearings where necessary, internal deliberations and publication of the Committee's report. The Committee has an established procedure for ensuring that the parties concerned have a reasonable opportunity to be heard. After the Committee is satisfied that it has ascertained the relevant facts, it will proceed to form its views on those facts, followed by a process of formulating its conclusions and recommendations to be included in its report. In accordance with Rule 72 of the Rules of Procedure of the Legislative Council, the Committee is required to make its report on the Director's report to the Legislative Council within three months of the date at which the Director's report is laid on the Table of the Council. Before then, we will not, as a committee or individually, be making any public comments.

4. Following a preliminary study of Report No. 63, the Committee has decided, in respect of four chapters in the Report, to invite the relevant public officers to appear before the Committee and answer our questions. We have, apart from today's hearing, also set aside tomorrow and 16 December 2014 for public hearings for all four chapters.

5. The public hearing today is on Chapter 1 of Report No. 63 on the subject of "Provision of long-term care services for the elderly". The witnesses are: Mr Matthew CHEUNG Kin-chung (Secretary for Labour and Welfare), Mrs Elina CHAN (Principal Assistant Secretary for Labour and Welfare (Welfare) 3), Ms Carol YIP (Director of Social Welfare) and Miss Cecilla LI (Assistant Director of Social Welfare (Elderly)).

6. I now invite members to ask questions.

(Translation)

**Opening Remarks by the Secretary for Transport and Housing at the
Public Hearing of the Public Accounts Committee of the Legislative Council
on 9 December 2014**

Mr. President,

First of all, I would like to thank the Audit Commission for conducting a thorough review and making important recommendations on the new Civil Aviation Department (CAD) headquarters and the administration of the air traffic control and related services. I would also like to thank the Public Accounts Committee of the Legislative Council (LegCo) for giving the Government an opportunity to further explain the situation. The Government has accepted all of the recommendations made by the Director of Audit, and is following them up proactively.

I would begin by giving an account of the major issues mentioned in Chapters 3 and 4 of the Report No. 63, and would then invite, via Mr. President, the Director-General of Civil Aviation and other departmental colleagues to respond.

Given the robust growth in our air traffic brought about by the rapid development of the Hong Kong International Airport (HKIA) and the regional aviation industry, we have to enhance the handling capacity of the CAD in providing air traffic control (ATC) and other aviation-related services with a view to ensuring aviation safety and efficiency. From aviation policy perspective, the Transport and Housing Bureau (THB) supported the CAD to develop a new headquarters on the Airport Island and replace its ATC system, and therefore submitted the two proposals separately to the LegCo in 2007, and obtained funding approvals from the Finance Committee (FC).

The two projects have been funded by the Capital Works Reserve Fund (CWRF). There are established procedures and guidelines in regard to the conduct of CWRF projects, which set out the duties of the relevant bureaux and departments.

As a policy bureau, the role of THB is to consider the relevant proposals made by departments under its purview taking into account our policy objectives, and to examine whether such proposals are in line with our policy direction. As I have

just mentioned, the development of the new CAD headquarters and replacement of the ATC system would help enhance the overall operational efficiency of the CAD and its handling capacity, and strengthen Hong Kong's status as an international and regional aviation hub. Therefore, the THB has given policy support to both projects.

The CAD is the user department of the new Government building and hence the client department for this CWRP project. Having obtained policy support from the THB, the CAD was responsible for defining the project scope and carrying out necessary public consultation for the project. The Architectural Services Department (ArchSD) was the project director and responsible for overseeing the quality, progress and expenditure of the project. The Director of Architectural Services was also the Controlling Officer for this project. The two departments had to work closely together to implement the project, ensuring that the project cost would not exceed the project estimate approved by the FC, and that the project scope should comply fully with the one approved by the FC.

Regarding the project for the new CAD headquarters, the Director of Audit noted that there were certain deviations from the approved project scope, and also incidents of non-compliance with the relevant regulations and circulars. As agreed by the Director of Audit in paragraph 6.2 of Chapter 3 of his report, the new CAD headquarters project was both a complex and time-critical project. On one hand, it had to cater for the specialised requirements of a modern ATC system and reserve sufficient spaces for future expansion of services. On the other hand, it had to be completed under a tight schedule. Of course, the complexity and tight schedule of the project were not excuses for the various issues pointed out in the Director of Audit's report.

As the Secretary, I am very concerned about the deviations from established procedures and requirements, and have requested the Director-General of Civil Aviation to proactively follow up the recommendations made in the Director of Audit's report, including formulating relevant internal guidelines, informing CAD staff of the audit findings and lessons learnt, and reinforcing the culture of "compliance" with the related procedures and systems. In addition, the THB has also requested the Director-General of Civil Aviation to submit a detailed report on the issues pointed out in the Director of Audit's report together with their sequence of events for necessary follow-up.

As regards the delay in the replacement of the ATC system, I have to point out that enhancing aviation safety and ATC efficiency is the prime objective of the replacement of the system. The ATC system is a major and highly complex integrated system. Prior to its commissioning, the system has to go through comprehensive testing to ensure that it operates smoothly, safely and stably that can fully comply with the latest international requirements and meet the safety standards stipulated by the CAD, which must not be compromised. The project for the ATC system is not an ordinary project of equipment replacement. The overseeing of the tendering and installation work should meet the highest international aviation standards, with a view to ensuring the system can cope with the latest development in aviation technology, and that it could operate in a safe and reliable manner.

We understand the public are concerned about the replacement of the ATC system, in particular how the delay in commissioning the new system would affect the ATC operation, the operational reliability of the existing ATC system, etc, which have been pointed out in the audit report. The CAD has accepted the various improvement recommendations made by the Director of Audit, and will continue to urge the contractor of the ATC system to expedite action in rectifying the outstanding problems in the new system and monitor the remaining contract work more closely in order to minimise further delay of the project.

Moreover, the CAD will closely monitor the operation of the existing ATC system, and has already phased in various protective measures to ensure that prior to the commissioning of the new system, safe and reliable operation of the existing system could be maintained.

Mr. President, I have attached great importance to the criticism given by the Director of Audit. Although the new CAD headquarters has largely addressed the various operational needs of the CAD, and complies with international aviation standards, and that the whole project has been completed within the contract period and approved project estimate, there are irregularities on the implementation of the project by CAD, and a review is needed. Upon receipt of the detailed report from the Director-General of Civil Aviation, we will look into the details of events in depth and their sequence to see if there is any room for procedural improvements apart from those recommended in the audit report. If there is any misconduct of staff, we will follow up in accordance with established procedures and take appropriate administrative or disciplinary action where necessary.

As regards the replacement of the ATC system, I have asked the Director-General of Civil Aviation to expedite actions to ensure timely completion of the project while ensuring the safe and stable operation of the system.

Mr. President, may I let the Director-General of Civil Aviation and the Director of Architectural Services give initial response and supplement respectively. We will then answer questions raised by Members of this Committee.

Ends/

**Public Accounts Committee
Public Hearing on
Report No. 63 of the Director of Audit
Chapter 3 & Chapter 4**

Opening Remarks by the Director-General of Civil Aviation

We accept the Audit Commission's recommendations and appreciate the comments and views made in its audit report. In response to the recommendations raised by the Audit Commission, we have taken effective measures immediately and have strengthened internal controls, with a view to complying with all relevant government regulations and guidelines.

Before I answer Honourable PAC Members' questions on various parts in the report related to the Civil Aviation Department (CAD), I would like to take this opportunity to express that CAD colleagues understand the need to comply with government regulations and approval procedures. As far as the new CAD Headquarters (HQ) project is concerned, the provision of furniture and equipment, and the planning of office accommodation requirements are all based on the department's operational needs. For CAD colleagues, the new CAD HQ is an unprecedented building project. Although the whole project was completed as scheduled and was within the approved budget, I do admit that our colleagues lacked adequate experience to manage this kind of special project well. The non-compliances mentioned in the audit report are mainly due to our staff's inadequacies in following the approval procedures and in communication. Being the head of the department, I assume supervisory accountability for these inadequacies.

On the administration of the air traffic control and related services, the audit report has revealed room for improvement in the management of major procurement projects, in conducting cost-benefit analyses, in following up on overdue en-route navigation charges and in the management of the mandatory occurrence reporting database. Taking heed of the lesson learnt, CAD has revised its internal guidelines and taken enhancement measures to improve management effectiveness.

Now, I would like to outline the corrective actions we have taken in response to the various aspects covered by the audit report, and brief the committee on the latest developments.

Chapter 3 – the New CAD HQ

Part 2: Provision of Reserve Space for Future Expansion

We admit that our handling of the 1 500 m² of expansion space reflected our inadequacies in understanding. Communication between departments should be improved, and we should provide the Legislative Council with more comprehensive and updated information. We have updated our project procedures handbook and have promulgated improvement measures to all our project officers. We are liaising with the Civil Service Training and Development Institute to provide relevant training to our colleagues involved in the handling of projects.

Members may have noted that, as reported in paragraph 2.22 of the audit report, the Property Vetting Committee (PVC) had approved, in October 2014, our request to use 926 m² of the 1 500 m² of the reserved area for accommodating 119 additional staff members who had joined CAD after 2007. This reflected that, in terms of operational requirements, there was a need for CAD to reserve space for future expansion at the time of the construction of our new HQ. At that time, both CAD and the Architectural Services Department considered that the reserved space could be built and this arrangement would be pragmatic and more cost-effective.

For the remaining 574 m², we have sought assistance from the Government Property Agency (GPA) so that other government departments could make interim uses of this space before CAD would confirm its long-term use. We would work closely with GPA on this matter.

Part 3: Control over Deviations from Approved Schedule of Accommodation

The Audit Commission has pointed out that three of the facilities in our new HQ were not built in accordance with the approved schedule of accommodation, namely the toilet/shower facilities in the Director-General of Civil Aviation's office, the multi-function room and the rest rooms for accident investigators.

When CAD received media enquiries regarding these facilities last year, we took the initiative to re-examine the approved schedule of accommodation and found that the three items mentioned above were not in compliance with the approved schedule. In December 2013, with the consent of GPA, we turned the toilet/shower facilities in the Director-General (DG)'s office into a departmental store room and permanently blocked the door leading to the DG's office,

dismantled the handrail in the multi-function room, and permanently covered the wall mirror.

As to the rest rooms for accident investigator, we are seeking the views of GPA and the Financial Services and the Treasury Bureau (FSTB) to use that space as a common rest area as originally approved by the PVC in a cost-effective manner.

Part 4: Provision of Furniture and Equipment

We have conducted an overall review of the operational needs for all the LCD units purchased under the multi-media presentation system, with a view to maximising their usage as far as practicable. We have also sought FSTB's covering approval. Upon obtaining FSTB's approval, we will consult the Government Logistics Department on proper ways to redeploy surplus LCD units to other bureaux/departments.

Chapter 4 – Administration of the Air Traffic Control and Related Services

I now move on to provide further information in respect of Chapter 4 – Administration of the Air Traffic Control and Related Services.

Part 2: Management of the New Air Traffic Control Project

We accept the Audit Commission's views and comments, but at the same time we would like to make it clear that there was no cost overrun. Aviation safety is our topmost priority. The new air traffic control (ATC) system must meet stringent ATC requirements before commissioning. We would continue to urge the system contractor to expedite actions on rectifying the outstanding deficiencies/observations in the new system and would closely monitor the remaining contract work to ensure minimum project delay.

On the ageing of the existing ATC system, we have implemented appropriate measures and have stepped up maintenance efforts to keep it in smooth operation until the new ATC system is available.

Part 3: Management of the Precision Runway Monitor Project

In managing major equipment projects in the future, we will strengthen project appraisal to ensure full evaluation of uncertainties and risks impacting on project viability. The main objective of this project, which was implemented

almost 20 years ago, was to enable higher runway capacity for the new airport's two runways. Before the precision runway monitor radar could achieve its anticipated objective, CAD had achieved it by continuously optimising ATC procedures, flight operations and meteorological conditions for approaches. During the 16 years from the commissioning of the new airport back in 1998 to the present, runway capacity has been increased to 66 movements per hour from 31 movements per hour. In 2015, it will further be increased to 68 movements per hour, exceeding the maximum capacity of 63 movements per hour for the dual runways estimated in the 1994 Airspace Design Study.

Conclusion

To follow up on the recommendations in Chapter 3 & Chapter 4 in Report No. 63 of the Director of Audit, I, as the head of CAD, will personally supervise and take effective improvement measures, and also strengthen internal management, to ensure compliance with relevant government regulations and guidelines. The Secretary for Transport and Housing has instructed CAD to actively take forward the recommendations put forward by the Audit Commission. In this connection, I will closely liaise with relevant bureaux and departments, and carry out the required improvement measures.

Thank you, Mr Chairman and all Honourable Members.

Table 2 – Implementation plan of the ATMS
(one of the eight major system contracts of the ATC system project) as set out in Table 3 of Chapter 4 of the Audit Report

	Critical tasks/events	Target date of completion	Actual date of completion	Reasons for slippages, if any
1	Contract commencement of the ATMS	February 2011 (as stipulated in the ATMS contract)	February 2011	
2	Detailed Design Review Meeting of the ATMS	May 2011 (as stipulated in the ATMS contract)	May 2011	
3	The contractor's submission of Detailed Design Document of the ATMS to CAD for approval	August 2011 (as stipulated in the ATMS contract)	December 2011	The slippage in the contractor's submission of the Detailed Design Document of the ATMS to CAD was due to the complexity of ATMS and its integration with other ATC systems, and the longer time required to take into account the follow-up issues identified during the meeting of the detailed design review in item (2) above.
4	ATMS system design / manufacturing	February 2012 (as stipulated in the ATMS contract)	June 2012	Consequential delay incurred due to item (3) above concerning the submission and approval of the detailed design document of the ATMS.
5	The contractor's submission of Factory Acceptance Tests Procedures of the ATMS to CAD for approval	March 2012 (as stipulated in the ATMS contract)	February 2012	
6	The contractor's submission of Site Acceptance Tests (SAT) Procedures (ATMS) for all equipment of the ATMS for CAD's approval	April 2012 (as stipulated in the ATMS contract)	February 2013	Consequential delay due to item (4) above and the contractor had been focusing on the preparation of Factory Acceptance Test (FAT).
7	Factory Acceptance Tests of the ATMS	July 2012 (as stipulated in the ATMS contract)	June 2013	The number of deficiencies/observations identified in FAT is more than expected for the ATMS, and the contractor took longer time to rectify the deficiencies/observations.

	Critical tasks/events	Target date of completion	Actual date of completion	Reasons for slippages, if any
8	Site Acceptance Tests (SAT) for the ATMS	October 2013 (it was stipulated in the ATMS contract that the date should be April 2013, but was extended for 6 months due to contract variation no.2)	November 2014	The delay was due to the delay of the FAT (item 7 above), and the need to conduct the scenario-based test in the SAT procedures as agreed between CAD and the contractor to ensure the new ATMS fully met the relevant contractual and safety requirements before operation. SAT was conducted in August – November 2014.
9	Completion date of the ATMS and system integration	December 2013 (it was stipulated in the ATMS contract that the date should be June 2013, but was extended for 6 months due to contract variation no.2)	1 st half of 2015 (revised target)	Consequential delay incurred due to item (8) above.

Replacement of Air Traffic Control (ATC) System - Implementation Plan

Table (1) - Implementation plan of the ATC system project set out in paragraph 23 of the paper of the Finance Committee (FC) of the Legislative Council (LegCo) in May 2007

	Critical tasks/events	Target date of completion	Actual date of completion (ATMS)	Reasons for slippages, if any
1	Preparation and approval of tender documents for various components of the new ATC system	February 2010 (as stipulated in para 23(a) of FC Paper)	October 2009	
2	Tender invitations for various components of the new ATC system	March 2010 (as stipulated in para 23(b) of FC Paper)	November 2009	
3	Award of contracts for various components of the new ATC system	October 2010 (as stipulated in para 23(c) of FC Paper)	February 2011	The CAD grouped the 18 ATC systems and facilities as proposed in the funding paper approved by the LegCo FC in May 2007 into eight major system contracts. The delay in the award of contract was caused by several rounds of clarifications with the tenderers of various component systems about the details of the tender proposals during the assessment stage. In addition, the tender assessment process for one of the component systems, namely the Air Traffic Management System (ATMS), took longer time than expected due to its complexity.
4	Delivery of the new ATC system	July 2011 (as stipulated in para 23(d) of FC Paper)	December 2012	The delay was due to the delay in the contract award in item (3) above, and the longer time taken for the detailed design of the ATMS, which is one of the component systems of the ATC system.
5	Installation and integration of the new ATC system for testing and evaluation	February 2012 (as stipulated in para 23(e) of FC Paper)	1st half of 2015 (revised target)	The delay was due to the delay in the contract award in item (3) and in the delivery of the new ATC system in item (4) above. The delay was also lengthened because of the deficiencies / observations identified during the Factory Acceptance Test (FAT) of the ATMS in mid-2012, causing slippage in the FAT and the subsequent site acceptance tests conducted for the ATMS and the need to conduct the scenario-based test in the SAT procedures as agreed between CAD and the contractor to ensure the new ATMS fully met the relevant contractual and safety requirements before operation.

	Critical tasks/events	Target date of completion	Actual date of completion (ATMS)	Reasons for slippages, if any
6	Operational evaluation and controller training	December 2012 (as stipulated in para 23(f) of FC Paper)	1st half of 2016 (revised target)	Consequential delay incurred due to item (5) above. According to CAD's latest estimate, the training for controllers would commence in Q1 2015, and would last for about 9-12 months, and be completed by the early 2016.
7	Transition to and commissioning of the new ATC system	December 2012 (as stipulated in para 23(g) of FC Paper)	1st half of 2016 (revised target)	Consequential delay incurred due to items (3), (4), (5) and (6) above.
8	Delivery of backup ATC system	January 2014 (as stipulated in para 23(h) of FC Paper)	2017 (revised target)	Consequential delay incurred due to item (7) above.
9	Installation, integration and commissioning of the backup ATC system	January 2015 (as stipulated in para 23(i) of FC Paper)	2018 (revised target)	Consequential delay incurred due to item (8) above.

Comparison between the Estimated Capital Cost for Replacement Air Traffic Control (ATC) System in Annex G of the Panel on Economic Services Discussion Paper

New ATC Systems in Annex G of the discussion paper submitted to the Panel on Economic Services of Legislative Council dated 26 February 2007 [CB(1)966/06-07(04)] (Item Reference No. is same as that in Annex G)	Estimated Capital Cost in Annex G of the paper (Millions)	Contracts in Table I of the Audit Report	Total estimated contract value (Millions)
(a)(i) Radar Data Processing and Display System/Flight Data Processing System (RDPDS/FDPS)	675	(a) Air Traffic Management System (ATMS) (Procured)	486.0
(a)(xiv) Radar Data Formatter	5	Contract variation No. 1 (Procured)	42.4
(b)(i) Radar Simulator for RDPDS/FDPS	26	Contract variation No. 2 (Procured)	46.8
(b)(iii) Computer-Based Training (CBT) System	5	Professional services (Note 1), procurement of initial parts , operational and technical training (Not all procured yet)	115.2
Sub-total:	711	Sub-total:	690.4
(a)(iii) Aeronautical Information Database	120	(b) Air Traffic Services Data Management System (Procured)	135.0
(a)(v) Cable/Microwave Link Network	120	(c) Aeronautical Information Management System (Procured)	55.0
(a)(vi) Centralised Monitoring and Control System	15	(e) Communication Backbone (Procured)	31.0
(a)(vii) Very Small Aperture Terminal	15	(h) Ancillary and Technical Support Systems (Procured)	65.0
(a)(ix) Telephone System	6	Other Ancillary System/Facilities (Procurement is in progress)	136.0
(a)(x) Secondary Surveillance Radar Situation Display System	3	Professional services (Note 1), procurement of initial parts, operational and technical training (Procurement is still in progress)	57.2
(a)(xii) Un-interruptible Power Supply System	8	Sub-total:	479.2
(a)(xiii) Master Clock System	5		
(a)(xv) Other Ancillary Systems/Facilities	112		
Sub-total:	404		
(a)(iv) ATS Message Handling System and Aeronautical Telecommunication Network	75	(d) Aeronautical Messaging System (Procured)	23.0
		(g) Relocation and Expansion of Air Traffic Services Message Handling System (Procured)	23.0
		Professional services (Note 1), procurement of initial parts, operational and technical training (Procurement is still in progress)	9.2
		Sub-total:	55.2
(a)(ii) Speech Processing Equipment	165	(f) Communications and Recording System (Procured)	126.0
(a)(viii) Voice Recording/Playback System	23	Professional services (Note 1), procurement of initial parts, operational and technical training (Procurement is still in progress)	25.2
(a)(xi) ATC Radio Telephony Workload Monitoring System	3	Sub-total:	151.2
Sub-total:	191		
(b)(ii) Tower Simulator	28	Tower Simulator (Procured)	18.0
(a)(xvi) Contingency [New ATC system]	150	Contingency (Note 2)	58.0
(b)(iv) Contingency [New ATC operators' training/simulator system]	6		
Sub-total:	156		
Total	1,565	Total	1,452.0

Note 1: \$70 millions would be used for procuring professional services as per item (11b) of the funding paper submitted to the Finance Committee of Legislative Council in May 2007 [Paper reference: FCR(2007-08)9]. This was for the engagement of the CAD's maintenance contractor to provide on-site support/assistance in the installation, testing and commissioning of the new ATC systems.

Note 2: The entire new ATC system composes of 8 major project items, with 7 of them have been substantially completed as scheduled with no spending from the "Contingency" funds. Since the remaining ATMS project is still in progress, the CAD has reserved 10% of the total estimated contract value for "Contingency" use.

Meeting on 15 December 2014

Information Paper

**Public Hearing on
Report No. 63 of the Director of Audit
Chapter 4 – Administration of the Air Traffic Control
and Related Services**

**By
Public Accounts Committee of the Legislative Council**

Replacement Air Traffic Control System of the CAD

Objectives

The Audit Commission has completed a value-for-money audit on administration of the air traffic control and related services. The management of the new Air Traffic Control (ATC) system project is mentioned in Chapter 4 of Report no. 63. This paper is intended to provide relevant information to the members of Public Accounts Committee of the Legislative Council on the Replacement of ATC System of the Civil Aviation Department (CAD).

Background

2. In order to enhance the handling capacity of air traffic control with a view to supporting the growth in air traffic at the Hong Kong International Airport, the CAD obtained funding of \$1.56 billion from the Finance Committee of the Legislative Council in May 2007 for replacing its existing ATC system. In 2007, the CAD obtained endorsement and funding from the Finance Committee to create a new post of Assistant Director-General of Civil Aviation (ATC Project) (the post was deleted in 2013) responsible for leading a project team to oversee and coordinate the new ATC system project, including the Replacement ATC System and construction of a new CAD headquarters.

3. The CAD has strictly followed the rules and procedures as stipulated in the Government Stores and Procurement Regulations (SPR) and the World Trade Organisation Government Procurement Agreement (WTO GPA) throughout the procurement of the new ATC system. Tendering exercise was commenced in 2009, and the relevant contracts were awarded by 2012 or earlier.

4. The Hong Kong Special Administrative Region Government has always place utmost importance on aviation

safety. Before commissioning the new ATC system, the CAD must be satisfied with a safe, reliable and stable operation of the new system, fulfilling the stringent international ATC requirements.

Tender documents of the new ATC systems

5. The tender documents for procurement of the new ATC system were developed by the CAD in accordance with the SPR. The tender documents stipulated the technical requirements for the new system, including a stable and reliable system architecture, enhanced flight information and data processing capability, highly automated with advanced safety net features, precise flight trajectory prediction function, etc. These requirements were formulated based on the latest technical, operational and safety standards adopted worldwide in regard to ATC system, as well as the experience in operating the existing ATC system. The objective is to enhance the processing capacity and functions of the new ATC system in compliance with the latest International Civil Aviation Organisation (ICAO) requirements. The tender documents were approved by the Government Central Tender Board (CTB) comprising representatives from the Financial Services and Treasury Bureau (FSTB) and the Government Logistics Department (GLD), etc.

6. Prior to developing the tender documents, the CAD had conducted comprehensive market research on ATC system, and paid fact-finding visits to overseas major ATC centres to exchange views with the air traffic control personnel there and learnt from their experience. The CAD could acquire more in-depth understanding on the latest technical, operational and safety standards adopted worldwide in operating ATC system, thereby facilitating the incorporation of latest technology and safety requirements into the tender documents.

7. The CAD consulted the aviation industry about its plan to replace the ATC system, including the International Air Transport Association, the Hong Kong Air Traffic Control Association, and the Panel on Economic Services of the Legislative Council. From 2007 onward, the CAD discussed and collected views of the air traffic control personnel in various areas, including new system project planning, system functions, human-machine interface, operation workflow, implementation and transition etc. This ensures the new ATC system to meet the operational needs and requirements by incorporating the collected views into the tender documents.

Functions of the New ATC System

8. After detailed study, the CAD decided to group the 18 ATC systems and facilities as proposed in the Funding Paper approved by the Finance Committee in May 2007 into 8 system projects, as follows :-

- (i) Air Traffic Management System (ATMS)
- (ii) Air Traffic Services Data Management System
- (iii) Aeronautical Information Management System
- (iv) Aeronautical Messaging System
- (v) Communication Backbone
- (vi) Communications and Recording System
- (vii) Relocation and Expansion of Air Traffic Services Message Handling System
- (viii) Ancillary and Technical Support Systems

The composition of system and facilities of the above 8 system projects is detailed in **Annex I**.

9. The CAD specified various technical requirements in the tender documents, including the new ATMS can handle 8,000 flight plans every day, and monitor 1,500 air or ground targets simultaneously, which is about 5 and 1.5 times of the existing system respectively.

10. In addition, the CAD also required the new ATMS to incorporate the state-of-the-art functions, including automatic display of important flight information, air traffic situation, optimised arrival sequence and landing time of flights etc. Such technology was crucial to sustaining the efficiency of air traffic services, and also beneficial to enhancing our compatibility with other ATC system in other regions, thereby satisfying the air traffic growth at the Hong Kong International Airport (HKIA).

The Status of Replacement ATC System

11. A comparison between the current implementation status of the new ATC system, and the schedule and project expenditure submitted to the Panel on Economic Services of the Legislative Council in February 2007, is given in **Annex II** and **Annex III** respectively.

12. 7 out of 8 system projects of the entire new ATC system (see para. 8(ii) to (viii)) have been substantially completed as scheduled. 2 of the system projects have been put into operational use since 2013. Another 5 system projects are planned for operation in phases commencing 2015. The CAD is making an all-out effort to work with the system contractor in testing the remaining ATMS (see para. 8(i)). According to the current testing and problem

***Note by Clerk, PAC:** Please see Appendix 9 of this Report for Annex III.

rectification progress, the entire new ATC system is expected to be available in 2015 for training air traffic control personnel. After completion of all the training (9 - 12 months) and confirming the new ATC system could fulfill all the safety requirements, it is planned to commission the New ATC Centre in the first half of 2016.

13. During the Factory Acceptance Test (FAT) of the new ATMS in June and July 2012, the CAD recorded about 200 deficiencies/observations items, while more than 90% of them have been rectified and verified in June 2013. In fact, those deficiencies/observations items identified by the CAD during the acceptance tests do not imply that the new ATMS is not functioning properly or it is unsafe. Given the stringent acceptance tests and the complexity of the new ATMS, it was unavoidable that some deficiencies/observations items were identified. The purpose of the test is to ensure that the ATMS manufactured by the large overseas manufacturers could adapt to the local Air Traffic Management environment, and the system could operate safely, stably and reliably. In fact, it is not uncommon to have deficiencies/observations items identified during acceptance test in ATC system replacement projects in other countries. Similar observations were also recorded during the testing of the existing ATC system prior to its implementation at the HKIA.

14. The CAD has been looking forward to early commissioning of the new ATC system. However, the ATMS of the new ATC system is a highly complicated and sophisticated system requiring longer time than expected for conducting different types of tests, including Factory Acceptance Test (FAT), Site Acceptance Test (SAT) and System Integration Test (SIT) etc., which caused delay to the entire Replacement ATC System project. Regarding the liability issues, the CAD will adopt a prudent approach and take appropriate action according to the relevant provisions of the contract. In addition, since aviation safety is the first priority of the CAD, we must ensure the safety, reliability and stability of the new system before putting them in operation. In regard to the time required for systems procurement and testing, we admit that our original schedule might be a bit too ambitious. According to the overseas experience, it normally takes approximately 6 years from contract award to completion for similar large-scale ATC system replacement. For instance, it took 6 years for Singapore to replace their ATC centre, with 3 years' delay incurred. Likewise, the Swanwick ATC centre in the UK, which is responsible for the southern airspace covering the Heathrow airport, took about 11 years to replace their ATC centre and suffered about 6 years' delay.

15. The CAD will continue to urge the contractor to expedite rectification of the outstanding problems in the new ATMS and closely monitor the remaining contract work to minimise further project delay.

Procurement of the new Air Traffic Control System

16. The evaluation of the tenders for the new ATC system was conducted strictly in accordance with the SPR and WTO GPA.

17. For the Air Traffic Management System (ATMS), the processes leading to contract award is described in **Annex IV**. According to the SPR, the CAD established a Tender Assessment Panel (TAP) with 11 experienced engineering and air traffic control personnel to evaluate the tender offers. The TAP was led by a Chief Electronics Engineer, with members consisting of 1 Senior Electronics Engineer, 3 Electronics Engineers, 1 Senior Evaluation Officer, 2 senior Air Traffic Control Officers, 2 Air Traffic Control Officers and one Technical Support Officer.

18. The TAP adopted a marking scheme as stipulated in the SPR to evaluate the tender offers. It consisted of two parts, namely the technical and price score. For the technical parts, the score is calculated according to the

technical requirements as stipulated in the tender document. Such evaluation criterion applied to all potential bidders and had been approved by Central Tender Board (CTB). All criteria were clearly stipulated in the tender document for reference by the potential bidders. To ensure the evaluation was conducted in a fair and impartial manner, the TAP firstly conducted technical assessment against each tender and calculated the technical score. After completion of the technical assessment, the GLD then provided the TAP with the price information of the tenders to calculate the price score. In some cases, after receiving the bids and during the tender assessment process and in accordance with the tender provisions, the CAD might conduct assessment by visiting the factories of bidders who have fulfilled the basic qualification.

19. After completion of the tender evaluation by the TAP, the tender with the highest score would be recommended for consideration and approval by the Government Central Tender Board, which was chaired by the Permanent Secretary for Financial Services and the Treasury, and comprised representatives from the FSTB and GLD. Since the tender proposal of the Autotracs system offered by the Raytheon Company obtained the highest overall score, the contract for the ATMS was awarded to the Raytheon Company. The contract was signed between the GLD and the Raytheon Company in early 2011.

Contract variation of the new ATMS

20. After detailed study, the CAD proposed contract variations in 2012 and 2013 respectively to enhance the ATMS under the new ATC system. The enhancements include strengthening the air traffic flow management and relevant functions of human-machine interface, adding training positions in the Simulator System, etc. All contract variations arising from the enhancement work were conducted in accordance with the SPR with detailed breakdown of the enhancement items and costs, and had been vetted and approved by the GLD. The total cost for the Replacement ATC system project, including the two contract variations on ATMS, does not exceed the limit of the approved budget.

21. The reason for contract variation in 2012 was that after the ATMS contract was awarded, the CAD considered that there was still room to incorporate more advanced and updated functions into the system in order to cope with the latest requirements for ATC operation at the HKIA (including the ever evolving arrival sequencing requirement), and to match up the continuous enhancement of international air traffic management standards. Certainly, it would have been more satisfactory if the CAD could pre-empt these requirements and include them into the tender specifications

during preparation for the tender documents. On the other hand, the ICAO Global Air Navigation Plan (GANP) promulgated in November 2012 contained the latest ATM requirements which could not be predicted beforehand. Hence, it was required to enhance the ATMS in 2013 so as to cope with the latest requirements.

Operation of the existing ATC system

22. Since 2011, the CAD has worked closely with system suppliers and maintenance service providers to progressively implement a series of maintenance measures on the existing ATC system in order to sustain the reliable and efficient operation. In view of the delay in new ATMS project, commencing this year the CAD has stepped up efforts to strengthen its maintenance on the existing ATC system. Measures included upgrading the relevant surveillance data display (SDD) workstations and optimizing radar signal inputs to alleviate system loading etc., which was planned for completion within this year. According to the CAD's estimation, with the aforesaid measures in place, the existing ATC system should maintain safe and reliable operation to cope with the air traffic capacity in Hong Kong.

23. The CAD has been attaching paramount importance to the issues mentioned in the audit report related to existing ATC systems, such as surveillance data display problems (e.g. frozen/hang-up) at

some controller positions. While such occurrences do not have substantial impacts on air traffic control, the CAD has taken immediate and decisive measures to deal with the problems in order to upkeep the performance of relevant system.

Civil Aviation Department

December 2014

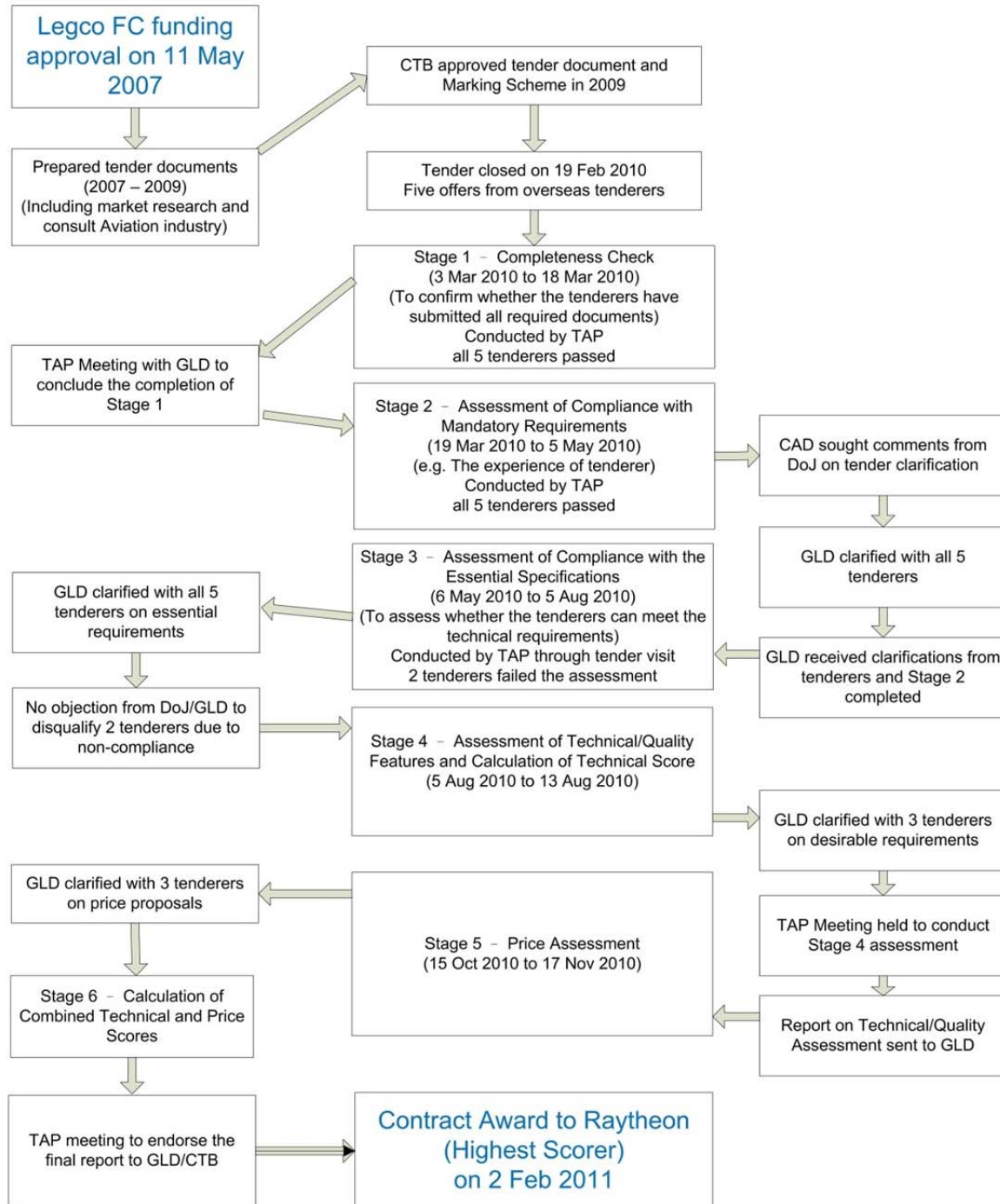
Details of systems and facilities for the eight contracts of the new Air Traffic Control (ATC) system

Eight contracts of the new ATC system	Details of systems and facilities
(a) Air Traffic Management System (ATMS) Contract variation No. 1 Contract variation No. 2	Radar Data Processing and Display System/Flight Data Processing System (RDPDS/FDPS), Radar Data Formatter, Radar Simulator for RDPDS/FDPS and Computer-Based Training (CBT) System
(b) Air Traffic Services Data Management System	Secondary Surveillance Radar Situation Display System, Aeronautical Information Database, Cable/Microwave Link Network and Other Ancillary Systems/Facilities
(c) Aeronautical Information Management System	Aeronautical Information Database
(d) Aeronautical Messaging System	Air Traffic Services (ATS) Message Handling System and Aeronautical Telecommunication Network
(e) Communication Backbone	Master Clock System and Cable/Microwave Link Network
(f) Communications and Recording System	Speech Processing Equipment, Voice Recording/Playback System and ATC Radio Telephony Workload Monitoring System
(g) Relocation and Expansion of ATS Message Handling System	ATS Message Handling System and Aeronautical Telecommunication Network
(h) Ancillary and Technical Support System	Centralised Monitoring and Control System, Telephone System, Un-interruptible Power Supply System and Cable/Microwave Link Network

Item No.	Critical Tasks as listed in Annex B of discussion paper of the Panel on Economic Services of the Legislative Council [Paper Ref. : CB(1)966/06-07(04) - 26/2/2007]	Original Schedule	Actual / Tentative Schedule	Reason(s) for change
1	Define overall system design and operational requirements including the human-machine interfaces for some 17 major components and other ancillary facilities of the ATC system	2007-08	2007-08 (actual)	--
2	Liaise with adjacent ATC authorities on the interface and protocol standards for the inter-operability of the new ATC system with their systems	2007-08	2007-08 (actual)	--
3	Define training requirements in the tender and contract specifications for the various components and ancillary facilities	2008-09	2008-09 (actual)	--
4	Formulate the training plan for the operations of the new ATC Centre and revised flight procedures	2008-09	2008-09 (actual)	--
5	Prepare tender documents for the procurement of the various components and ancillary facilities	2008-09	2008-11 (actual)	The new ATC system composes of 8 major project items, which are implemented in phases by the CAD. After completion of Items (1) to (4) above, there were more specific requirements than expected which must be included in the tender documents, including the latest technical and safety requirements, the operational needs of air traffic controllers, and the connection interface with other systems. The CAD had to work in conjunction with Department of Justice and Government Logistics Department to prepare and review details of the tender document. To ensure that the latest requirements would be suitably incorporated into the tender document, the CAD had to carefully review every details of the tender documents, and submit them to the Government CTB for approval. Therefore, time taken for tender preparation was longer than expected.
6	Conduct tender evaluations and award contracts for the various components and ancillary facilities	2009-10	2009-12 (actual)	Consequential delay incurred due to Item (5) above
7	Participate in the "train-the-trainer programme" in the factories of the various equipment suppliers	2009-10	2012 (actual)	Consequential delay incurred due to Item (5) above
8	Prepare the training materials to suit Hong Kong's traffic configuration and operating environment, including the system degradation on failure, and failure recovery procedures	2009-10	2012 (actual) - 15 (tentative)	Consequential delay incurred due to Item (5) above. Moreover, training plan was also affected by the contract variations of the Air Traffic Management System (ATMS) in 2012 and 2013.
9	Draft course plans for subsequent training of operational controllers in various operational streams	2009-10	2012 (actual) - 13 (actual)	Consequential delay incurred due to Item (5) above
10	Formulate the work plan for transition and parallel operations of the two ATC Centres	2009-10	2009-10 (actual)	--
11	Monitor the production of the relevant equipment, attend factory acceptance testing, and supervise the site installations	2010-11 and onwards	2010-11 and onwards	The entire new ATC system include 8 major project items, 7 of which have been substantially completed as scheduled. For the remaining ATMS, in view of contract variations for system enhancement, Factory Acceptance Test was deferred until 2012.
12	Carry out the site testing, acceptance and integration of the various components and ancillary facilities	2010-11 and onwards	2010-11 and onwards	Apart from being affected by Item (11) above, the ATMS is a very complicated and sophisticated system requiring longer time than expected for testing. Therefore, Site Acceptance Test was deferred to start until 2014.
13	Conduct classroom and hands-on training and refresher courses on operating the new ATC system and revised operational and flight procedures	2010-11 and onwards	2013 (actual) and onwards	Consequential delay incurred due to Items (11) and (12) above
14	Provide relief for more than 200 operational controllers who will have to undergo training related to the new ATC system in batches	2010-11 and onwards	2013 (actual) and onwards	Consequential delay incurred due to Items (11) and (12) above
15	Design and carry out drills for the ATC Centre transition and parallel operations	2010-11 and onwards	2012 (actual) and onwards	Consequential delay incurred due to Items (11) and (12) above
16	Plan and execute the transition between the existing and new ATC Centres and their parallel operation at the initial stage	2010-11 and onwards	2012 (actual) and onwards	Consequential delay incurred due to Items (11) and (12) above

Note : The entire new ATC system composes of 8 major project items, 7 of them have been substantially completed as scheduled. Two of them have been put into operations since 2013. The other 5 project items would also be under phased operations starting 2015.

Flow Chart of new ATM
(From Legco FC funding approval to contract award)



Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the air traffic control and related services

The following information was provided to facilitate the Committee's consideration of Chapter 4 of the Director of Audit's Report No. 63.

Management of the new Air Traffic Control (ATC) System project

(a) the basis on which the CAD states that the original schedule for the procurement and testing of the new ATC system might be "a bit too ambitious"

2. After detailed study, the Civil Aviation Department decided to group the 18 ATC systems and facilities as proposed in the funding paper approved by the Finance Committee of the Legislative Council (LegCo FC) in May 2007 into eight major system contracts. At present, seven out of eight system projects have been substantially completed as scheduled. The CAD is making an all-out effort to work with the system contractor in testing the remaining one, which is the Air Traffic Management System (ATMS).

3. The ATMS is a highly complicated and sophisticated system. It has taken a longer time than expected for CAD to complete the tender exercise, for the contractor to conduct detailed design, rectify the higher-than-expected number of outstanding issues arising from the Factory Acceptance Test (FAT), and for conducting scenario-based test as agreed between CAD and the contractor with a view to ensuring that the new ATMS fully met the relevant contractual and safety requirements before operation. The delay of implementing the ATMS has led to the overall delay of the implementation of the ATC system project.

4. According to the overseas experience, it normally takes more than two and a half years (the target completion time according to the current contract) from contract award to completion for similar large-scale ATC system replacement. For instance, it took 6 years for Singapore to replace their ATC centre, with 3 years' delay incurred. Likewise, the Swanwick ATC centre in

the UK, which is responsible for the southern airspace covering the Heathrow airport, took about 11 years to replace their ATC centre and suffered about 6 years' delay. With hindsight, CAD considers that it would be more desirable if some buffer periods had been included in the original implementation plan of the ATC system project to cater for the additional time required to resolve any possible unforeseen issues that may arise during the implementation of such sophisticated and complicated system, and will draw lessons from this case.

Management of the precision runway monitor (PRM) project

(b) and (c) based on what information and reasons CAD considered that there might be advancement in technology to permit independent mixed mode of operation and the processes which led to the decision on the procurement of the PRM radar

5. Notwithstanding the terrain constraints identified by the consultants in 1990 and 1994 for adopting independent operations (i.e. landings and departures on both runways) for the Hong Kong International Airport (HKIA), the consultant in 1990 considered that by the time the HKIA commenced operation (i.e. in 1998), new technology or procedures of the International Civil Aviation Organization (ICAO) would be available to permit independent operations.

6. The consultancy study in 1994 concerning the Airspace Design Study of the new HKIA was not able to identify a viable solution to overcome the terrain constraints. Yet, CAD at that time had not ruled out the possibility that new technological advancement and ICAO procedures would happen in the future for independent operations. In addition, CAD had taken into account the advice of the Airspace Design Consultancy Working Group which comprised aviation industry representatives, such as the International Air Transport Association, International Federation of Airline Pilots' Association, Government Flying Service, etc, in 1995, that advancement in aviation technology, namely the satellite navigation systems, might provide solutions for the independent mode of operations at Chek Lap Kok in future. CAD had therefore considered that the PRM would be needed for monitoring the flight track of aircraft in both fully independent mode and segregated mode of operations at the HKIA.

7. Due to the long time lapse and scattered handling offices of the PRM project, the CAD is unable to produce full records of the processes which led to the procurement decision.

(d) whether consideration will be given to review the standby mode or disposal of the PRM

8. CAD will conduct a review to determine the cost-benefit of maintaining the PRM on standby mode and consideration will be given to reselling it or disposal.

(e) the tower for PRM and Back up ATC Facilities

9. The PRM Tower was not dedicated to housing the PRM radar. As set out in paragraph 3(g) and 6 of the Administration's Paper to the Public Works Subcommittee for the meeting on 12 June 1996, the 56-metre high PRM Tower would function as the ancillary ATC tower and provide space for offices and equipment rooms for CAD and the Hong Kong Observatory, as well as observation / radio communication rooms for the Customs and Excise Department, and a radio equipment room with antenna for the Hong Kong Police Force. Such ancillary system and equipment were required to cover the second runway and support the ancillary ATC systems so that the essential functions could be maintained in case of any emergency affecting the normal operation of the ATC Tower and Complex constructed in the first phase of the new airport.

Administration of ATC services related charges

(f) the progress in exploring the feasibility of demanding a security deposit or banker's guarantee for all operators on a case-by-case basis having regard to the operator's payment records (Paragraph 4.17 (c)(i) and 4.18)

10. The CAD is exploring on the criteria and details for implementation of demanding a one-month security deposit or banker's guarantee from specific airline operators using the CAD's navigation services on a case-by-case basis having regard to their payment records. The CAD is at present working out

proposals and will consult the Department of Justice on whether the proposals are legally in order for implementation.

Administration of the mandatory occurrence reporting (MOR) scheme

(g) whether consideration would be given to writing off long outstanding MOR cases which required no further follow-up actions (paragraph 5.21)

11. In respect of each MOR report, CAD will review and take follow-up actions based on the circumstances and causes of each individual case, in accordance with the established procedures as stipulated in the CAD MOR guidelines. Only when all the required actions have been taken and adequately followed up by the organizations concerned would the MOR case be closed.

12. CAD has conducted a detailed review of those cases identified as long outstanding. It was noted that the investigations of all of them had been completed by the respective organisations and subsequently accepted by CAD. However, the database was not updated timely to reflect the situation when the Audit Commission conducted the audit on CAD. All those long outstanding cases are now closed.

(h) measures that CAD would take to ensure that follow-up actions on long outstanding cases are taken and the MOR database updated in a timely manner (paragraph 5.21)

13. CAD has introduced periodic MOR review meetings since November 2014 to ensure that each MOR case has been adequately followed up by the organisations concerned and actions taken by respective CAD officers are captured in the database in a timely manner.

(i) with reference to the experience gained on the MOR Scheme since the relevant guidelines were issued in 1999, the measures that CAD would take to improve the collation of the information for the MOR database, and subsequent analysis and follow-up actions with a view to improving air traffic safety

14. It is CAD's long standing pledge and commitment to sustain and improve the aviation safety standards of Hong Kong. With experience gained

from operating the MOR Scheme and in line with the latest global aviation developments, CAD has taken a number of measures in recent years, to improve the collation and usage of the information for the MOR database with the aim of achieving continuous improvement in aviation safety.

15. Apart from the efforts made by CAD in the monitoring and follow up of the individual MORs by taking immediate actions as necessary, CAD has in recent years, made positive use of the information from the MOR database for safety education and promotion purposes.

16. Through monitoring and analysis of the trends and follow-up actions, safety information is developed from the MOR database and it is disseminated to the aviation services providers and industry partners to promote knowledge of these occurrences so that others and the industry at large may learn from them. Specific advice, notices and safety publications are issued to provide the industry with relevant safety guidelines, recommendations and/or instructions. A few examples of such notices and publications are as follows :

- (i) Flight Operations Notices (FONs) for airline operators in Hong Kong;
- (ii) Airworthiness Notices (ANs) for airline operators and maintenance organizations in Hong Kong;
- (iii) Air Navigation Service Provider (ANSP) Safety Newsletters for ANSPs in Hong Kong; and
- (iv) Aeronautical Information Circulars (AICs) for the aviation community in general.

17. In addition, since 2013, CAD has established a holistic safety data review and analysis mechanism based on the available safety information, including the MOR data, in line with the latest global aviation developments. A safety committee comprising senior officers of different regulatory divisions of CAD was also established to regularly review and address any potential safety concerns and determine the actions required.

18. In conclusion, CAD agrees with the Commission on the need to strengthen the management of the MOR database and to improve the collation of the information for the MOR database so that it can provide accurate and up-to-date information to support MOR case management and trend analysis of

significant aviation safety issues. It is CAD's aim to continue to improve the MOR scheme and database with the ultimate objective of achieving continuous improvement in aviation safety.

Civil Aviation Department
December 2014

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the Air Traffic Control and Related Services

The detailed response of the Civil Aviation Department (CAD) to the Public Accounts Committee's letter of 15 December 2014 on management of the new Air Traffic Control (ATC) System Project is set out in the ensuing paragraphs.

(a), (b) and (c) – Procurement and tender assessment of the Air Traffic Management System

Procurement

2. The CAD grouped the 18 ATC systems and facilities as proposed in the funding paper approved by the Finance Committee of the Legislative Council in May 2007 into eight major system contracts as detailed in **Appendix I**. Item (a) of the list is the Air Traffic Management System (ATMS). The CAD has strictly followed the rules and procedures as stipulated in the Government Stores and Procurement Regulations (SPR) and the World Trade Organisation Government Procurement Agreement (WTO GPA) throughout the procurement of the ATMS with a view to upholding fairness and impartiality of the tendering exercise.

Tender assessment

3. Through an open tender exercise, a total of five tender proposals were received for the ATMS contract. The five tenders received were assessed by a tender assessment panel (TAP) comprising 11 experienced engineering and air traffic control personnel of the CAD. The TAP adopted a two-envelope approach, which is a requirement stipulated in the SPR and a government-wide practice. Under this approach, the TAP first conducted a technical assessment of each tenderer's proposal and calculated the technical score. After completion of the technical assessment and obtaining agreement from the Government Logistics Department (GLD), GLD then provided the TAP with the price information of the tender proposals to calculate the price score.

4. For the marking scheme for the ATMS tender exercise, a weighting of 40% for technical score and 60% for price score was adopted. The marking

scheme was developed in accordance with the SPR¹ and approved by the Government Central Tender Board (CTB)², and clearly stipulated in the tender document during the stage of tender invitation.

5. During the preparation of the tender document for the ATC system project in 2008, CAD had explored with GLD on the feasibility of adopting a higher weighting for technical score in the marking scheme, especially for the ATMS contract, but was advised that a higher technical weight would not necessarily ensure a higher quality of the service/product to be delivered by the successful supplier and a value-for-money purchase has to be ensured. GLD also advised that the setting of mandatory requirements and essential requirements under the marking scheme before calculating the technical/price score would instead guarantee that only those capable contractors with quality proposals would be awarded with the contracts. In view of GLD's advice, CAD adopted 40% weighting for technical score and 60% for price score in accordance with the SPR for a value-for-money procurement for the ATMS, which was eventually approved by the CTB.

Technical assessment results

6. A flowchart illustrating detailed flow of the tender assessment process of the ATMS is in **Appendix II**. Tender assessment results for the ATMS contract are summarized in **Appendix III**.

7. After the technical and price evaluation of the tenders by TAP, the tender proposal with the highest score was recommended for consideration and approval by the CTB. Since the ATMS system proposed by Tenderer B in the Appendix III (i.e. the current ATMS contractor) obtained the highest overall score, the contract for the ATMS was recommended to be awarded to Tenderer B, which was subsequently approved by the CTB. A copy of the tender assessment report submitted by GLD to the CTB, recommending the contract of ATMS be awarded to Tenderer B is at **Appendix IV**.

***Note by Clerk, PAC:** *Please see Appendix 13 of this Report for Appendix II, see Appendix 14 of this Report for Appendix IV, and Appendix III not attached*

¹ The SPR stipulates that departments should normally adopt a 30% - 40% weighting for technical score, as against a weight of 60%-70% for price score and departments should note that a higher technical weighting would not necessarily ensure a higher quality of service or goods to be delivered by the successful tenderer.

² The CTB was chaired by the Permanent Secretary for Financial Services and the Treasury (Treasury) and comprised the representatives from the Financial Services and Treasury Bureau (FSTB) and the Government Logistics Department (GLD), etc.

Contract signed with Tenderer B

8. After obtaining the CTB's approval, the ATMS contract was signed between the GLD and Tenderer B in early 2011. A copy of the requested contract documents, including the Tender Proposal, Final Specifications, Conditions of Tender, Conditions of Contract, the Implementation Plan, together with the subsequent Contract Variations, etc. is in **Appendix V**.

(d) and (e) – The ultimate fallback system

9. CAD has specified in the tender document during the preparation of the document in 2009 that the ATMS should consist of three major sub-systems, namely a Main ATMS system, a Fallback ATMS system and an Ultimate Fallback System (UFS). The UFS has been specified in the tender document as a separate system with software and system architecture fully independent from those of the Main ATMS and Fallback ATMS systems. The purpose of including the UFS in the tender document is to mitigate the risk of encountering a total system failure of the ATMS when both the Main and Fallback ATMS systems fail at the same time, thus ensuring flight safety. The requirements for the UFS in the ATMS are on par with similar system setup and best practices adopted in major ATC centres overseas, such as USA, Germany, Norway, etc.

10. CAD has looked into the relevant requirements of the International Civil Aviation Organization (ICAO) and the developments of the ATC systems in the region at that time, and considered that it would be sufficient to set out in the tender document of ATMS that the UFS be equipped with basic ATC functions in the event of failure of the two Main and Fallback ATMS systems.

11. After the award of the ATMS contract to Tenderer B in February 2011, the ICAO further concluded to formulate a Regional Air Traffic Management Contingency Plan in September 2011 to provide a systematic contingency response framework in the Asia-Pacific Region. The framework set out greater details and more concrete guidance to airspace and aerodrome users to facilitate operations under various ATC contingency situations, such as ATC system failure or degradation. In the light of this new ICAO development, CAD had reviewed the system requirements for the UFS in the tender document and the contract of the ATMS, and considered it necessary to enhance such requirements so as to better equip the new ATC system with more enhanced capability to handle contingency situations to ensure flight safety.

***Note by Clerk, PAC:** *Appendix V not attached.*

12. Given the contract with Tenderer B already stated the requirement of having a UFS in place, in order to enhance functions of the UFS system so as to meet the latest ICAO's initiative, CAD considered that it would be justified and more cost-effective to acquire the enhancements through variation of contract instead of conducting a fresh tender exercise. CAD had therefore followed the stipulations in the SPR and sought DoJ's advice (from the WTO GPA perspective) and GLD Tender Board's approval for the contract variation with a view to enhancing the requirements of the UFS.

(f) The tender assessment of the existing ATMS Autotrac 1

13. At present, it is stipulated in the SPR that departments should normally adopt a 30% - 40% weighting for technical score, as against a weight of 60%-70% for price score. There was however no stipulations in regulations laid down by the Government on the weighting for technical score and price score back in 1993 when the existing ATMS (Autotrac 1) was procured. File records show that procurement of the existing ATMS was via an open tender and for the selection of tenderer for the provision of the existing ATMS system in 1993, a two-stage approach was adopted. In the first stage, the assessment panel shortlisted those qualified tenderers for entering the second stage of the tender exercise. The shortlisting criteria included technical and price assessments. For the price assessment, the assessment panel only shortlisted those tenderers with price proposals that were within the estimated project cost. For the proposals meeting project schedule, there was another assessment against eleven selection criteria, two of which were related to pricing with the total weighting for tender price assigned to about 13% of the total assessment score while the other nine selection criteria, including project schedule, system performance, tenderers' ability, etc. accounted for the rest 87%. In the second stage, the shortlisted tenderers could only submit a price not exceeding their previous price proposals submitted in the first stage. The weighting for tender price for second stage of the tender assessment was 8% of the total assessment score, with the other selection criteria, including project schedule, performance of the various systems, tenderers' ability, etc. accounted for the rest of the 92%.

(g) The outstanding deficiencies/observations recorded during the Factory Acceptance Tests and Site Acceptance Tests

14. During the Factory Acceptance Tests (FAT) of the ATMS in June – July 2012, a total of 204 deficiencies/observations were identified and nearly 90% were rectified before the conditional acceptance of the FAT results. Between

August 2012 and June 2013, another 104 deficiencies/observations were identified, which should be addressed during Site Acceptance Test.

15. The deficiencies/observations items identified by CAD during the FAT did not imply that the new ATMS was not functioning properly nor it was unsafe. Given the stringent acceptance tests and the complexity of the new ATMS, it was unavoidable that some deficiencies/observations items were identified. The purpose of the test was to ensure that the ATMS manufactured by the large overseas ATC system supplier could adapt to the local air traffic management environment, and the system could operate safely, stably and reliably.

16. Of the 308 (204 + 104) deficiencies/observations identified, 300 items were related to the aspects of the ATMS under the original contract, and the remaining 8 were enhancement items covered in contract variation 1. A breakdown of the 308 items by their nature is as follows –

Nature of the deficiencies / observations identified during June 2012 to June 2013	Number
Systems Function ¹	121
Human-machine Interface ²	101
Engineering Items ³	86
Total	308

Note (1) System function refers to the data processing related functions.

Note (2) Human Machine Interface (HMI) refers to the user / operator’s interface.

Note (3) Engineering item refers to the technical observation.

17. Presently, of the 308 items identified, over 84% have already been rectified, with only 49 items outstanding.

(h) Comparison of the expected and actual implementation plan of the ATC system project

18. A comparison of the expected and actual implementation plan of the ATC system project is provided in **Appendix VI**.

**Civil Aviation Department
December 2014**

****Note by Clerk, PAC: Please see Appendices 7 and 8 of this Report for Tables 2 and 1 of Appendix VI respectively.***

Details of systems and facilities for the eight major contracts of the new Air Traffic Control (ATC) system

Eight major contracts of the new ATC system	Details of systems and facilities
(a) Air Traffic Management System (ATMS)	Radar Data Processing and Display System/Flight Data Processing System (RDPDS/FDPS), Radar Data Formatter, Radar Simulator for RDPDS/FDPS and Computer-Based Training (CBT) System
(b) Air Traffic Services Data Management System	Secondary Surveillance Radar Situation Display System, Aeronautical Information Database, Cable/Microwave Link Network and Other Ancillary Systems/Facilities
(c) Aeronautical Information Management System	Aeronautical Information Database
(d) Aeronautical Messaging System	Air Traffic Services (ATS) Message Handling System and Aeronautical Telecommunication Network
(e) Communication Backbone	Master Clock System and Cable/Microwave Link Network
(f) Communications and Recording System	Speech Processing Equipment, Voice Recording/Playback System and ATC Radio Telephony Workload Monitoring System
(g) Relocation and Expansion of ATS Message Handling System	ATS Message Handling System and Aeronautical Telecommunication Network
(h) Ancillary and Technical Support System	Centralised Monitoring and Control System, Telephone System, Un-interruptible Power Supply System and Cable/Microwave Link Network

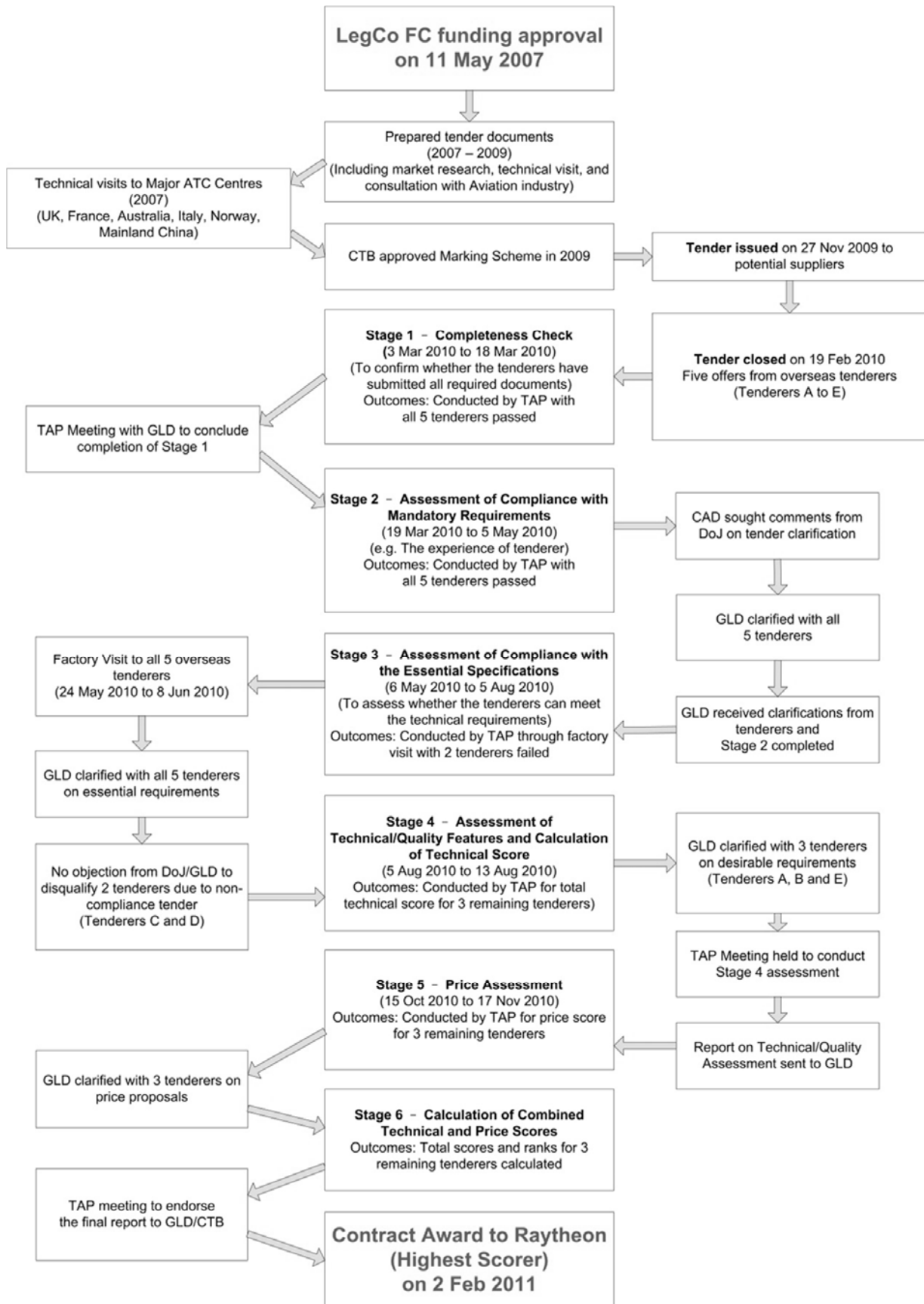
Table 3 – Contract variations of the ATMS (one of the eight major system contracts of the ATC system project)

	Critical tasks/events	Date
1	Obtained funding approval from the LegCo FC for the Replacement of the ATC System	May 2007
2	Preparation of the tender document for the ATMS contract and approval of the Marking Scheme	May 2007-November 2009
3	Invitation of tenders for the ATMS contract	November 2009 – February 2010
4	Tender assessment for the ATMS contract	March 2010 – February 2011
5	Award of the ATMS contract	February 2011
6	Detailed Design Review Meeting of the ATMS (Item 2 in Table 2 above)	May 2011
7	The 22 nd meeting of the International Civil Aviation Organization (ICAO) Asia-Pacific Air Navigation Planning and Implementation Regional Group At the meeting, the ICAO promulgated a systematic contingency response framework for air traffic management in the Asia-Pacific Region.	September 2011
8	The contractor's submission of Detailed Design Document of the ATMS to CAD for approval (Item 3 in Table 2 above)	December 2011
9	CAD sought GLD's approval for conducting the first contract variation for the ATMS contract. The contract variation mainly sought to enhance the Ultimate Fallback System requirements for the ATMS, as promulgated by the ICAO regarding the systematic contingency response at the meeting held in September 2011 (item 7 above). Opportunity was also taken to incorporate other enhancements to the ATMS, including the enhancements of the missed approach flight procedures and the Air Traffic Services Interfacility Data Communications service, and operational efficiency, etc, which were identified by CAD after the tender exercise of the ATMS.	January 2012
10	GLD approved CAD to conduct the first contract variation	June 2012
11	The ICAO 12th Air Navigation Conference The Conference promulgated enhancements to the air traffic management requirements.	November 2012

	Critical tasks/events	Date
12	<p>CAD sought GLD's approval for conducting the second contract variation for the ATMS contract.</p> <p>The contract variation mainly sought to enhance the air traffic management requirements for the ATMS, according to the Global Air Navigation Plan promulgated by the ICAO at the 12th Air Navigation Conference held in November 2012 (item 11 above). Opportunity was also taken to incorporate other enhancements to the ATMS, including new and enhanced functionalities with human-machine interface after hands-on familiarization training sessions, and the implementation of Performance-based Navigation (PBN) flight procedures, etc, which were identified by CAD after the first contract variation.</p>	June 2013
13	GLD approved CAD to conduct the second contract variation	October 2013

* * * * *

Flow Chart of new ATMS Procurement from LegCo FC funding approval to Contract Award



限閱文件 (投標) RESTRICTED (TENDER)**MEMO**

<i>From</i>	<u>Director of Government Logistics</u>	<i>To</i>	<u>Chairman, Central Tender Board</u>
<i>Ref.</i>	<u>in A1310422009</u>	<i>(Att. _____)</i>	
<i>Tel No</i>	<u>2231 5226</u>	<i>Your Ref</i>	<u>in _____</u>
<i>Fax No.</i>	<u>2116 0103</u>	<i>Dated</i>	<u>_____ Fax No. _____</u>
<i>Date</i>	<u>8 December 2010</u>	<i>Total Pages</i>	<u>_____</u>

**Tender for the Supply of Air Traffic Management System and
Provision of Related Services to the Civil Aviation Department**

A. Type and Duration of Contract

This tender, at an estimated value of HK\$860 million, will be concluded as a contract for the supply of an Air Traffic Management System (ATMS) and provision of related services to the Civil Aviation Department (CAD). The contractor shall install and assist in commissioning of the ATMS in two phases. Phase 1 shall be ready for use not later than 65 weeks from the access date of the new CAD buildings or within 60 weeks from the Contract Date, whichever is the later. The remaining parts of the ATMS shall be ready for use within 39 weeks from the access date of the Phase 2 buildings¹.

B. Brief Description of Contract

2. The existing air traffic management system of CAD was commissioned in 1997. The capacity and functionalities of the existing system will not be able to cope with the projected air traffic growth in Hong Kong. A new ATMS is required in order to meet the latest development and growth of the Hong Kong International Airport, which serves as a major air traffic hub and gateway in the Asia and Pacific Region. The new ATMS will have to be on par with the advanced air traffic management systems adopted globally. It will have to be equipped with enhanced data transmission, processing and display functionalities to provide flight data processing, surveillance data processing and display positions to support air traffic control (ATC) operations at the new ATC Centre².

¹ CAD Buildings comprise 3 main adjacent buildings under construction outside the airport restricted areas, i.e. a new Air Traffic Control Centre (ATCC) Building, Facility Building and Office & Training Building. Phase 2 Buildings refer to the existing ATC Complex and the existing South Aerodrome Tower Building, both inside the airport restricted area.

² ATC Centre will be located inside the new ATCC Building.

限閱文件 (投標) RESTRICTED (TENDER)

"Tenderer B" = Raytheon Company, the successful tenderer.

- 2 -

C. Authority to Invite Tenders

3. This invitation to tender is subject to the World Trade Organization Agreement on Government Procurement (WTO GPA). Approval from the Director of Government Logistics (DGL) was given to issue an open tender for the requirement. Details of the tender issued are as follows:

- (a) a tender notice was published in the Government Gazette and daily press on 27 November 2009 and on the GLD's website during the tender period; and
- (b) tender notification letters were sent to potential bidders and the suppliers on the relevant GLD suppliers list and the Trade Commissioners in Hong Kong.

D. Relevant Dates of Tender Invitation

- 4. (a) Tender issued on : 27 November 2009
- (b) Tender closed on : 19 February 2010
(extended from 5 February 2010 at the request of tenderers to allow them more time to prepare the tenders.)
- (c) Validity of tenders up to : 19 February 2011

E. Tenders Received

- 5. (a) 45 local suppliers and 43 suppliers from places outside Hong Kong were invited.
- (b) Five offers from five suppliers outside Hong Kong were received. These suppliers, in alphabetical order, are:

Tenderers' name	{	(i) [REDACTED]	Tenderer A
		(ii) [REDACTED]	Tenderer B
		(iii) [REDACTED]	Tenderer C
		(iv) [REDACTED] and	Tenderer D
		(v) [REDACTED]	Tenderer E

F. Marking Scheme for Tender Invitation

6. On the recommendation of the Central Tender Board at its meeting held on 8 October 2009, the Permanent Secretary for Financial Services and the Treasury (Treasury) approved the use of a marking scheme with a quality to price weighting of

Annex A
Annex B 40:60 for the evaluation of this tender. A copy of the Secretary for Financial Services and the Treasury's approval memo is at **Annex A**. The approved evaluation criteria is at **Annex B**.

G. Tender Evaluation

7. All offers received were evaluated by a Tender Assessment Panel (TAP) comprising the following officers from the Air Traffic Engineering and Standards Division (AESD) and the Air Traffic Management Division (ATMD) of CAD:

Chairperson: Chief Electronics Engineer (Projects), AESD

Members: Senior Operations Officer (Projects) 1, AESD;
Senior Operations Officer (Projects) 2, AESD;
Senior Electronics Engineer (Projects) 1, AESD;
Senior Evaluation Officer (1), ATMD;
Electronics Engineers (13), (15) and (28), AESD;
Project Officers (2) and (4), AESD; and
Technical Support Officer (1), AESD.

8. The tender evaluation was conducted by the TAP in six stages. The evaluation results of each stage are summarised as follows:

(a) Stage 1 - Completeness Check

(i) The five offers were checked for and found in compliance with the completeness and compliance requirements stipulated in Part I - Lodging of Tender and Part II - Conditions of Tender of the Tender Documents.

(b) Stage 2 - Assessment of Compliance with Mandatory Requirements

(i) The five offers were checked against their compliance with the mandatory requirements as specified in Appendix B to Part II - Conditions of Tender at **Annex C**.

(ii) All of the five offers fulfilled the mandatory requirements and proceeded to Stage 3 evaluation.

(c) Stage 3 - Assessment of Compliance with Essential Specifications

(i) The five offers were checked against their compliance with the essential specifications set out in Part VII - Specifications of the Tender Documents.

Annex C

"Tenderer B" = Raytheon Company, the successful tenderer.

(ii) Visits were also conducted to the factories of the five tenderers in accordance with clause 8.2 of the Conditions of Tender to verify compliance with the essential requirements.

(iii) The TAP concluded after the technical evaluation that the offers from [redacted] and [redacted] complied with all the essential specifications while the offers from [redacted] and [redacted] did not. [redacted]

Tenderers A, B and E
Tenderer C
Tenderer D

Details of non-compliance of the two unsuccessful tenderers' offers

(iv) The offers from [redacted] and [redacted] failed in Stage 3 evaluation. Tenderer C Tenderer D

(d) Stage 4 - Evaluation of Technical/ Quality Features and Calculation of Technical Score

(i) The weighted technical scores of the offers from [redacted] and [redacted] were worked out in accordance with the following formula: [redacted]

Tenderer A
Tenderer B
Tenderer E

$$\text{The technical score of a tender that has passed Stages 1, 2 and 3 evaluation} = 40 \times \frac{\text{Total marks attained by the tender being assessed}}{\text{Highest total marks among the tenders that have passed Stages 1, 2 and 3 evaluation}}$$

(ii) The total marks and the weighted technical scores attained by the three offers are summarised below:

"Tenderer B" = Raytheon Company, the successful tenderer.

- 5 -

	<u>Tenderer</u>	<u>Total Mark</u>	<u>Technical Score</u>
Tenderer A	[Redacted]	[Redacted]	[Redacted]
Tenderer B	[Redacted]		
Tenderer E	[Redacted]		

} Technical scores of three tenderers

(iii) These three offers proceeded to Stage 5 evaluation.

(e) Stage 5 - Price Assessment

Tenderer A Tenderer B

(i) The weighted price scores of the offers from [Redacted] and [Redacted] were worked out in accordance with the following formula:
↙ Tenderer E

$$\text{The price score of a tender that has passed Stages 1 to 4 evaluation} = 60 \times \frac{\text{Lowest tender price among the tenders that have passed Stages 1 to 4 evaluation}}{\text{Price of the tender being assessed}}$$

(ii) Due to inconsistency in the prices of various items quoted, clarifications were conducted with all the three tenderers and the results of the clarifications are summarised at [Redacted]. In short, the clarifications resulted in no change to the prices of [Redacted] and [Redacted].

Clarification of price information with tenderers

(iii)



(iv) The total prices and the weighted price scores attained by the three offers are summarised below:

"Tenderer B" = Raytheon, the successful tenderer

- 6 -

<u>Tenderer</u>	<u>Total System Price</u> (in HK\$)	<u>Total Annual Maintenance Charges</u> (in HK\$)	<u>Total Price*</u> (in HK\$)	<u>Price Score</u>
[redacted] Tenderer A				
(a) nominal amount	[redacted]	[redacted]	[redacted]	/
(b) net present value [^]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted] Tenderer B				
(a) nominal amount	[redacted]	[redacted]	[redacted]	/
(b) net present value [^]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted] Tenderer E				
(a) nominal amount	[redacted]	[redacted]	[redacted]	/
(b) net present value [^]	[redacted]	[redacted]	[redacted]	[redacted]

Notes: (1) *The total price comprises the total system price for items 1 to 9B of Schedule 12 (including such items as the hardware and software, documentation, training, initial spare parts and installation) and the total annual maintenance charges of hardware and software for Phase 1 and Phase 2 of the AFMS project after respective warranty periods as set out in items 10 to 13 of Schedule 12.

(2) [^]Net present value (NPV) is used for price evaluation.

(3) Both ^{Tenderer B}[redacted] and ^{Tenderer E}[redacted] quoted in US dollars. Conversion is based on the exchange rate of US\$1 = HK\$7.7975 ruling on the tender closing date of 19 February 2010.

(4) ^{Tenderer B}[redacted]

(f) Stage 6 - Calculation of Combined Score

(i) The formula to calculate the combined scores of the offers from [redacted], [redacted] and [redacted] is as follows:

$$\text{Combined Score} = \text{Technical Score} + \text{Price Score}$$

Tenderer A Tenderer B Tenderer E

(ii) The combined scores of these three offers are:

"Tenderer B" = Raytheon, the successful tenderer

- 7 -

	Tenderer	(a) Technical Score	(b) Price Score	(a) + (b) Combined Score
Tenderer A	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Tenderer B	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Tenderer E	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

9. The TAP has recommended acceptance of the offer from ^{Tenderer B} [REDACTED] as it has achieved the highest combined score. The TAP also considers that the recommended tender prices from ^{Tenderer B} [REDACTED] are fair and reasonable [REDACTED]. The TAP considers that the lower prices than the original estimate may be due to the tenderers' anticipation of keen competition.

H. [REDACTED]

10. [REDACTED]

11. ^{Tenderer B} [REDACTED]

Tenderer B

12. ^{Tenderer B} [REDACTED]

I. Comparison with the Last Purchase

13. A price comparison with the last purchase is provided below:

(a) Last tender reference and date: A06006/92 (closing on 24 June 1994)

"Tenderer B" = Raytheon Company, the successful tenderer.

- 8 - Tenderer B

- (b) Name of last supplier : [REDACTED]
- (c) Description of the systems : Radar Data Processing and Display System/ Flight Data Processing System/ Simulator System
- (d) Quantity : one set
- (e) Comparison : as summarised below

System Price of the successful tenderer

	(i) Last Tender (US\$)	(ii) This Tender (US\$)	(ii) VS (i) Difference (US\$)
Equipment Cost (FIS/ HK)	[REDACTED]	[REDACTED]	[REDACTED]

14. CAD has advised that the above prices are not comparable. The existing systems were commissioned in 1997 and without backup systems. The new ATMS is much larger in scale (3 systems including the main, the fallback and the ultimate fallback systems), more complex and with much higher capability to handle the projected increase in traffic movements. For instance, the number of air traffic controller working positions are more than double that under the old systems to cope with the increasing workload. The features of the new ATMS will also far exceed the existing systems.

15. [REDACTED]

Details of compliant received

J. [REDACTED]

16. [REDACTED]



17. [REDACTED]

"Tenderer B" = Raytheon, the successful tenderer

- 9 -

K. Recommendation

18. The Board is requested to recommend acceptance of the offer with the highest combined score (the lowest price) as summarised below:

Tenderer recommended :  } Tenderer B
Manufacturer : 
Place of origin : U.S.A.
Items, descriptions and rates : as per Annex H
Recommended total amount :
(a) One-off cost (revised) :

US\$56,950,513.00 (approx. HK\$444,071,625.12)

(b) Recurrent cost :

US\$5,463,518.00 (approx. HK\$42,601,781.61)

Recommended total amount (revised) : US\$62,414,031.00
(approx. HK\$486,673,406.73)
Completion dates
(a) Phase 1 ATMS : within 65 weeks from the access date of the new CAD buildings or 60 weeks from the Contract Date, whichever is the later
(b) Phase 2 ATMS : within 39 weeks from the access date of the Phase 2 buildings
Warranty period : Hardware
24 months for each of Phase 1 and Phase 2 from the date of the Acceptance Certificate
Software
60 months for each of Phase 1 and Phase 2 from the date of Acceptance Certificate
Payment schedule : One-off Total System Price
As per Schedule 13 of the Tender Documents and copied at Annex I.

Annual Maintenance Charges
To be paid annually in advance

L. Availability of Funds

19. The Director-General of Civil Aviation has confirmed that funds are available for the purchase.

M. Declaration of Interest

20. All officers involved in preparing the tender document, including the tender specifications, and assessing the tenders, had declared, in accordance with SPR 186, that there was no conflict of interest (actual, potential or perceived) for them to take part in the process.

N. Compliance with WTO GPA and Tender Requirements


21. CAD confirms that the recommended offer complies with the tender requirements. It also confirms that all clarifications were sought in accordance with the relevant tender terms and SPR 365. WTO GPA requirements have also been complied with.

O. Contact Person

22. Mr YEUNG Hoi-wan, Peter, Chief Electronics Engineer (Projects) of CAD, stands ready to attend, if necessary, the Board meeting to answer any questions from the Board.

P. Name and Telephone Number of Coordinating Officer

23. Mr MC YIP, Principal Supplies Officer (P1), is the coordinating officer for this tender. He may be contacted on 2231 5229.


(Mrs Cassandra CHUI)
for Director of Government Logistics

Encls.

c.c. Director-General of Civil Aviation
(Attn.: Mr Peter YEUNG)

RESTRICTED (TENDER)

Annex A

MEMO

By FAX

From Secretary for Financial Services
and the Treasury
Ref. in FT 38/654
Tel. No. 2810 3818
Fax No. 2869 4519 Total Pages: 1
Date 14 October 2009

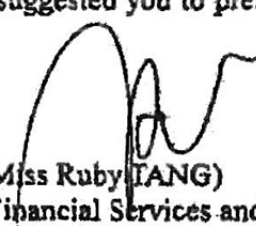
To Director of Government Logistics
(Attn: Mr YIP Man-chung)
Your Ref. (-) & (-) in A1310422009
Dated 2 & 7 October 2009 Fax No. 2807 2764

Request for Approval to use Marking Scheme and Assessment Criteria - Air Traffic Management System for Civil Aviation Department

At its meeting held on 8 October 2009, the Central Tender Board (the Board) considered your submission and memorandum under reference. On the advice of the Board and subject to the comments in the ensuing paragraphs, the Permanent Secretary for Financial Services and the Treasury (Treasury) gave approval for you to proceed with the tender exercise on the basis of the proposed marking scheme and assessment criteria set out in your submission, as supplemented by your memorandum of 7 October 2009.

2. Noting from Note (h) of Annex B to your memorandum of 2 October 2009 that the experience of a Sub-contractor proposed to be appointed by the Tenderer would also be considered, the Board asked if there was any binding mechanism that could ensure the same Sub-contractor or a replacement with comparable experience to be engaged throughout the contract period. Whilst confirming that tenderers would be requested to submit a letter of intent or undertaking signed between tenderers themselves and their sub-contractors for engaging the latter in the contract if the former was awarded the contract, your representatives agreed in the meeting to check whether a binding clause had been in place and if not incorporate one in the tender document.

3. Referring to page 1 of Annex A, the Board noted that the essential specifications were assessed in Stage 3 together with the desirable features instead of under "Stage 2 - Assessment of Compliance with Mandatory Requirements". As tenderers failing to meet the essential specifications would be disqualified, the Board considered that these essential specifications had to be formulated in a clear and practical terms without the need for judgemental assessment. Unlike the essential specifications, non-compliance with the desirable features under the same Stage did not affect the conformity of tenderers. To help tenderers better understand the implications of the two assessments, the Board suggested you to present them as two separate stages.


(Miss Ruby TANG)

for Secretary for Financial Services and the Treasury

[APM30-13]

14-OCT-2009 14:57

+852 2869 4519

99%

TOTAL P.01
P.01

An Extract of the Tender Documents

Tender Ref. : PT/0230/2009

File Ref. : A1310422009

~~23. Tenderer's Response to Government Enquiries~~

23.1 In the event that the Government Representative determines that

- (a) clarification of any tender is necessary; or
- (b) certain information or documents is/are missing in the Technical Proposal, save for those items where it is provided that a Tenderer's failure to submit on or before the Tender Closing Date will lead to disqualification or result in its tender not being considered further,

it may, but is not obliged to, request the Tenderer concerned to make the necessary clarification, or submit the missing item. Each Tenderer shall thereafter within five working days or such other period as the Government may allow submit such clarification or missing item. A Tender will not be considered if the requested clarification or missing item is not provided as required by the deadline, or in the case of clarification, such clarification is not acceptable to the Government. As an alternative to seeking clarification or submission, the Government may, at its discretion, proceed to evaluate the tender on an as is basis, or disqualify the Tenderer concerned.

24. Evaluation Criteria and Marking Scheme

24.1 A two-envelope approach with a quality to price weighting of 40:60 will be adopted for tender evaluation whereby the price assessment will be conducted separately and subsequent to the technical assessment. All calculations of scores will be rounded to 2 decimal places. For tender evaluation, an assessment panel will be formed. The assessment panel will evaluate the tenders based on the tender requirements in six stages as detailed below:

Stage 1 – Completeness Check

- (a) Tenders received will be checked to ensure their completeness and compliance with the essential procedural requirements stipulated in Part I – Lodging of Tender and Part II – Conditions of Tender of the Tender Documents, i.e., whether the tender is submitted in accordance with Part I – Lodging of Tender; whether a signed Offer to be Bound has been submitted in the form set out in Part VI; whether the Statement of Compliance is submitted in accordance with Clause 5.4 of Part II – Conditions of Tender; and whether the Tenderer has agreed to the tender validity period specified in Clause 17 of Part II – Conditions of Tender.
- (b) Any tender which fails in the aforementioned check will not be considered further. Those tenders which have passed Stage 1 evaluation will proceed to Stage 2 evaluation.

Tender Ref. : PT/0230/2009
File Ref. : A1310422009

- (b) For the purposes of calculating the technical score which accounts for 40% of the final score, the highest scoring tender after the assessments will be given the maximum technical score of 40 and the remaining tenders will be given a technical score in accordance with the following formula :

$$\text{Technical score of a tender that has passed Stages 1, 2 and 3 evaluation} = 40 \times \frac{\text{Total mark attained by the tender being assessed}}{\text{Highest total mark among the tenders that have passed Stages 1, 2 and 3 evaluation}}$$

Those tenders which have passed Stages 1 to 4 evaluation will proceed to Stage 5 evaluation.

Stage 5 -- Price Assessment

The price proposals of those tenders which have passed Stages 1 to 4 evaluation will be evaluated.

- (a) The lowest tender price submitted by a Tenderer amongst all other Tenderers will be given the highest price score of 60 and the rest will be given a price score in accordance with the following formula :

$$\text{Price Score of a tender that has passed Stages 1 to 4 evaluation} = 60 \times \frac{\text{Lowest tender price among the tenders that have passed Stages 1 to 4 evaluation}}{\text{Tender price of the tender being assessed}}$$

- (b) For price comparison purposes, the tender price will be assessed on the basis of (i) the Total System Price (viz the sum total of items 1 to 9B of Schedule 12); and (ii) the total annual hardware and software maintenance charges for Phase 1 ATMS and Phase 2 ATMS payable over the Contract Period after expiry of the respective Warranty Period as applicable to each of them based on the annual maintenance charges as set out in items 10 to 13 of Schedule 12. Calculation of net present value will be used for price evaluation.

Stage 6 -- Calculation of Combined Score

The technical score and price score will be added to give the combined score. Without prejudice to the rights and powers of the Government under these Conditions of Tender, the Tenderer with the highest combined score will normally be recommended for the award of the Contract.

Tender Ref.: PT/0230/2009
File Ref. : A1310422009

~~Appendix B~~

List of Mandatory Requirements

Assessment of Compliance with Mandatory Requirements:

Item	Tender Reference	Mandatory Requirements
1.	Schedule 14 of Part V of the Tender Documents	The Tenderer shall confirm full compliance with all the essential specifications in Schedule 14 of Part V of the Tender Documents.
2.	Schedule 4 of Part V of the Tender Documents	The Tenderer shall submit in Schedule 4 of Part V of the Tender Documents an Implementation Plan which complies with all the Key Dates specified in Schedule 4.
3.	Schedule 3A of Part V of the Tender Documents	<p>The Tenderer must have supplied, installed and assisted in the commissioning of one or more air traffic management systems for the purposes of air traffic control in at least one (1) air traffic control centre (ATCC) as evidenced by details of reference contract(s) to be provided by the Tenderer in Schedule 3A. The supply, installation and assistance in the commissioning under the reference contract(s) must have been completed within the last 10 years preceding the Tender Closing Date.</p> <p>The air traffic management system at any one of the aforementioned ATCC must have been operated as the main system with no less than 40 ATCC air traffic controller working positions to provide air traffic control services for no less than 6 consecutive months within the last 10 years preceding the Tender Closing Date. In addition, the air traffic management system must have the capacity and capability to handle no less than 2,000 active flight plans at any one time during the aforementioned 6-month period.</p>
4.	Schedules 3A and 16A of Part V of the Tender Documents	<p>The Tenderer or its proposed Sub-contractor must have supplied, installed and assisted in the commissioning of one or more ultimate fallback system(s) in at least one (1) air traffic control centre (ATCC) as evidenced by details of reference contract(s) to be provided by the Tenderer in Schedule 3A. The supply, installation and assistance in the commissioning under the reference contract(s) must have been completed within the last 10 years preceding the Tender Closing Date.</p> <p>The ultimate fallback system at any one of the aforementioned ATCC must have been operated as the main or backup system with no less than 10 air traffic controller working positions to provide air traffic control services for no less than 6 consecutive months within the last 10 years preceding the Tender Closing Date.</p>

Notes

- (1) "Tenderer" means a company which submits a tender in response to this invitation to tender.
- (2) For the purposes of the mandatory requirement set out in items 3 and 4 above:
 - (a) The Tenderer shall specify in Schedule 3A of Part V of the Tender Documents details of the reference contracts which demonstrate that the Tenderer fulfils the mandatory requirement in items 3 and 4 above.
 - (b) A reference contract will be considered regardless of whether it was a main contract or a sub-contract provided that in either case, the Tenderer must have been responsible for the supply and installation and the provision of assistance in the commissioning of the relevant system as mentioned in item 3 or 4 above, where applicable, under the relevant reference contract.
 - (c) A reference contract in relation to a project implemented by a joint venture will not be considered if the Tenderer was not the joint venture itself and only participated in that joint venture as a party.
 - (d) Subject to (e) below, a contract entered into by a shareholder or joint venture party of the Tenderer (if the Tenderer is an incorporated joint venture) will not be considered.
 - (e) A reference contract entered into by a company, where
it is a wholly-owned subsidiary of the Tenderer (direct or indirect), or
the Tenderer is a wholly-owned subsidiary of that company (direct or indirect), or
that company and the Tenderer are both wholly-owned by the same holding company (direct or indirect),
will be considered as if it were entered into by the Tenderer concerned. Whether or not a company is a wholly-owned subsidiary or a holding company wholly owning another shall be determined based on the principles set out in the Companies Ordinance, Cap 32, regardless of the place of incorporation of the relevant companies.
 - (f) A reference contract in relation to a local or international project will be considered.
 - (g) For the purposes of the mandatory requirement in item 3 only, a reference contract entered into by any Sub-contractor proposed to be appointed by the Tenderer for the Contract will not be considered.
 - (h) For the purposes of the mandatory requirement in item 4 only, a reference contract entered into by a Sub-contractor proposed to be appointed by the Tenderer will be considered provided that the Sub-contractor will be responsible for the supply and installation and provision of assistance in the commissioning of the ultimate fallback system under the Contract to be awarded. References to "Tenderer" in Notes (2)(b) to (e) above may also mean the proposed Sub-Contractor for the purposes of determining compliance with the mandatory requirement in item 4.

* * * * *

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12 January 2015

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

Dear Mr Chu,

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the air traffic control and related services

I refer to your letter dated 7 January 2015 regarding the procurement of air traffic management system. Our responses are set out in the ensuing paragraphs.

- (a) (i) *Based on what criteria and through what channels the supplier list of 45 local suppliers and 43 overseas suppliers for the ATMS tender exercise was compiled?*
 (ii) *What is the business nature of the suppliers in (i)?*

The Government Logistics Department (GLD) maintains lists of local and overseas suppliers of various goods and related services to facilitate the issue of tender notifications. Suppliers can apply for inclusion in the relevant GLD supplier lists according to the nature of goods/services they provide. The suppliers invited for this tender exercise included all the local and overseas suppliers of GLD listed under the product group of “radar apparatus, including navigational aid radars”.

- (iii) *Whether it is common for open tenders to have a low response rate, i.e. only five tenders proposals received after sending out more than 80 invitations?*

With a view to widening the source of supply and obtaining the most cost-effective tender proposals, the Government adopted open tendering in 2009 for the

procurement of the air traffic management system. Apart from publishing the relevant tender notice in the Government Gazette and on the website of GLD, the Government also invited those suppliers listed under the product group of “radar apparatus, including navigational aid radars” to participate in the tender exercise. Compared with previous open tenders for procuring highly specialised, complicated and technical system, the response rate of this tender is not considered low.

(b) The number of suppliers invited to submit proposals for the ATMS Autotrac I Tender in the early 1990s, and the number of tender proposals received.

The procurement of the Radar Data Processing and Display System (RDPDS), Flight Data Processing System (FDPS) and Simulator System (SIM) [collectively “the Air Traffic Management System” (ATMS)] in 1993 was arranged through two stages, i.e. a prequalification tender exercise and a restricted tender exercise.

During Stage 1, a prequalification tender exercise was arranged to invite interested suppliers to conduct a System Definition Study at no cost to the Government. CAD had arranged an open tender for the prequalification exercise. According to CAD’s record, 30 suppliers had been invited to tender and subsequently a total of 5 proposals were received.

Upon completion of the System Definition Study, CAD had shortlisted three suppliers. The then Government Supplies Department was requested by CAD to arrange a restricted tender exercise by inviting these three suppliers in Stage 2 for the implementation of the ATMS. As a result, all three invited suppliers submitted proposals for the Stage 2 tender in June 1994.

(c) Referring to Clause 8.4 of the Conditions of Tender for replacement of the ATMS that “a proposed System with no proven performance record will not be considered further”, how the phrase “proven performance record” should be interpreted.

The relevant tender document was prepared by CAD and vetted by GLD and the Department of Justice before tender invitation. In the interpretation of a tender document, a clause must not be considered in isolation, but must be considered in the context with relevant provisions of the document. As such, the wording “A proposed System with no proven performance record will not be considered further” in the last sentence of Clause 8.4 must not be taken out in isolation, but must be read in context with the wording and spirit in Clause 8.

Clause 8 is concerned with the provision of the tenderer’s track records. According to Clause 8.1, a tenderer shall provide track records to demonstrate its past experience and compliance with certain mandatory requirements for the purposes of

the Stage 2 assessment. According to Clause 8.2, a tenderer shall also provide track records including reference site(s) which the Government may conduct site visit when necessary, so as to evaluate the tenderer's compliance with the essential specifications for the purposes of the Stage 3 assessment.

There are four sentences in Clause 8.4. "A proposed System with no proven performance record will not be considered further" in the last sentence is a reference to the preceding sentence. According to the first two sentences of Clause 8.4, the Government may contact any users of the reference sites whose details are provided by the tenderer under Clause 8.2 for supplementary information, so as to prove that the tenderer has the capability to provide a system that can meet the essential specifications in the tender document. The third sentence of Clause 8.4 states that in the event that the reference from a user indicates the system proposed cannot meet with the essential specifications, the tenderer shall provide explanations and a new user reference to prove the performance of the system. Therefore, the "proven performance record" in the fourth sentence of Clause 8.4 refers to performance record of the system in the user reference in the previous sentence.

Yours sincerely,



(YIP Man-chung)

for Director of Government Logistics

- c.c. Secretary for Transport and Housing (Attn: Miss Monica CHEN)
Director-General of Civil Aviation (Attn.: Richard WU)
Secretary for Financial Services and the Treasury (Attn.: Ms Winky WONG)
Director of Audit

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the air traffic control and related services

- (a) with reference to the milestones applicable to the new Air Traffic Management System ("ATMS") covering both Phase 1 and Phase 2 in the Implementation Plan of the ATMS contract (Attachment to Schedule 4 of Part V of the Tender Documents), please provide the system(s) to be involved in each milestone starting from the completion of Phase 1 to the completion of Phase 2 (i.e. Reference 1.15a to 1.22) by filling in the table below:

As explained at the last Public Accounts Committee meeting on 11 March, Phase 1 contract work refers to the installation and commissioning of the new ATMS at the new Air Traffic Control (ATC) Centre in the CAD Headquarters building, while Phase 2 contract work refers to conversion of the existing airside ATC Centre into a back-up ATC Centre with the installation of a new ATMS. At every stage, back-up ATMS is set up to ensure that the air traffic control operations can be maintained effectively.

For details of the requested information, please refer to *Appendix I*.

- (b) with reference to the provision of reference sites during Stage 2 and Stage 3 of tender evaluation of the ATMS tender as mentioned in Clause 8.1 and 8.2 of the Tender document, please provide the following information
- (i) whether the reference sites could be different;
 - (ii) if yes, whether the proposed Systems in the tender proposals submitted by the relevant tenders ("the proposed Systems") had to be operated as a main system/main component of the air traffic management system(s) at the reference sites;
 - (iii) if not, the relevancy of sending questionnaires to reference sites provided by the tenderers to solicit users' feedback on stability performance, technical and operational performance of the tenderers' systems (if that system is not the proposed System); and
 - (iv) the reference sites provided by the ATMS Contractor in these two stages, if they were different;

Reply to (i) – (iv) :

Stage 2 and Stage 3 of tender assessment process served different objectives. Under Clause 8.1, tenderers were required to provide

***Note by Clerk, PAC: Please see Appendix 29 of this Report for Appendix I.**

information for Stage 2 assessment to demonstrate their experiences in supplying, installing and assisting in the commissioning of air traffic management systems, whereas under Clause 8.2, at Stage 3, tenderers were required to demonstrate the compliance of their proposed systems with the requirements of the ATMS, including the systems' operational, functional, capacity requirements, as well as hardware and software requirements, etc. Accordingly, tenderers had to submit reference sites at Stage 2 and at Stage 3 to provide information on the respective aspects to facilitate the conduct of tender assessment by the Tender Assessment Panel (TAP). In view of the different objectives of the two stages, the reference sites provided for Stage 2 assessment could be different from those of Stage 3 assessment.

While there was no such stipulation in the tender document, the reference sites provided by all the tenderers at Stage 3 did contain the same main system / main component as the ATMSs proposed in their tenders.

The list and details of the reference sites provided by the ATMS Contractor for these two stages are at *Appendix II*.

- (c) besides the ATMS Contractor, whether all of the other tenderers who passed Stage 2 evaluation had provided reference sites using the full version of their proposed systems? If no, please specify the number of tenderers who had not provided reference sites using the full version of their proposed systems (i.e. provided reference sites which installed core components of their proposed system only);

The tender document had not specified that tenderers who had passed Stage 2 evaluation had to provide reference sites using the full version of their proposed systems. Two out of the five tenderers who had passed Stage 2 assessment had provided reference sites which had installed core components of their proposed systems only.

- (d) the job duties of "the concerned officer", one of the members of the Tender Assessment Panel for evaluating the ATMS tender, in particular his involvement in the preparation of the tender documents and the evaluation of the tender;

A team comprised about 20 professionals from the Air Traffic Engineering and Standards Division (AESD) and the Air Traffic Management Division (ATMS) of CAD was responsible for preparing the tender document for the ATMS. The concerned officer was one of the team members who took part in the formulation of the operational requirements of the system, including human machine interface, ergonomic design of workstations in ATC centre and tower, console and system display, etc. Before commencing his pre-retirement in August 2006, the concerned officer was responsible for overseeing the management and operations of the ATC

***Note by Clerk, PAC: Appendix II not attached.**

Centre and Control Tower, and the delivery of air traffic services. He had over 30 years of working experience in ATC operations, and had assumed duties relating to trial, evaluation, training and implementation of the ATMS during the transition from Kai Tak to the Hong Kong International Airport (HKIA) in 1990s. Given his valuable experience, he was engaged as a non-civil service contract (NCSC) staff from September 2006 to August 2012 to serve as advisor to the team¹.

In accordance with the Stores and Procurement Regulations (SPR), the tender evaluation of the ATMS tender was undertaken by the TAP consisting of 11 engineering and air traffic control professionals from various divisions of CAD. With his experience in handling the transition of the ATC Centre from Kai Tak to Chek Lap Kok, the concerned officer performed an advisory role at the TAP, providing views to TAP members from operational perspective, including human machine interface, system functions, training plan, test plan, degraded mode of operations, contingency fallback arrangements, etc . Within the TAP, the concerned officer acted as an advisor, and was not involved in tender assessment or scoring.

- (e) whether the Civil Aviation Department (“CAD”) has implemented any measures in respect of the new ATMS tender to regulate post-service employment of its staff (including those on non-civil service contract) to ensure that they will not take up any post-service work which may constitute real or potential conflict of interest with their previous duties in CAD;

Under the prevailing control regime stipulated by the Civil Service Bureau, directorate civil servants leaving government service (e.g. on retirement, resignation, completion of agreement) are required to obtain prior permission before they can take up any outside work during the prescribed restriction periods, so as to ensure that civil servants leaving the Civil Service do not take up work which may constitute actual, potential or perceived conflict of interest with their former government duties or which could undermine the image of the Civil Service or embarrass the Government.

Staff employed under NCSC terms are also subject to the control under the Prevention of Bribery Ordinance (Chapter 201), which criminalises bribery and corrupt transactions in both the public and private sectors, and

¹ As a directorate officer at D1 level before his retirement, the concerned officer was subject to two-year control period counting from the date of the end of his pre-retirement leave, i.e. from 2007-2009.

the Official Secrets Ordinance (Chapter 521), which controls the unauthorized disclosure of official information.

In respect of the new ATMS tender, the CAD had followed strictly the rules and procedures in the SPR. All TAP members had signed declaration and undertaking to confirm no conflict of interest prior to the conduct of the tender assessment exercise. The composition of the TAP was also approved by the Central Tender Board².

- (f) total expenditure incurred for the upgrading and maintenance works for existing ATMS (AutoTrac I) beyond 2012, the original target date for commissioning the new ATMS;

The annual expenditure on system maintenance of the existing ATMS is about \$5.9M. One-off enhancement measures for the existing ATMS were conducted in 2014 to strengthen the system's capability to ensure its safe and reliable operations. The cost of the one-off enhancement measures have been absorbed in the annual maintenance expenditure. A team is responsible for maintaining the steady and reliable operations of the ATMS, including the existing ATMS and the upcoming ATMS. The manpower costs amount to \$9.5M.

- (g) payment schedule of the new ATMS contract and payments made to the ATMS contractor; and

Please refer to *Appendix III*.

- (h) factors which have been taken into account in arriving at the daily penalty figures of \$52,190 and \$34,314 for Phase 1 ATMS and Phase 2 ATMS respectively and the rationale for capping the maximum days of penalty for each phase at 100.

The clause providing for the payment of liquidated damages arising from delay (which is not a penalty as it would not be enforceable) were included during the tender preparation and had been reviewed by the Government Logistics Department (GLD) (from the usual procurement angle) and the Department of Justice (DoJ) (from the legal perspective).

In accordance with established legal principles concerning determination of liquidated damages, the amount has to be based on a genuine estimate of the losses which would be suffered by Government arising from the delay of the project. The losses include extra costs for maintenance charges for the existing system (including stocking specialised spare parts

² The Central Tender Board was chaired by the Permanent Secretary for Financial Services and the Treasury (Treasury) and comprised the representatives from the Financial Services and Treasury Bureau (FSTB) and the Government Logistics Department, etc.

for the existing system and software maintenance for the existing system), and any extra man-power required for operating the existing system to ensure continued safety and efficiency and so on. CAD had made reference to these items of losses in arriving at the daily rate chargeable as liquidated damages for each of Phases 1 and 2 ATMS. This is in line with the established approach adopted by Government in tender documents to avoid any argument that the amount is extortionate and is a penalty and is therefore not legally enforceable.

Encl.

* * * * *

Settled and Scheduled Payments to New ATMS Contractor

A. ATMS (Original Contract)

I. Payments Made:		
Payment Terms	ATMS (HK\$M)	Payment Date
Upon signing of the Articles of Agreement of ATMS (20% Total System Price of ATMS)	88.8	25-Mar-11
Upon completion of the relevant Milestones specified in items 1.9a (i.e. Delivery of Equipment and installation materials for Phase 1 ATMS ¹ to Site), 1.9c (Delivery, Installation and putting into commission of ATMS consoles in the New CAD Buildings and North Aerodrome Tower) and 1.9e (Site Acceptance Tests for Part II Computer Based Training in the New CAD Buildings) in accordance with the Implementation Plan (10% Total System Price of ATMS)	44.4	18-Jul-13
Total²:	133.2	
II. Scheduled Payments		
Payment Terms	ATMS (HK\$M)	Scheduled Payment Date
Upon issuance of Acceptance Certificate for Phase 1 ATMS (50% of the Total System Price of ATMS)	222.0	20-Dec-13 (The payment had yet been made as the acceptance of the Phase 1 ATMS had been rescheduled to the second half of 2015)
Upon completion of Software Warranty Period for Phase 1 ATMS (5% of the Total System Price of ATMS)	22.2	20-Dec-18

¹ Phase 1 ATMS refers to the new ATMS installed and commissioned at the new ATC Centre in the CAD Headquarters building.

² Rounding error to HK\$0.1M may introduce minor discrepancy in the Total value.

Upon issuance of Acceptance Certificate for Phase 2 ATMS ³ (10% of the Total System Price of ATMS)	44.4	39 weeks from Phase 2 Buildings Access Date ⁴
Upon completion of Software Warranty Period for Phase 2 ATMS (5% of the Total System Price of ATMS)	22.2	60 months from Acceptance of Phase 2 ATMS
Total²:	310.9⁵	

Contract Variation #1 (CV#1)

I. Payments Made:		
Payment Terms	CV#1 (HK\$M)	Payment Date
Upon confirmation of contract variation CV#1 (20% Total System Price of CV#1)	8.0	25-Sep-12
Upon completion of the relevant Milestones specified in items 1.9a (i.e. Delivery of Equipment and installation materials for Phase 1 ATMS ¹ to Site), 1.9c (Delivery, Installation and putting into commission of ATMS consoles in the New CAD Buildings and North Aerodrome Tower) and 1.9e (Site Acceptance Tests for Part II Computer Based Training in the New CAD Buildings) in accordance with the Implementation Plan (10% Total System Price of CV#1)	4.0	18-Jul-13
Total²:	12.0	

³ Phase 2 ATMS refers to the new ATMS to be installed and commissioned at the new back-up ATC centre, which is the existing airside ATC Centre after undergoing retrofitting work.

⁴ Phase 2 ATMS Buildings refer to the existing airside ATC Centre. Upon completion for transition of operation from existing system to the new ATMS in the new ATC Centre, the existing ATMS at the existing ATC Centre will be de-commissioned, and the existing ATC Centre will undergo retrofitting work. After completion, the existing ATC Centre will be available for access by the ATMS Contractor to commence the Phase 2 contract work, i.e. conversion of the existing airside ATC Centre into a back-up ATC centre by replacing the existing ATMS with the new ATMS.

⁵ Under the original contract, a contingency fund of HK\$41.9M has been reserved but not yet been committed by CAD to the contractor. CAD will review whether there is a need to use the fund for further maintenance service after the system is accepted to ensure its effective and reliable operations.

II. Scheduled Payments		
Payment Terms	CV#1 (HK\$M)	Scheduled Payment Date
Upon issuance of Acceptance Certificate for Phase 1 ATMS (50% of the Total System Price of CV#1)	20.0	20-Dec-13(The payment had yet been made as the acceptance of the Phase 1 ATMS had been rescheduled to the second half of 2015)
Upon completion of Software Warranty Period for Phase 1 ATMS (5% of the Total System Price of CV#1)	2.0	20-Dec-18
Upon issuance of Acceptance Certificate for Phase 2 ATMS ³ (10% of the Total System Price of CV#1)	4.0	39 weeks from Phase 2 Buildings Access Date
Upon completion of Software Warranty Period for Phase 2 ATMS (5% of the Total System Price of CV#1)	2.0	60 months from Acceptance of Phase 2 ATMS
Total²:	28.0⁶	

B. Contract Variation #2 (CV#2)

I. Payments Made:		
Payment Terms	CV#2 (HK\$M)	Payment Date
Upon signing of contract variation CV#2 (20% of Total System Price of CV#2)	8.9	02-Dec-13
Total²:	8.9	
II. Scheduled Payments		
Payment Terms	CV#2 (HK\$M)	Scheduled Payment Date
Upon issuance of Acceptance Certificate for Phase 1 ATMS ¹ (60% of Total System Price of CV#2)	26.8	20-Dec-13(The payment had yet been made as the acceptance of the Phase 1 ATMS had been rescheduled to the second half of 2015)

⁶ Under the CV#1, a contingency fund of HK\$2.4M has been reserved by CAD but not yet been committed by CAD to the contractor. CAD will review whether there is a need to use the fund for further maintenance service after the system is accepted to ensure its effective and reliable operations.

Appendix III

Upon completion of Software Warranty Period for Phase 1 ATMS (5% of the Total System Price of CV#2)	2.2	20-Dec-18
Upon issuance of Acceptance Certificate for Phase 2 ATMS ³ (10% of the Total System Price of CV#2)	4.5	39 weeks from Phase 2 Buildings Access Date
Upon completion of Software Warranty Period for Phase 2 ATMS (5% of the Total System Price of CV#2)	2.2	60 months from Acceptance of Phase 2 ATMS
Total²:	35.8⁷	

* * * * *

⁷ Under the CV#2, a contingency fund of HK\$2.1M has been reserved by CAD but not yet been committed by CAD to the contractor. CAD will review whether there is such need to use the fund for further maintenance service after the system is accepted to ensure its effective and reliable operations.

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the air traffic control and related services

- (a) whether the Civil Aviation Department ("CAD") had solicited comments from users of Autotrak III regarding its performance prior to the award of the Air Traffic Management System ("ATMS") contract? If yes, please provide the relevant record;*

CAD had sought comments from users at the reference sites provided by the tenderers during the tender evaluation process. The relevant records of request for information are provided in **Appendix I**.

- (b) a list of current users of Autotrak III;*

The Autotrak III systems are currently used by airports in Dubai, as well as in Delhi, Mumbai and Chennai of India. ATMS designed and manufactured by the contractor with the same crucial sub-systems as Autotrak III are also widely used in Germany, United States and Canada.

- (c) according to the Conditions of Tender for replacement of the ATMS, the Government reserves the right to conduct visits to the factory(ies) and reference site(s) of all the tenderers who have passed Stage 2 evaluation to verify compliance with the essential requirements. In this regard, please provide the following-*

- (i) a list of the reference sites provided by each of the tenderers who have passed Stage 2 evaluation;*

The list of reference sites submitted by each of the tenderers is provided in **Appendix II**.

- (ii) the reasons for not conducting visits to those reference sites in (i); and*

During the technical assessment of the tender proposals for the ATMS, the Tender Assessment Panel (TAP) had conducted site visits to factories of all the 5 tenderers that had met the mandatory requirements in the tender document. The TAP had also devised and issued a set of questionnaire inviting written responses from users of the reference sites provided by the tenderers. This was considered to be a more efficient and cost-effective arrangement given the following considerations:

***Note by Clerk, PAC:** *Only a sample of CAD's letters and questionnaires is attached.*

- In view of the complexity and highly technical nature of the ATMS, it would be more effective for CAD to conduct factory visits to assess the technical capability of the tenderers as more specific and comprehensive on-site tests or inspections of the systems of the tenderers could be conducted, and questions could be raised with the tenderers on the spot, which could facilitate direct communications and clarifications with the tenderers.
- A factory setup would provide a more suitable environment for the tenderers to demonstrate their latest technology and the essential features of the ATMS, especially those safety-critical ones, with the use of test beds or simulators.

(iii) records of the request made by CAD to the air traffic control service providers or other parties of the reference sites for information on the relevant air traffic systems provided by the tenderers, and their replies;

The relevant records of request for information are provided in **Appendix I** as stated in Item (a) above.

(d) with reference to Clause 8.1(h) of the Conditions of Tender, the tenderers are required to provide serviceability/availability figures showing that the system was put in service for no less than 6 consecutive months any time within the last 10 years preceding the Tender Closing Date. The 6 consecutive-month period is also used in other paragraphs of Clause 8.1. In this regard, please provide;

(i) the reason for using “no less than 6 consecutive months” as the minimum track record requirement and in other paragraphs of Clause 8.1; and

CAD has set down as a mandatory requirement that the tenderers are required to provide serviceability/availability figures showing that the system was put in service for no less than 6 consecutive months any time within the last 10 years preceding the Tender Closing Date. Based on operational experience and the experience of CAD during the Chek Lap Kok Hong Kong International Airport project, a six-month period should be sufficient to identify key anomalies that may arise in the system.

(ii) the minimum track record requirement for procuring the existing ATMS Autotrac I in 1993. If there was a change in the requirement, the justification for such change in view of the fact that 6 months might not fully reflect the performance of the system;

For the existing ATMS, i.e. Autotrac I, there was no particular requirement in the tender document that the proposed system installed at the reference site must have a minimum operation period. However, the tenderer was still requested to provide 12 months' serviceability / availability figures as reference if available. With experience gained over the years, CAD adopted a no-less than six-months' mandatory requirement for the new ATMS tender. This minimum operation period was also adopted in the tender documents of other major air traffic control systems.

(e) with reference to Clause 8.4 of the Conditions of Tender, records showing that CAD has conducted the due process to ensure that all five tender proposals were in compliance with the requirement that the proposed System should have proven performance record;

CAD had strictly followed the evaluation procedures as laid out in the Conditions of Tender, notably in Clause 8.4, which are in line with international and industry practice. CAD verified compliance of the tenderers' proposed systems against all the essential requirements through checking their submitted documents, clarification with the tenderers, and solicitation of information through questionnaires including the user feedback, system performance and tenderer performance, etc. CAD also conducted visits to the factory sites of all the five tenderers (with same set of checklist items sent in advance to all the tenderers) to verify that their proposed systems could meet the relevant essential requirements (see **Appendix III** for records).

(f) referring to Clause 20.1 of the Conditions of Tender, the alternative proposals, if any, submitted by each tenderer;

Only one tenderer submitted an alternative proposal, but was not considered by TAP as it did not comply with the tender requirements.

(g) whether the tender price difference between the two tenderers whose combined score is the highest and second highest respectively is below the total cost of two contract variations for the ATMS contract, i.e. \$89 million;



Since the enhancement items implemented in the two contract variations were triggered by the latest ICAO development and evolving operational requirements, it would be incumbent upon CAD to implement these out-of-contract-scope enhancements as soon as practicable.

****Note by Clerk, PAC: Please see Appendix 14 of this Report for Appendix III.***

(h) whether CAD had assessed the performance of the contractor prior to submitting the request for the first contract variation? If yes, please provide the relevant information/records on the result of the performance assessment;

Prior to submitting the request for the first contract variation to the GLD in January 2012, CAD had considered the contractor's performance based on the following facts:

- Since award of new ATMS contract in February 2011, the contractor had timely submitted the monthly progress reports, and the performance was satisfactory.
- The contractor had timely submitted the acceptance test procedures for the computer-based training system, and conducted the test as scheduled.
- During the detailed design review (DDR), the contractor had engaged a team of professional system and software engineers, particularly those who had sound knowledge and experience in the existing ATMS, to participate into the DDR. The contractor demonstrated professionalism in the system design, and devoted a lot of efforts to incorporate the discussed requirements into the detailed design documents of the system.
- Contractor of new ATMS is also the contractor of the existing ATMS and the service provider of the software maintenance support service of the existing ATMS. The performance of the existing system was stable and reliable whilst the contractor's performance had been satisfactory to CAD.

(i) the source of funding to cover the two contract variations in the procurement of the ATMS;

The funding for the two contract variations was provided from the budget approved by the Finance Committee of the Legislative Council in 2007.

(j) relevant extracts of the ATMS contract provisions relating to claims against delay in the implementation of the contract and termination of contract;

The relevant clauses covering Liquidated Damage (LD) and termination of contract are in Clauses 17 and 45 of Conditions of Contract and provided in **Appendix IV**.

(k) with reference to the additional requirements in the ATMS by way of contract variation referred to in paragraphs 2.6 and 2.9 of Chapter 4, please provide:

(i) a breakdown of the cost by items listed out in paragraph 2.6 (a), (b) and (c) for Contract Variation No. 1;

The cost of ATMS enhancements in Contract Variation No.1 (CV#1) was HK\$42.4M.

[Please refer to **Appendix V** for detailed pricing figures.]

(ii) a breakdown of the cost by items listed out in paragraph 2.9 for Contract Variation No. 2; and

The cost of Contract Variation No. 2 (CV#2) was HK\$46.8M.

[Please refer to **Appendix V** for detailed pricing figures.]

(iii) the reasons for having 50 positions for ATMS, but only requiring the contractor to provide 32 simulator training and input operator positions in the contract;

The provision of around 50 operational controller working positions and 32 simulator training and input operator positions of the ATMS would ensure efficient operation of the air traffic management services at the Hong Kong Flight Information Region while professional training is provided to air traffic control staff.

Around 50 operational controller positions are provided for air traffic controllers to conduct 24-hour air traffic management services to flight operating within the Hong Kong Flight Information Region. The provision is made on the basis of operational experience, taking into account the heavy traffic volume operating in and out of the HKIA. The simulator training positions are set up to provide training to CAD air traffic controllers in batches and to evaluate the air traffic control procedures. The provision of 32 simulator training and input operator positions were proposed on the basis of the steady air traffic growth and to allow more training opportunities for the air traffic controllers to ensure there are sufficient and adequately trained controllers to provide safe and efficient air traffic management services.

(l) criteria on whether and when an enhancement to ATMS should be made, in particular for enhancements arising from new requirements from International Civil Aviation Organization;

****Note by Clerk, PAC: Please see Appendix 31 of this Report for Appendix V.***

In implementing an enhancement on the ATMS, CAD's key considerations are compliance with international stipulations, aviation safety, operational needs and cost-effectiveness.

Whenever ICAO promulgates an initiative (e.g. the Global Air Navigation Plan, the Regional ATM Contingency Plan etc.) for enhancement of safety and operational efficiency, all states/administrations are required to map out plans to implement the initiatives, taking into account the operational efficiency, aviation safety and cost-effectiveness.

As the new ICAO requirement came out during project stage, it would be more cost-effective and of lower safety risks for the new measures to be incorporated before the system is put in operation as there would be greater synergy on software development/testing, and minimal impact on operations.

(m) the countries in the Asia-Pacific Region and other regions of the world which have adopted the Air traffic Management contingency arrangements referred to in paragraph 2.7 (a) of Chapter 4;

We are checking with the ICAO on the details, and would provide the requested information once available.

(n) The total cost of 23 enhancements to the existing ATMS;

Since commencement of the system design in 1994 up to now, a total of 23 software changes have been made to the existing ATMS for system enhancements. The total cost of the software enhancement changes was HK\$61 million.

(o) relevant extracts of the ATMS contract provisions relating to the capacity of air traffic control;

Extracts of the capacity requirements are in **Appendix VI**.

(p) whether consideration had been given to engaging external experts to assist in the procurement of ATMS in view of the complexity involved;

During the early stage of system procurement, CAD had looked into the need and suitability on engagement of external experts. However, given the tight time frame and the highly technical nature of the project, it would be more cost-effective and efficient to make use of CAD staff who would be in a better position to communicate the users' requirements and needs directly to the contractor. Also, CAD considered that engaging external consultants would involve higher costs due to extra coordination and supervision on the consultant.

(q) with reference to the overdue en-route navigation charges referred to in Table 6 of Chapter 4, please provide:

(i) the latest figure on the total overdue amount;

As at 7 January 2015, the total overdue amount of en-route navigation charges was \$21.3 million.

(ii) details of the overdue amount with the longest overdue period; and

The debtor with the longest overdue period owes \$0.8 million. The earliest outstanding demand note owed by this debtor was due in June 2008.

(iii) details of the cases which involved an overdue amount of \$250,000 or more, including the amount involved, length of the overdue period and follow-up actions taken, including whether any unrecoverable amount will be written off;

Details of such payment overdue cases and follow-up actions are detailed in **Appendix VII**.

(r) whether CAD has reported to LegCo about the two contract variations and delays in implementing the ATMS contract. If yes, please provide the relevant papers and correspondences; and

Project progress and contract variations had been included in replies to Members of the Legislative Council (LegCo), the LegCo Panel on Economic Development Panel, and the Finance Committee of LegCo. A list of the correspondences is in **Appendix VIII**.

(s) number of suppliers invited to submit proposals for the ATMS Autotrac I Tender in the early 1990s.

A total of 30 potential suppliers were invited to submit tender proposals for the existing ATMS. The list of invitees is provided in **Appendix IX**.

(t) Extra Item (Request item in 2nd letter from PAC also dated 7 January 2015)

Provide details of the complaint lodged by an unsuccessful tenderer of the ATMS contract concerning the requirement of possession of “proven performance record” by the contractor as specified in Clause 8.4 of the

**Note by Clerk, PAC: Please see Appendix 44 of this Report for Appendix VII and Appendix VIII not attached.*

Conditions of Tender, and the decision of the Review Body on Bid Challenges on this case.

Please see **Appendix X** for the complaint lodged by the unsuccessful tenderer and the decision of the Review Body on Bid Challenges on this case.

Encl.

"

* * * end * * *

****Note by Clerk, PAC:*** *Please see Appendix 24 of this Report for Appendix X.*

A sample of CAD's letters and questionnaires

香港特別行政區政府
民航處
Civil Aviation Department
The Government of the Hong Kong Special Administrative Region

香港國際機場東輝路 11 號港龍大廈三樓

3/F, Dragonair House, 11 Tung Fai Road, Hong Kong International Airport, Hong Kong

檔案編號 OUR REF.

來函編號 YOUR REF.

電話 TEL.

傳真 FAX.

(6) in T/FAC/3040/1/3 C 耳

(852) 2591 5051

(852) 2845 7160

By Fax (5 pages)
7 May 2010



← Address of Recipient

Dear



← Recipient's Name

**Site Reference for Tendering of Air Traffic Management System
for Hong Kong International Airport**

The Civil Aviation Department of Hong Kong SAR Government is now tendering for a new Air Traffic Management System (ATMS) for the Hong Kong International Airport. One of the tenderers, [REDACTED] indicated your ACC Centre as a reference site of their ATMS system installed and in operation.

We would like to seek your kind assistance in providing your input by completing and returning the attached questionnaire by fax and email. The information provided will be of invaluable reference in our assessment of the tender and treated as confidential information.

Should you have any queries, please contact the undersigned at Tel: (852) 2591 5002, Fax: (852) 2845 7160 or email: pcchan@cad.gov.hk.

Your early reply by 14 May 2010 is much appreciated.

Yours faithfully,

(P C Chan)

for Director-General of Civil Aviation

c.c. Director of Government Logistics (Attn.: Mr. Joe Wong) Fax: 2807 2764

Questionnaire on Air Traffic Management System (ATMS)

1. ATMS Description

- a) Location of installed ATMS
- b) Manufacturer :
- c) Model of ATMS :
- d) Software version :

2. ATMS Implementation

- a) Planned ATMS acceptance date :
- b) Actual ATMS acceptance date :
- c) Date of ATMS put into operation :
- d) Is the ATMS currently in operation ? If not,
 - (i) the reason is
 - (ii) date of ceasing operation

e) ATMS installed includes :

- | | |
|--|----------|
| 1. Air Traffic Control Centre (ATCC) Operational partition | Yes / No |
| 2. Tower Control Operational partition | Yes / No |
| 3. Fallback partition | Yes / No |
| 4. Development partition | Yes / No |
| 5. Air Traffic Control Centre Simulator partition | Yes / No |

f) For this ATMS, during the period of operation as stated above, state the maximum number of working positions installed and in operation at this location, with the following position-type breakdown:

- 1. Number of ATCC air traffic controller working positions
- 2. Number of Tower air traffic controller working positions
- 3. Number of Flight Plan/Data Coordination positions
- 4. Number of ATCC and Tower Supervisor positions

3. ATMS Performance

- a) Major ATMS failures after operational use

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ATMS failures	Number and brief descriptions of the failures	Duration (hrs)
(1) Total ATMS outages* (complete service loss)		
(2) Other major failures*		

**please provide detail information on separate sheet of paper, if considered necessary*

b) Overall ATMS performance ratings (please tick one or more boxes below)

- ATMS unsatisfactory for operation
- ATMS unreliable
- generally not meeting specification requirements
- generally satisfactory
- very satisfactory and fully meet specification requirements
- totally satisfactory for operation

c) Operational and Technical performance ratings (please tick one box for each item)

- 1 - unsatisfactory*
- 2 - generally good but with many limitations*
- 3 - good but with some or minor limitations*
- 4 - good, flexible and effective*
- 5 - very good, very flexible and very effective*

Operational Performance Ratings	1	2	3	4	5
(a) User Friendliness					
Controller tools including Safety Net features e.g. range & bearing line, predicated line, STCA					
ATMS response to controller input					
Setting up of ATC display e.g. maps, colours, ranges, sector consolidation					
(b) Design Ergonomics					
HMI colour scheme e.g. background, maps, labels					
HMI control device e.g. softkeys, hotkeys					
(c) Adaptation to different External System Interfaces e.g. FPL, ATS messages, weather data, wind data					
(d) Online On/Off Capability of ATMS Functions e.g. Safety net tools, CPDLC, audio/visual alarm					

Technical Performance Ratings	1	2	3	4	5
(a) Procedure of uploading new/revised DMS					
(b) Flexibility in HMI customization e.g. change colour, line width, fonts					
(c) Flexibility in System Configuration e.g. online VSP, making up of sectors and airspace					

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(d) Ease of System Set-up e.g. whether the VSPs provided are useful					
(e) Trajectory Computation Accuracy					
(f) Safety Net Prediction Accuracy e.g. STCA, MTC					
(g) ATMS Reliability					
(h) ATMS Availability					
(i) ATMS Maintainability					
Overall ATMS Performance					

4. Contractor/Supplier Performance

Specific contractor/supplier performance ratings (please tick one box for each performance item)

- 1 - *unsatisfactory*
- 2 - *below expectation or cannot fully comply with contractual obligations*
- 3 - *good*
- 4 - *very good*
- 5 - *exceptionally good*

Contractor/Supplier performance ratings	1	2	3	4	5
(a) Technical competence of project staff					
(b) Technical competence of post acceptance support staff					
(c) Responsiveness					
(d) Co-operation					
(e) Quality of work					
(f) Sense of responsibility					
(g) Quality of documentation					
(h) Quality of training					
(i) After-sales hardware support					
(j) After-sales software support					
(k) Overall performance					

5. Additional information

- a) Average training required in terms of training hours and/or man-days for the following ATC positions in order to achieve the required competency of your organisation:-
- i) ATC Area Radar / Enroute Sector _____
 - ii) ATC Approach Radar _____
 - iii) Tower Control Air Movements (Runway / Circuit) ... _____
 - iv) Tower Control Ground Movements (Non-Runway) ... _____
 - v) Flight Data Operator _____

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- vi) ATC Supervisor _____
 - vii) Database Management Supervisor _____
 - viii) Hardware Maintenance _____
 - ix) Software Maintenance _____
 - x) Database Management (Technical) _____
- c) Convenience, effectiveness and limitations of the HMI for ATC / Flight data input e.g. clearance update; flight plan amendments.
- d) The skills required and the composition and size of your ATMS database management team.
- e) Whether all the required data in the ATMS database, such as maps are set up by the contractor, upon receiving of such data provided by your organisation at various stages of the project? Please advise any problems encountered with the contractor/ supplier in the process of setting up ATMS database.
- f) Any difficulties/problems encountered during the acceptance tests subsequent to FAT.
- g) Level of flexibility / adaptability of the ATMS HMI to meet new user requirements since ATMS operation e.g. implementation of new ICAO FPL requirements.
- h) Comment the performance of the following, if installed:
 - (i) Availability of Multi-sensor tracking
 - (ii) Integration of AMAN and/or DMAN
- i) Any issues on ATMS changeover i.e. from Main to Fallback or from Primary server to Secondary server, particularly on changeover time and data synchronization?.

Thank you for completing this questionnaire! Grateful if you would advise a contact for further reference.

* * * Thank you * * *

Reference Sites provided by Tenderers (based on Tenderers' Proposals - Schedule 3A)

Name of Tenderer	Name of Reference Site(s) / Location
Tenderer A	<ul style="list-style-type: none"> • [Redacted] • [Redacted] • [Redacted] • [Redacted] • [Redacted] • [Redacted]
Tenderer B (Successful Tenderer)	<ul style="list-style-type: none"> • Moncton, Gander, Winnipeg, Montreal, Toronto, Vancouver, and Edmonton ACC/Canada • P1 controls 4 ACCs: Frankfurt-Langen, Dusseldorf, Bremen and Munich/Germany • United States National Airspace System (NAS)/USA
Tenderer C	<ul style="list-style-type: none"> • [Redacted] • [Redacted] • [Redacted] • [Redacted] • [Redacted] • [Redacted]

Reference Sites provided by Tenderers (based on Tenderers' Proposals - Schedule 3A)

Name of Tenderer	Name of Reference Site(s) / Location
Tenderer D	<ul style="list-style-type: none">• [Redacted]
Tenderer E	<ul style="list-style-type: none">• [Redacted]• [Redacted]• [Redacted]• [Redacted]• [Redacted]• [Redacted]• [Redacted]• [Redacted]• [Redacted]• [Redacted]• [Redacted]• [Redacted]

- 16.2 The System Acceptance Tests for a Sub-System shall not be deemed to have been passed until all tests in each of the FAT, SAT, FCAT and RAT have been satisfactorily completed with results accepted by the Government in writing.
- 16.3 The Contractor shall agree that the Government may use the CBT System and Simulator System at no cost for the purpose of training prior to the issuance of the Acceptance Certificate for Phase 1 ATMS. Without prejudice to other obligations of the Contractor, the Contractor shall provide free of charge such maintenance services as may be necessary to maintain the CBT System and Simulator System in full working order until Phase 1 ATMS is accepted by the Government.

17. Delays

- 17.1 The Contractor shall provide each of the Sub-Systems Ready for Service on or before the Completion Date, viz Phase 1 ATMS Ready for Service by the applicable Completion Date specified in the Implementation Plan, and Phase 2 ATMS Ready for Service by the applicable Completion Date specified in the Implementation Plan.
- 17.2 If the Contractor fails to provide a Sub-System Ready for Service by the Completion Date, the Contractor shall pay to the Government within 7 days upon demand by the Government as and by way of liquidated damages and not as a penalty for any loss or damage sustained by the Government resulting from delay during the period from the Completion Date to the date on which the Contractor actually provides the Sub-System Ready for Service the sum of HK\$52,190 for each day or part of the day of such delay up to a total maximum of HK\$5,219,000 in the case of Phase 1 ATMS, and HK\$34,314 for each day or part of the day of such delay up to a maximum of HK\$3,431,400 in the case of Phase 2 ATMS. Subject to the provisions of Clause 17.3 below the payment of such sums shall be in full satisfaction of the Contractor's liability for such delay only. The payment of liquidated damages shall not relieve the Contractor of its obligation to provide the Sub-System Ready for Service or of any other liability or obligation under this Contract.
- 17.3 If the Contractor fails to provide any Sub-System Ready for Service within 60 days after the Completion Date then notwithstanding anything else contained in this Contract, unless the Contractor has been given an extension of time under Clause 6 which extends the time to provide the Sub-System Ready for Service, the Government shall be entitled to terminate this Contract pursuant to Clause 44.1.8 (in the case the Sub-System which fails to become Ready for Service is Phase 1 ATMS) or pursuant to Clause 44.2 (in the case the Sub-System which fails to become Ready for Service is Phase 2 ATMS). Upon such termination the Contractor shall, without prejudice to the Government's other rights and claims, forthwith refund to the Government (i) all moneys previously paid to the Contractor under this Contract (in the case the delay relates to Phase 1 ATMS) or (ii) the Total System Price attributable to Phase 2 ATMS (in the case the delay relates to Phase 2 ATMS).

Contractor or all or any part of its business or assets; or

- 44.1.6 the Contractor abandons the Contract in part or in whole; or
- 44.1.7 the Contractor assigns or transfers or purports to assign or transfer all or any part of the Contract or all or any of its rights or obligations thereunder without the prior written consent of the Government; or
- 44.1.8 without prejudice to the generality of the foregoing grounds for termination, if any event or circumstance occurs which enables the Government to terminate the Contract under any one of the following provisions:
- Clause 12.3(d) (FAT);
 - Clause 13.3(d)(i) (SAT);
 - Clause 14.3(d) (FCAT)
 - Clause 15.2(c)(i) (RAT);
 - Clause 17.3 (Delays);
 - Clause 30.3.4 (Intellectual Property Rights Indemnities);
 - Clause 40.4 (Prevention of Bribery);
 - Clause 46.3 (Force Majeure);
 - Clause 48.4 (Software Asset Management);
 - Clause 51.1 (Illegal Workers); and
 - Clause 52.6 (Admission to Government's Premises).
- 44.2 The Government may terminate the Contract to the extent it relates to Phase 2 ATMS ("Partial Termination") if any event or circumstance occurs which enables the Government to do so under any one of the following provisions:
- Clause 13.3(d)(ii) (SAT);
 - Clause 15.2(c)(ii) (RAT); or
 - Clause 17.3 (Delays).

45. Consequences of Early Termination

- 45.1 Upon early termination (howsoever occasioned) or expiry of the Contract ("Termination"):
- 45.1.1 the Contract shall be of no further force and effect, but without prejudice to:

- (a) the Government's rights and claims under the Contract or otherwise at law against the Contractor arising from antecedent breaches of the Contract by the Contractor (including any breach(es) which entitle the Government to terminate the Contract);
- (b) the rights and claims which have accrued to a party prior to the Termination; and
- (c) the continued existence and validity of those provisions which are expressed to or which in their context appropriately survive Termination and any provisions of the Contract necessary for the interpretation or enforcement of the Contract including without limitation Clauses 1 (Definitions), 22 (Title and Risks to the System), 23 (Vesting of Intellectual Property Rights in the Government), 24 (Exclusion from Vesting), 25 (Licences), 26 (Warranties and Undertaking), 27 (No Warranty on the Part of the Government), 29 (Indemnities), 30 (Intellectual Property Rights Indemnities), 35.5 to 35.6, 35.9 to 35.13 (apart from Clause 35.11) (Payment), and all remaining Clauses thereafter except for Clause 49 (Policy of Insurance and Compensation), 52 (Admission to Government's Premises); the obligations of the parties under these provisions shall continue to subsist notwithstanding the Termination regardless of whether or not it is so expressly stated in these individual provisions;

45.1.2 the Government shall not be responsible for any claim, legal proceeding, liability, loss (including any direct or indirect loss, any loss of revenue, profit, business, contract or anticipated saving), damage (including any direct, special, indirect or consequential damage of whatsoever nature) or any cost or expense, suffered or incurred by the Contractor due to the Termination;

45.1.3 the Government may, without prejudice to any accrued rights and claims of the Government for breach of the whole or any part of Contract, itself take up the uncompleted Services (or any part thereof) or contract out the uncompleted Services (or any part thereof) to another contractor(s) or procure the Contractor Supplied Components and/or other items offered by the Contractor in the Contract from other contractor(s) whereupon in the event of termination pursuant to Clause 44.1, the Contractor shall be liable for all losses, damage, costs and expenses thereby incurred by the Government arising from the Termination including without limitation the amounts payable to any subsequent contractor or supplier and/or the cost of maintaining an in-house team for procuring all or any of the Services and/or Contractor Supplied Components and/or other items which are in excess of the amounts which would have been payable to the Contractor for the same had the Contract not been terminated;

45.1.4 the Contractor shall refund to the Government forthwith any sums previously paid under the Contract for the SS&M Services in respect of the unexpired Hardware and Software Maintenance Periods and for Contractor Supplied Components which were ordered but have not been delivered and accepted prior to the Termination; and in the case the Termination occurs before Phase 1 ATMS becomes Ready for Service, the Contractor shall refund to the Government forthwith all sums paid in discharge of the Total System Price;

- 45.1.5 for the avoidance of doubt, the Government may exercise its right under Clause 55 in relation to any sum payable to the Contractor;
- 45.1.6 not used;
- 45.1.7 the Contractor shall forthwith deliver to the Government all parts of the System, all Acquired Property (including Licensed Property), all Government Data and all Records in whatever format, and stored in whatever media, which are in the possession or under the control of the Contractor. In the event that any of the aforesaid materials or items are located within the premises of the Contractor, the Government Representative and any person(s) authorized by it are hereby granted an irrevocable licence to, anytime and from time to time within one year after termination of the Contract, enter such premises for the purpose of taking possession of such materials or items. In the event that any of the aforesaid materials or items is lost or damaged whilst in the possession or control of the Contractor or its employees, sub-contractors or agents, the Contractor shall pay to the Government for such loss or damage being an amount equal to the original cost plus 10% as and for liquidated damages and not as a penalty. A count of the articles or materials in the possession or control of the Contractor may be made at any time by the Government and the Contractor shall render such assistance as is necessary for this purpose;
- 45.1.8 the Contractor shall certify to the Government that no hardcopies or softcopies or duplicates of any of the items referred to in sub-clause 45.1.7 have been retained;
- 45.1.9 the Contractor shall compile and submit to the Government a report of the Services performed, including without limitation a report on all Implementation Services and the SS&M Services which have thus far been completed and discharged up to the date of the Termination;
- 45.1.10 notwithstanding anything herein to the contrary, and regardless of the cause (the absence thereof) or basis for the Termination, the Government shall have no obligation to pay to the Contractor any money whatsoever arising from the Termination;
- 45.1.11 the Contractor shall make good, to the satisfaction of the Government, any damage to the System or any part thereof or the Acquired Property (including Licensed Property) or Government Data or Records;
- 45.1.12 at the request of the Government, the Contractor shall enter into and perform all deeds of assignment, transfer or novation in favour of the Government or in favour of any person whom the Government may designate, for the assignment, transfer or novation of any contract, arrangement or other subject matter whatsoever (including insurance policy, equipment lease, software licence) on such terms and conditions as the Government may stipulate; and procure any other third party whom the Government considers necessary for effecting or perfecting such assignment, transfer or novation to enter into and perform any such deeds of assignment, transfer or novation;
- 45.1.13 the Contractor will, or will procure its associates or associated persons to, do all

such acts, and sign all such deeds and documents, which are required to be done or signed, under the Contract, or otherwise as directed by the Government Representative, to ensure the complete handover of the System and the Services to the Government or a succeeding contractor, or otherwise as may be necessary or desirable to implement or to give legal effect to the provisions of the Contract, and the transactions provided for or contemplated by the Contract including this Clause 45; and

- 45.1.14 all Contractor Personnel shall immediately vacate the Government premises which they were allowed to be stationed or were given access to for performing the Services and surrender all access cards/keys.
- 45.2 Upon a termination of the Contract to the extent it relates to Phase 2 ATMS (“Terminated Services”) (ie Partial Termination) pursuant to Clause 44.2:
- 45.2.1 the provisions in the Contract which concern or relate to the Phase 2 ATMS shall be of no further force and effect, but without prejudice to:
- (a) the Government’s rights and claims under the Contract or otherwise at law against the Contractor arising from antecedent breaches of the Contract by the Contractor;
 - (b) the rights and claims which have accrued to a party prior to the Partial Termination;
 - (c) the continued existence and validity of all remaining provisions of the Contract;
- 45.2.2 the same consequences specified in Clause 45.1 (apart from Clause 45.1.1 and 45.1.4) shall apply save that references to “Termination” shall mean “Partial Termination; references to “Services” shall mean “the Services as they apply to Phase 2 ATMS”, “Contractor Supplied Components” shall mean those for Phase 2 ATMS; and reference to “Clause 44.1” in Clause 45.1.3 shall read Clause 44.2; and
- 45.2.3 references in the Contract to “ATMS” or “System” shall from then on mean Phase 1 ATMS only.

46. Force Majeure

46.1 For the purpose of this Clause, “Force Majeure” means:

- (a) an outbreak of war (whether war be declared or not) affecting Hong Kong ; or
- (b) invasion of Hong Kong ; or
- (c) civil war, rebellion, revolution or military or usurped power in Hong Kong ; or
- (d) riot, commotion or disorder in Hong Kong ; or
- (e) Act of God ; or

System Capacity Requirements

Clause 3.1, Final Specifications:

3.1 The ATMS shall have the following system capacity:

- (a) Accommodate the concurrent operations of 120 controller working positions and supervisor working positions;
- (b) Manage 8,000 flight plans with at least 2,000 of which being active at any one time (active in this context meaning having SSR code assigned and the ATMS will start target-flight plan association once the code is detected by the SDP); and
- (c) Process and display 1,500 targets (surveillance data for aircraft/flight) simultaneously and on a continuous basis.

POTENTIAL SUPPLIER LIST
for
RDPDS/FDPS/SIM

1. [REDACTED] - Name
Director of Business Development
Paramax Systems Corporation
[REDACTED] - Address
Hong Kong
2. [REDACTED] - Name
Director, Marketing
Commands Systems Division
Telephonics Corporation
[REDACTED] - Address
New York 11735
U.S.A.
[REDACTED] - Fax no.
3. [REDACTED] - Name [Personal / Contact Information]
Regional Programs Manager
Westinghouse Air Traffic Control Systems
Westinghouse Electric Corporation
[REDACTED] - Address
U.S.A.
[REDACTED] - Fax no.
4. [REDACTED] - Name
Utilities Group Director
The General Electric Company of Hong Kong Limited
[REDACTED] - Address
Hong Kong
5. [REDACTED] - Name
Managing Director
CANAC Telecom/CN Communications
[REDACTED] - Address
Hong Kong

6. [Redacted] - Name
Managing Director
[Redacted] - Address
Hong Kong
[Redacted] - Fax no.

7. [Redacted] - Name
Sales and Marketing Manager, Far East
Plessey (Far East) Limited
[Redacted] - Address
Hong Kong

8. [Redacted] - Name
Marketing Representative
Air Traffic Control Systems
CAE Electronic Limited
[Redacted] - Address
Canada
[Redacted] - Fax no.

9. [Redacted] - Name
Product Manager, Aviation Division
Swire Engineering Services Limited
[Redacted] - Address
Hong Kong
[Redacted] - Fax no.

10. The Manager
Dodwell Engineering
Electric Division
[Redacted] - Address
Hong Kong

[Personal / Contact Information]

11. [REDACTED] - Name
Raytheon Company
U.S.A.
[REDACTED] - Fax no.

12. [REDACTED] - Name
Director, Project Development
CANAC Telecom/CN Communications
Canada M5J 2N1
[REDACTED] - Fax no.

13. [REDACTED] - Name
Marketing Representative
IBM China/Hong Kong Corporation
[REDACTED] - Address
Hong Kong
[REDACTED] - Fax no.

14. [REDACTED] - Name
Planning and Development
Nisso Iwai Hong Kong Corporation Limited
[REDACTED] - Address
Hong Kong

[Personal / Contact Information]

15. [REDACTED] - Name
Itochu Hong Kong Limited
[REDACTED] - Address
Hong Kong
[REDACTED] - Fax no.

16. [REDACTED] - Name
Senior Director, Air Traffic Management Systems Integration
ARINC Research Corporation
[REDACTED] - Address
Washington D.C. 20024-2711
U.S.A.
[REDACTED] - Fax no.

17. [REDACTED] - Name
Manager Airline Systems
Unisys (Hong Kong) Ltd
[REDACTED] - Fax no.

18. [REDACTED] - Name
Sales and Marketing Executive
GEC-Marconi Air Traffic Systems
United Kingdom
[REDACTED] - Fax no.

19. [REDACTED] - Name
Senior Sales Manager
Air Traffic Management Division
Siemens Plessey Systems
United Kingdom
[REDACTED] - Fax no.

20. [REDACTED] - Name
Marketing Manager
Alenia Commercical Systems
Italy
[REDACTED] - Fax no.

21. [REDACTED] - Name
Manager Airspace Management Systems
[REDACTED] - Address
U.S.A.
[REDACTED] - Fax no.

[Personal / Contact Information]

22. [REDACTED] - Name
Manager
Toshiba Corporation (Hong Kong Office)
Hong Kong
[REDACTED] - Fax no.

23. [REDACTED] - Name
Director
Walton Radar Systems Ltd
U.K.
[REDACTED] - Fax no.

24. [REDACTED] - Name
Strategic Business Development
GTE Government System Corporation
U.S.A.
[REDACTED] - Fax no.

25. [REDACTED] - Name
Manager,
Martin Marietta International Service Corporation
U.S.A.

[REDACTED] - Fax no.

26. [REDACTED] - Name
Vice President
Business Development/Marketing
JEFA International, Inc.
U.S.A.

[REDACTED] - Fax no.

27. [REDACTED] - Name
Oracle Telecomputing Inc.
Canada

[REDACTED] - Fax no.

[Personal / Contact Information]

28. [REDACTED] - Name
Product Manager
INFA Telecom Asia Ltd
Hong Kong

[REDACTED] - Fax no.

29. [REDACTED] - Name
Electronic Data Systems
Central
Hong Kong

[REDACTED] - Fax no.

30. Manger
Technical Division
Jebsen & Co Ltd
Technical Division

[REDACTED] - Address

Hong Kong

[REDACTED] - Fax no.

**Public Accounts Committee
 Consideration of Chapter 4 of the Director of Audit's Report No. 63
 Administration of the air traffic control and related services**

- (a) According to your reply dated 12 January 2015, the Autotrac III systems are currently used by airports in Dubai, as well as in Delhi, Mumbai and Chennai of India. In this connection, please provide the following details of each of the above airports:
- (i) date of acceptance for Autotrac III;
 - (ii) date of commencement of operation for Autotrac III;



- (iii) number of operational controller working positions for the Autotrac III in operation;

Please refer to Appendix I.

- (iv) traffic volumes:

Please refer to Appendix I.

- (v) whether the Autotrac III is currently in operation. If no, the date the system ceased operation and the reasons; and



***Note by Clerk, PAC: Appendix I not attached.**

- (vi) future plans to replace the Autotrac III still in operation



- (b) whether the Civil Aviation Department (“CAD”) had sought comments from the airports in (a) regarding Autotrac III’s performance **prior to the award of the Air Traffic Management System (“ATMS”) contract on 2 Feb 2011?** If yes, please provide the relevant records. If no, please provide the reasons;

The said Dubai and Indian airports had not commenced the operation of Autotrac III systems at the time when CAD awarded the ATMS contract to the system provider in February 2011. As such, CAD had not sought comments from the Dubai and Indian airports prior to the award of the ATMS contract. Moreover, CAD had strictly followed the tender evaluation procedures as laid down in the tender document and sent questionnaires only to those reference sites which were provided by the tenderers to solicit users’ feedback on the tenderers’ systems.

- (c) with reference to the questionnaire(s) on ATMS tender returned from the concerned parties of the reference sites provided by the ATMS ~~Contractors~~ Tenderers (~~Appendix I of R63/4/GEN11~~ refers), please provide, in respect of the relevant reference sites; *Appendix 17*

- (i) the location;

Please refer to Appendix II.

****Note by Clerk, PAC: Appendix II not attached.***

- (ii) model of ATMS;

Please refer to Appendix II.

- (iii) if the model of ATMS is not Autotrac, please explain the usefulness of the information in the questionnaire to assess the performance of the Autotrac III proposed by the Contractor;

CAD sent questionnaires to the reference sites at Germany and Canada provided by the tenderer to solicit users' feedback on technical, operational and stability performance of the tenderer's systems, and tenderer's performance, etc. [REDACTED]

[REDACTED] The two systems are installed with core components of the Autotrac III, namely the Surveillance Data Processing (SDP) and Flight Data Processing (FDP), which are critical core components in ATMS in supporting air traffic control operations. The SDP is used to monitor the location of flights on radar, while the FDP is used to process the flight plans filed by the airlines. The SDP and FDP systems of the Contractor which are the core component systems to Autotrac III have been widely used internationally, including US, Germany, Canada, Dubai, India, etc.

- (iv) the number of operational controller working positions of ATMS; and

Please refer to Appendix II.

- (v) Traffic volumes;

Please refer to Appendix II.

- (d) Whether CAD had requested information from the ATMS Contractor concerning the sale of Autotrac III, such as the details of successful deals and unsuccessful deals, **prior to the award of the ATMS contract on 2 Feb 2011**. If yes, please provide the relevant records. If no, please provide the reasons;

CAD had strictly followed the tender evaluation procedures as laid down in the tender document. Sales records of products developed by the tenderers

***Note by Clerk, PAC: Appendix II not attached.**

do not form part of the technical or price assessment. As such, the TAP did not request such information.

- (e) the name of the supplier of the existing ATMS Autotrac I and any sub-contracting parties together with the sub-systems provided by such sub-contracting parties;

The Government awarded the contract of the existing ATMS Autotrac I to Raytheon in August 1994. In this contract, Ceselsa was nominated by Raytheon as the only sub-contractor responsible for development of the Flight Data Processing and the Simulator sub-systems.

- (f) whether CAD has consulted the Government Logistics Department regarding the acceptance of the Factory Acceptance Tests results conditionally when there was still a large number of outstanding deficiencies/observations? If yes, please provide the relevant papers and correspondences; and

In June 2013, the ATMS service provider had resolved about 90% of the outstanding items related to the Factory Acceptance Test (FAT). The remaining ones were not critical to the technical and operational performance of the ATMS. CAD considered that the system provider had demonstrated that the system was generally compliant with the requirements specified in the Final Specifications of the Contract, and thus considered the FAT result as generally acceptable to CAD. This arrangement was made according to Clauses 2.2 and 2.4.5 of Schedule 6 of the Contract. Moreover, according to the Stores and Procurement Regulations, Controlling Officers are responsible for the management of the contract awarded. Therefore, CAD had not consulted the Government Logistics Department (GLD) on this.

- (g) names of the Chairperson and members of the Tender Assessment Panel for evaluating the ATMS tender together with their curricula vitae, if available.

Please refer to Appendix III.

Encl.

* * * * *

***Note by Clerk, PAC:** *Appendix III not attached.*

(I) Reply to PAC Letter Dated 30 March 2015

- (a) with reference to Item (f) of the Attachment to your reply dated 25 March 2015 (GEN 20), a further breakdown **by year** from 2013 the extra costs incurred to ensure the continued safe and efficient operation of the **existing Air Traffic Management System** (“ATMS”) (including upgrading and maintenance works, such as stocking specialized spare parts and software maintenance for the existing system) and extra manpower expenditure required for operating the **existing ATMS**, arising from the late delivery of the new ATMS contract project;

The average annual expenditure on system maintenance of the existing ATMS in 2013 and 2014 was \$5.9M. This has included a one-off enhancement measure for the existing ATMS conducted in 2014 to enhance the system’s capability to handle the increasing volume of air traffic to ensure its safe and reliable operations.

The average annual manpower cost to maintain the operation of the existing ATMS was around \$9.5M in 2013 and 2014. Such manpower cost would be incurred in any case for operating the existing ATMS, or for the new ATMS upon its commissioning.

A detailed breakdown of the cost incurred is at *Appendix I* (see attached).

- (b) with reference to the dedicated project team set up by the Civil Aviation Department (“CAD”) to oversee the preparation and implementation of the new CAD headquarters project and the new Air Traffic Contract (“ATC”) system (paragraph of 1.6 of the Audit Report refers), please provide:

- (i) composition of the dedicated project team;
- (ii) manpower situation and expenditure involved from 2007 up to now. Please set out the details by year;

Reply to (i) – (ii):

For the implementation of the new CAD headquarters project and the ATC system replacement project, an Assistant Director-General of Civil Aviation (ADGCA) post was established on 1 October 2007 to head a dedicated Project Team, following the approval from the Finance Committee of the Legislative Council in May 2007. The post has lapsed in March 2013. The supervision and implementation work of the ATC system replacement project has since been undertaken by an ADGCA in addition to his duties.

The Project Team is supported by 7 civil service posts created on a time-limited basis and other serving CAD officers through internal redeployment, as well as officers appointed on time-limited non-civil service contract (NCSC) terms. In addition, a Senior Architect and a Senior Electrical and Mechanical Engineer were temporarily seconded from the Architectural Services Department and the Electrical and Mechanical Services Department respectively to support the Project Team with their professional advice. The total number of staff in the Project Team varied at different stages of the project. As the project progresses, the Project Team has gradually reduced its staff complement. As at April 2015, the Project Team has 24 members.

Details of the manpower situation and expenditure of the Project Team for involving in the CAD headquarters project and ATC system replacement project from 2007/08 financial year are set out in the table below.

Manpower situation and expenditure for the Project Team involving in the CAD HQs project and ATC system replacement project		
Year	Manpower	Expenditure (\$M)
2007/08	25	11.9
2008/09	38	33.8
2009/10	39	40.7
2010/11	45	41.7
2011/12	49	46.1
2012/13	40	38.5
2013/14	34	28.5
2014/15	31	29.1
As at April 2015	24	N/A

- (iii) whether extra manpower expenditure was incurred as a result of the delay in the implementation of the ATMS contract;
- (iv) if yes, the amount involved, and whether this amount is included in calculating the extra cost incurred in Item (a) above; and

Reply to (iii) – (iv):

The completion date for the new ATMS as stated in the contract signed with the ATMS Contractor was December 2013. The manpower cost for the Project Team from January 2014 to end March 2015 was \$23.3 million. The figure includes the manpower cost for time-limited posts and NCSC staff. No additional expenses were incurred for redeploying existing staff of CAD to work on the ATC system replacement project.

As the Project Team did not participate in the maintenance and operation of the existing ATMS, the manpower cost set out here is not included in the amount of costs set out in item (a) above.

- (v) whether the project team had submitted report(s) regarding the delay in the implementation of the ATMS contract. If yes, please provide the details and CAD's response and follow-up actions, if any;

The Project Team provides periodic reports on the progress of the ATC system replacement project to the CAD's senior management, who have been closely monitoring the project progress and providing guidance and directives to the Project Team through regular and ad-hoc meetings, high-level management meetings and new ATC system transition meetings, etc.

To monitor the progress of the ATMS contract work, and to expedite the completion of the project, CAD has required the Contractor to deploy more resources for the implementation of the project. A number of enhancement measures as follows have been adopted –

(1) A steering committee, chaired by the Deputy Director-General of Civil Aviation, was established in April 2013 to enhance monitoring of the progress of the ATMS project and to give timely instructions on key issues as well as channeling necessary resources to the project;

(2) Ad-hoc meetings were held between the Director / Deputy Director-General of Civil Aviation / Assistant Director-General of Civil Aviation and the contractor's senior management in Hong Kong in November 2013; May, August and October 2014; and March 2015. At the meetings, CAD requested the contractor to take all possible measures to minimise the delay of the project, including the deployment of additional resources and personnel with relevant experience, settling outstanding issues of the ATMS as early as possible, and submitting a practicable implementation plan for the project;

(3) weekly teleconferences are conducted between the subject ADGCA and Chief Electronics Engineer and the contractor's senior management since early 2014, with a view to reviewing the project progress, adjusting work priorities and human resources, etc, to tackle the major issues in a timely manner, and enhance communication and collaboration between the two sides; and

(4) as per CAD's request, the Contractor's project management and professional personnel visited Hong Kong on several occasions since early 2014 to discuss with CAD staff the outstanding issues of the ATMS. The expert project team of the Contractor was deployed to Hong Kong for four weeks between April and May 2014 to expedite the completion of the site acceptance test. The Contractor has deployed professional personnel to Hong Kong to work with the CAD at different implementation phases of the project.

There has been positive response from the ATMS Contractor, and enhancement measures have been taken in the implementation of the ATC system replacement project, including deployment of more resources, and solid progress has been made (details are set out in item (d) below).

- (c) the updated figures on the outstanding deficiencies/observations of the ATMS system and whether all the deficiencies/observations recorded during the Factory Acceptance Tests have been addressed;

All the 204 deficiencies/observations recorded during the Factory Acceptance Test conducted in June – July 2012 have been rectified by the ATMS Contractor. Of the 1,000 follow-up items recorded on site during the Site Acceptance Test conducted in August – November 2014, about 80% of them are minor in nature and would not affect the safety and the commencement of operation of the ATMS. For the remaining 20% priority items, around 90% have already been

rectified/addressed. The remaining ones are expected to be ready for verification by mid-2015.

- (d) the basis for having confidence that the new ATC system would be ready for operation in first half of 2016; and

With additional resources from the ATMS Contractor devoted to the project, progress has been made by the ATMS Contractor in rectifying the outstanding deficiencies/observations of the new ATMS. All the deficiencies/observations recorded during the Factory Acceptance Test have been rectified by the ATMS Contractor. Separately, around 90% of the priority items identified during the Site Acceptance Test have been rectified/addressed. The remaining ones are expected to be ready for verification by mid-2015. In addition, simulation training for ATCOs has commenced early this year.

Given the latest progress of the new ATMS, we expect completing all the acceptance test events of the new ATMS by Q3 2015, followed by full-fledged training for ATCOs. Upon completion of training, the new ATC Centre will commence operation. In view of the development above, we are confident that the new ATC Centre will be ready for operation in the first half of 2016.

- (e) according to paragraph 1.8 of the Audit Report, under the Government's "user pays" principle, the amortized capital cost and the recurrent cost for providing ATC services are recovered through ATC service charges and en-route navigation charges. In this connection, how can CAD ensure that the Government's "user pays" principle is followed when determining the ATC service charges and en-route navigation charges and whether the capital cost of the new ATC system should be borne by present users or future users as only the latter group of users could directly benefit from the new system.

There is established Government-wide mechanism for the regular review of government fees and charges. CAD follows strictly the stipulated procedures promulgated by the Financial Services and Treasury Bureau (FSTB) in the regular fee review with a view to ensuring that the “user pays” principle is followed when determining the ATC service charges and the en-route navigation charges. CAD strictly follows the Costing Manual published by the Director of Accounting Services in preparing and vetting the costing statements for the fee reviews on the ATC service charges and the en-route navigation charges and, where necessary, seeks the advice from FSTB and/or Department of Justice on the basis for including the relevant costs and imposing the revised charges on the users.

(II) Reply to PAC Letter Dated 1 April 2015

To facilitate the Committee’s consideration of the above chapter of the Director of Audit’s Report No. 63, I should be grateful if you could advise whether the Civil Aviation Department and/or other relevant parties, such as the Government Logistics Department, was/were aware of any articles/reports in the media concerning the performance of Autotrac III at airports in Delhi, Mumbai or Chennai of India prior to the award of the Air Traffic Management System contract in February 2011. If yes, please provide the relevant details and records.

We understand that the Indian newspapers referred to at the PAC meeting were media reports of 2010 related to the performance of Autotrac III systems at the Indian airports. According to the Airport Authority of India, the Autotrac III systems at the Indian airports, namely Delhi, Mumbai and Chennai, only commenced operations from July – September 2011. According to our record, we had not received any media reports in the Indian newspapers as mentioned before the award of the ATMS contract in February 2011.

Encl.

Appendix I

* * * * *

Costs incurred for annual maintenance of AT1**System maintenance of the existing AT1:**

Year	Manpower for enhanced maintenance on AT1 (due to approaching end of operational life of AT1) (\$M)	Procurement of specialised spares / repair for AT1 (\$M)	Software maintenance for AT1 (\$M)	Total (\$M)
2013	0.32	2.74	4.99	8.05
2014	0.46	1.61	1.59	3.66
Average of 2013 and 2014	0.39	2.18	3.29	5.86

Average total expenditure for annual maintenance of AT1 was **\$5.86M**.

APPENDIX 20

電話 Telephone : (852) 2231 5226
圖文傳真 Fax : (852) 2116 5225
電郵地址 E-mail :
互聯網網址 Internet Home Page :
http://www.gld.gov.hk
本署檔號 Our Ref. : GLD PA(R)/4-35/3
來函檔號 Your Ref. : CB4/PAC/R63



政府物流服務署

香港北角渣華道 333 號

北角政府合署 10 樓

GOVERNMENT LOGISTICS DEPARTMENT

10th Floor, North Point Government Offices

333 Java Road, North Point, Hong Kong

15 April 2015

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

Dear Mr Chu,

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the air traffic control and related services

I refer to your letters dated 30 March and 1 April 2015 regarding the procurement of the Air Traffic Management System ("ATMS"). The required information is provided below.

(1) Records on Drafting of Clause 8.4 of the Conditions of Tender

According to the Stores and Procurement Regulations of the Government ("Regulations"), if a goods or services contract has an estimated value exceeding \$100 million, the department must send the tender documents to the Department of Justice ("DoJ") for vetting before the issue of the tender. The Government Logistics Department ("GLD") will also vet the tender documents from the perspective of good procurement practice.

The Civil Aviation Department ("CAD") sent the first version of the tender documents for the ATMS ("first version") to DoJ and GLD for vetting via its email dated 13 May 2009 in accordance with the above requirements of the Regulations. The last sentence of Clause 8.4 of the first version is "A proposed System with no proven performance (that meet the requirements in the Specifications) will not be considered further." (at Annex I).

According to our record, DoJ's comments on and proposed amendments to CAD's first version were issued via its email dated 12 June 2009. Paragraph 5 of that email concerns DoJ's comments on Clause 8 of the first version (at Annex II). In that paragraph, DoJ requested CAD to confirm whether in accordance with the mandatory requirements of Appendix B of the first version, it was not necessary for a tenderer to have experience in supplying and installing air traffic management system which was the same model as the one proposed for that tendering exercise. DoJ also pointed out that the last sentence of Clause 8.4 of the first version, "A proposed System with no proven performance (that meet the requirements in the Specifications) will not be considered further.", appeared slightly clumsy. DoJ suggested that in deciding whether the wording in the brackets was needed, CAD should consider whether the product literature and the statement of compliance provided by a tenderer would be sufficient to prove that the system complied with the specifications, and whether the system must have been used elsewhere before it could be accepted.

According to our record, CAD responded via its email dated 24 June 2009 to DoJ's comments on and proposed amendments to the first version (at Annex III). In response to DoJ's advice on Clause 8 above, CAD agreed that the reference to the same model be removed from Clause 8, to be consistent with the mandatory requirements in Appendix B, and agreed with DoJ's proposed wording on Clause 8.4 for amending the last sentence as "A proposed System with no proven performance records will not be considered further."

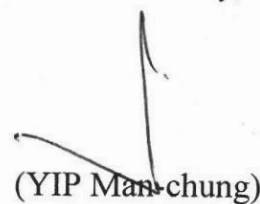
According to our record, GLD had not commented on or proposed amendments to Clause 8 of the first version.

(2) Reports on the Use of Autotrac III in Indian Airports

According to our record, GLD had not received any information or document concerning reports on the use of Autotrac III in Indian airports before the award of the said ATMS contract in February 2011.

On 15 March 2011, GLD replied to an unsuccessful tenderer's letter dated 4 March 2011 (at Annex IV). Paragraph 5.4 of our letter was in response to that unsuccessful tenderer's comments on the newspaper cuttings about the problems on the use of Autotrac III in Indian airports. GLD had consulted CAD and DoJ on the responses to the letter before replying to that unsuccessful tenderer.

Yours sincerely,

A handwritten signature in black ink, appearing to read "YIP Man-chung". The signature is written in a cursive style with a long vertical stroke extending downwards.


(YIP Man-chung)

for Director of Government Logistics

Encl.

- c.c. Secretary for Transport and Housing (fax no.: 2523 9187)
Director-General of Civil Aviation (fax no.: 2910 6384)
Secretary for Financial Services and the Treasury (fax no.: 2147 5239)
Director of Audit (fax no.: 2583 9063)



ATMS tender document (Version 1) (1 of 4 files) 

Ronald WC Wong to: Sandra PY TSANG, Joe WC WONG,
cd@doj.gov.hk

13/05/09 21:57

Cc: Ronald WC Wong

From: Ronald WC Wong/CAD/HKSARG@CAD
To: Sandra PY TSANG/GLD/HKSARG@GLD, Joe WC WONG/GLD/HKSARG@GLD,
cd@doj.gov.hk
Cc: Ronald WC Wong/CAD/HKSARG@CAD

Dear Joe, Sandra and Denise

Please find attached the updated ATMS tender document (version 1)
for your appropriate action

copy all 4 zip files in 1 folder before unzip or read

call me if you have any questions, thanks much

Ron Wong
EE(13), AESD Projects Section
CAD, 3/F Dragonair House,
11 Tung Fai Rd, HKIA
TEL: (852) 2591 5051
FAX: (852) 2845 7160
rwcwong@cad.gov.hk



ATMS tender Parts I to VI and VIII GLD - (version 1).zip

PART II

CONDITIONS OF TENDER

CONTENT

1. Tender Documents
2. Invitation to Tender and Scope of Work
3. Two Envelopes System in Submission of Tenders
4. Compilation of the Tender
5. Completion of Tender
6. Information and Descriptive Literature
7. Company/Business Organisation Status
8. Track Records
9. Particulars of Offer
10. Qualifications
11. Manufacturer Undertaking
12. Not Used
13. Offer of Products
14. Staff and Sub-contractors
15. Quotation
16. Accuracy of Tender Prices
17. Tender to Remain Open
18. Tenderer's Commitment
19. Tenderer's Counter-Proposal
20. Alternative Proposals
21. Communication with the Government
22. Tenderer's Enquiry
23. Tenderer's Response to Government Enquiries
24. Evaluation Criteria and Marking Scheme
25. Performance Bond and Guarantee
26. Negotiations
27. Award of Contract

28. Formation of Contract
29. Government Discretion
30. New Information Relevant to Qualified Status
31. Contractor Performance Monitoring
32. Cost of Tender
33. Personal Data Provided
34. Consent to Disclosure
35. Intellectual Property Rights License
36. Warning Against Bribery
37. Supplementary Information
38. Immigration
39. Site Survey
40. Documents of Unsuccessful Tenderers
41. Complaints About Tendering Process or Contract Awards
42. Environmental Protection

Appendices

- Appendix A – Guidance Note GN-1
- Appendix B – List of Mandatory Requirements
- Appendix C – Evaluation Criteria and Marking Scheme for Selected Essential Specifications
- Appendix D – Evaluation Criteria and Marking Scheme for Desirable Specifications

~~8.3 In addition to the details required in Clause 8.1, the Tenderer shall provide documentary evidence to demonstrate its technical expertise and working experience in performing the installation, testing and commissioning of the proposed System, particularly with the local on-site work experience in a multi-contractor environment to control, monitor and manage the contractors' work and activities.~~

8.4 The Government may, and is hereby authorized by the Tenderer to, contact any of the users details of which are provided pursuant to Clause 8.1 or 8.3 above or otherwise request a reference and such supplementary information either from the Tenderer or from the users as is considered necessary or desirable by the Government. In the event that the reference from a user indicates the System proposed cannot meet with the requirements in the Specifications, the Tenderer shall provide explanation and new user reference to prove the performance of the proposed System. **A proposed System with no proven performance (that meet the requirements in the Specifications) will not be considered further.**

~~8.5 Details of experience to be provided in accordance with Clause 8 shall demonstrate that the Tenderer fulfils the mandatory requirement specified in Item 3 of Appendix B hereto. There are explanatory notes below item 3 which further elaborate on what experience will and will not be accepted for the purpose of determining whether the mandatory requirement has been fulfilled. The Tenderer is reminded to pay careful attention to the mandatory requirement and the notes when preparing and collating the details of experience to be submitted.~~

Extracts of e-mail dated 12.6.2009 from DoJ to CAD and GLD on Clause 8 of the Conditions of Tender

5. Provision of Track Records (Clause 8)

5.1 Under the mandatory requirement concerning experience in Appendix B, it appears it is not necessary for the Tenderer to have experience in "supplying and installing" air traffic management system which is the same model as the one proposed for the present tendering exercise. The requirement being that so long it has 10 years' experience in the last 15 years preceding the Tender Closing Date with "supplying and installing" of any model of ATMS, subject further to the requirements in the second sub-paragraph of the mandatory requirement, this would be sufficient. Please confirm.

~~5.2 On this basis, under clause 8 of COT, the Tenderer is required to submit two types of records:~~

- ~~a. one set of records which shows that it complies with the mandatory requirement concerning experience;~~
- ~~b. another set of records which shows that the system proposed for the present tendering exercise has been supplied and installed at other air traffic control centres.~~

5.3 The bold wording in clause 8.4 appears slightly clumsy. Please consider the question underneath the text.

PART II

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25. Performance Bond and Guarantee
26. Negotiations

Tender Ref. : PT/0000/2009
File Ref. : A0000002009

- 27. Award of Contract
- 28. Formation of Contract
- 29. Government Discretion
- 30. New Information Relevant to Qualified Status
- 31. Contractor Performance Monitoring
- 32. Cost of Tender
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- 34. Consent to Disclosure
- 35. Intellectual Property Rights License
- 36. Warning Against Bribery
- 37. Supplementary Information
- 38. Immigration
- 39. Withholding Tax
- ~~39-40.~~ Site Survey
- ~~40-41.~~ Documents of Unsuccessful Tenderers
- 42. Complaints About Tendering Process or Contract Awards
- 43. Environmental Protection

格式化: 縮排: 左: 2.04 公分

格式化: 項目符號及編號

格式化: 項目符號及編號

格式化: 編號 + 階層: 1 + 編號樣式:
1, 2, 3, ... + 起始號碼: 33 + 對齊方
式: 左 + 對齊: 2.04 公分 + 定位點
之後: 3.31 公分 + 縮排: 3.31 公分,
定位停駐點: 8.5 字元, 左 + 不在
8.52 字元

格式化: 英文 (美國)

Appendices

- Appendix A – Guidance Note GN-1
- Appendix B – List of Mandatory Requirements
- Appendix C – Evaluation Criteria and Marking Scheme for Selected Essential Specifications
- Appendix D – Evaluation Criteria and Marking Scheme for Desirable Specifications

- ~~operational site; and~~
- (k) ~~date of de-commissioning, if applicable.~~
- 8.2 Fact verification visits to the factor(ies) and operational site(s) of each Tenderer who has passed Stage 2 evaluation in Clause 24.1 may be required so as to enable the Government to inspect the operational equipment as proposed in its tender. In this regard, Tenderers should specify in the tenders the locations of the factor(ies) and operational site(s) recommended for the visits by the Government during the evaluation exercise.
- 8.3 In addition to the details required in Clause 8.1, the Tenderer shall provide documentary evidence to demonstrate its technical expertise and working experience in performing the installation, and testing and commissioning of the proposed System, particularly with the local on-site work experience in a multi-contractor environment to control, monitor and manage the contractors' work and activities.
- 8.4 The Government may, and is hereby authorized by the Tenderer to, contact any of the users details of which are provided by the Tenderer pursuant to Clause 8.1 or 8.3 above, or The Government also reserves the right to request additional otherwise request a references and such other supplementary information either from the Tenderer or from the users as is considered necessary or desirable by the Government. In the event that the reference from a user indicates the System proposed cannot meet with the requirements in the Specifications, the Tenderer shall provide explanation and new user reference to prove the performance of the proposed System. **A proposed System with no proven performance records [which evidence that it (that meets the requirements in the Specifications)] will not be considered further.**
[Do]: Are you saying product literature and statement of compliance are not sufficient to prove that the System complies with the Specifications. But not all requirements the compliance with which can be proven by performance record. Or are you saying that the System must be used elsewhere before it can be accepted under the Contract? If yes, the words in square brackets are not necessary.]
- 8.5 ~~Details of experience to be provided in accordance with Clause 8 shall demonstrate that the Tenderer fulfils the mandatory requirement specified in Item 3 of Appendix B hereto. There are explanatory notes below item 3 which further elaborate on what experience will and will not be accepted for the purpose of determining whether the mandatory requirement has been fulfilled. The Tenderer is reminded to pay careful attention to the mandatory requirement and the notes when preparing and collating the details of experience to be submitted.~~

Extracts of e-mail dated 24.6.2009 from CAD to DoJ in response to DoJ's comments on Clause 8 of the Conditions of Tender

5. Provision of Track Records (Clause 8)

5.1 Under the mandatory requirement concerning experience in Appendix B, it appears it is not necessary for the Tenderer to have experience in "supplying and installing" air traffic management system which is the same model as the one proposed for the present tendering exercise. The requirement being that so long it has 10 years' experience in the last 15 years preceding the Tender Closing Date with "supplying and installing" of any model of ATMS, subject further to the requirements in the second sub-paragraph of the mandatory requirement, this would be sufficient. Please confirm.

[CAD: I have removed from Clause 8 the reference to "same or equivalent model/type" to be consistent with the mandatory requirement in Appendix B, and also realizing that same or equivalent model would be very difficult to qualify]

~~5.2 On this basis, under clause 8 of CoT, the Tenderer is required to submit two types of records:~~

- ~~a. one set of records which shows that it complies with the mandatory requirement concerning experience;~~
- ~~b. another set of records which shows that the system proposed for the present tendering exercise has been supplied and installed at other air traffic control centres.~~

~~[CAD: due to the change above, only 1 type of record is required to be submitted, reflected in CoT Clause 8.1 and Schedule 3A]~~

5.3 The bold wording in clause 8.4 appears slightly clumsy. Please consider the question underneath the text.

[CAD: your suggested wordings are accepted]

Tender Ref. : PT/0000/2009
File Ref. : A0000002009

PART II
CONDITIONS OF TENDER

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Tender Ref. : PT/0000/2009
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Appendices

- Appendix A – Guidance Note GN-1
- Appendix B – List of Mandatory Requirements
- Appendix C – Evaluation Criteria and Marking Scheme for Selected Essential Specifications
- Appendix D – Evaluation Criteria and Marking Scheme for Desirable Specifications

格式化: 非醒目提示

- ~~(k) date of de-commissioning, if applicable.~~
- 8.2 Fact verification visits to the factor(ies) and operational site(s) of each Tenderer who has passed Stage 2 evaluation in Clause 24.1 may be required so as to enable the Government to inspect the operational equipment as proposed in its tender. In this regard, Tenderers should specify in the tenders the locations of the factor(ies) and operational site(s) recommended for the visits by the Government during the evaluation exercise.
- 8.3 In addition to the details required in Clause 8.1, the Tenderer shall provide documentary evidence to demonstrate its technical expertise and working experience in performing the installation and testing and commissioning of the proposed System, particularly with the local on-site work experience in a multi-contractor environment to control, monitor and manage the contractors' work and activities.
- 8.4 The Government may, and is hereby authorized by the Tenderer to, contact any of the users details of which are provided by the Tenderer. The Government also reserves the right to request additional pursuant to Clause 8.1 or 8.3 above or otherwise request a references and such other supplementary information either from the Tenderer or from the users as is considered necessary or desirable by the Government. In the event that the reference from a user indicates the System proposed cannot meet with the requirements in the Specifications, the Tenderer shall provide explanation and new user reference to prove the performance of the proposed System. **A proposed System with no proven performance records (that meet the requirements in the Specifications) will not be considered further.**
- ~~8.5 Details of experience to be provided in accordance with Clause 8 shall demonstrate that the Tenderer fulfils the mandatory requirement specified in Item 3 of Appendix B hereto. There are explanatory notes below item 3 which further elaborate on what experience will and will not be accepted for the purpose of determining whether the mandatory requirement has been fulfilled. The Tenderer is reminded to pay careful attention to the mandatory requirement and the notes when preparing and collating the details of experience to be submitted.~~

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GOVERNMENT LOGISTICS DEPARTMENT
 10th Floor, North Point Government Offices
 333 Java Road, North Point, Hong Kong

[REDACTED] Tenderer E

15 March 2011
BY FAX

Fax No.: [REDACTED]

Dear Sirs,

Tender Ref.: PT/0230/2009 (A1310422009)
**Invitation to Tender for the Supply of Air Traffic Management System
 and the Provision of Related Services for the Civil Aviation Department**

~~We refer to your letter of 4 March 2011 concerning the captioned invitation to tender. Our answers to your queries are set out below.~~

~~2. Terms and expressions appearing herein have the meanings given to them in the Tender Documents issued by the Government in relation to the captioned invitation to tender.~~

~~3. **Change in proposal from [REDACTED] Tenderer B**~~

~~3.1 The Government of the Hong Kong Special Administrative Region ("Government") is committed to ensuring the fairness and procedural propriety of its tender exercises. All tender offers, including those for the captioned tender exercise, have to be evaluated in strict accordance with the evaluation procedures set out in the relevant Tender Documents issued by the Government as well as the requirements of the Agreement on Government Procurement of the World Trade Organization (WTO GPA) where the WTO GPA is applicable to the tender exercises.~~

~~3.2 In this case, Government handled the tenders received strictly in accordance with the Tender Documents, and the requirements of WTO GPA. Specifically, we confirm that no Tenderer was allowed to change its tender proposal in the evaluation process. We repeat that the successful Tenderer did not make any counter-proposal to the essential specifications.~~

~~4. **The requirement in clause 8.4 of the Conditions of Tender in Part II of the Tender Documents (Part II) that "A proposed System with no proven performance record will not be considered further"**~~

~~4.1 Please be explained that reference to a "proposed System" in clause 8.4 of Part~~

~~It refers to each sub-component of the System in the context of this clause. You would note that ATMS (or System) is an umbrella term comprising many sub-system components with different functions as specified in Clause 4 of the Specifications for the Air Traffic Management System in Part VII of the Tender Documents.~~

4.2 The major sub-system components of the System i.e. SDP and FDP offered by the successful Tenderer has a proven performance record as evidenced by the reference site information provided by the successful Tenderer in compliance with clause 8.2 of Part II. Please refer to paragraph 5.3 below for examples. These reference sites were requested just in case if Government considered there was a need to verify compliance with the essential specifications under Stage 3 evaluation as mentioned in clause 24 of Part II (please see sub-clauses (b) and (c) under the sub-heading of “Stage 3 – Assessment of Compliance with the Essential Specifications” in clause 24 and also clauses 8.2 and 8.4 of Part II). You would note that Government did make inspection visits to the factory sites of all tenderers which passed the Stage 2 evaluation for this purpose. On this basis, the words “proven performance record” at the end of clause 8.4 should be read and understood in this context, viz site references which can prove that the proposed sub-system which forms part of the offered System can meet the relevant essential specifications applicable to it. This intention of Government is confirmed by the second last sentence which reads “In the event that the reference from a user indicates **the System proposed cannot meet with the requirements in the Specifications**, the Tenderer shall provide explanations and a new user reference **to prove the performance of the proposed System.**” Hence the last sentence, “A proposed System with no proven performance record will not be considered further”, should be read together with the afore-mentioned preceding sentence, but not on its own.

4.3 In addition, please be clarified that this “proven performance record” requirement is separate and independent from the mandatory requirements in items 3 and 4 of Appendix B to the Part II. The more detailed requirements on track record which must be possessed by the Tenderer (or its proposed Sub-contractor for the mandatory requirement in item 4) are all set out in Appendix B items 3 and 4. Please also be clarified that it is very clear from the wording in items 3 and 4 that there is no requirement that the air traffic management system referred to in item 3 or the fallback system referred to in item 4 must be exactly the same as the System offered by the Tenderer. Based on the same reason, it is possible that the reference sites provided by the Tenderer for the purposes of demonstrating that it fulfils the requirements in items 3 and 4 of Appendix B can be different from the reference sites mentioned in clause 8.2 of Part II.

4.4 Indeed, it is neither the user requirement nor the intention of Government as stated in the Tender Documents that the offered System **as a whole** in exactly the same composition and technologies must have been used elsewhere. This threshold would have been too high, unrealistic and would also deprive Government the opportunity to procure newer and more advanced technologies. You would note that a fair amount of customisation must also be required to ensure an air traffic management system complies with a user’s requirements which are unique to that user. Furthermore, Government ~~would have the right to opt for newer technologies after award of the Contract under~~

~~Clause 9 of the Conditions of Contract in Part IV of the Tender Documents. If Government insists that the offered System as a whole must have been used previously, Government would not have put in this option in Clause 9. Truly, what Government insists is that the Tenderer must have sufficient track records in the provision of air traffic management system, but not that the proposed System in exactly the same make-up must have been used elsewhere. We are satisfied that the successful Tenderer qualifies for such requirements.~~

4.5 The above is our further explanation on Government's user requirements as stated in the Tender Documents including clause 8, and items 3 and 4 of Appendix B to Part II. **Government's user requirement** as stated in the last sentence of clause 8.4 of Part II should be read and understood in the context as mentioned above.

5. **Comments on the AutoTrac III system**

5.1 The major sub-system components of AutoTrac III have been in operation world-wide. As mentioned above, the FDP sub-system that the AutoTrac III FDP is based on has been in operation in 7 Area Control Centres across Canada with the first commissioned more than 5 years ago. The SDP sub-system that the AutoTrac III SDP is founded on is operational in the USA Standard Terminal Automation Replacement System (STARS) and EnRoute Automation Modernization (ERAM) programmes. As mentioned above, these reference sites were only required for the purposes of the inspection visit to verify the proposed System's compliance with the essential specifications, which Government has a right, but not an obligation, to conduct.

5.2 As explained above, the words "performance record" should be understood in the context of record showing compliance with the essential specifications, but not the performance record for the purposes of proving compliance with the mandatory requirements specified in items 3 and 4 of Appendix B.

5.3 In any event, apart from the above reference sites, we would also draw your attention to the fact that a version of AutoTrac III system (comprising both FDP and SDP sub-systems similar to the technologies of the proposed System offered by the successful Tenderer) has been delivered and accepted by the Airports Authority of India in December 2008 and in shadow operation in 2010 at the airports in Delhi and Mumbai (viz around the ~~time when the tenders were evaluated for the captioned tendering exercise).~~

5.4 You have attached to your letter certain reports on the problems encountered by Indian airports concerning AutoTrac III. As you would appreciate, the success of a project depends on many factors. The problems reported in the Indian local news and the Internet sites of India (even if accurate) might not have been caused by intrinsic problems of Auto Trac III. At the time of tender evaluation stage, there was no official information about AutoTrac III system outage from the Airports Authority of India or any other accredited channels. As explained above, based on the factory sites inspection visit, Government is satisfied that the System proposed by the successful Tenderer complies with all the essential specifications; and inspection visit to the reference site at Delhi and Mumbai was considered unnecessary. In devising the user requirements for this

Invitation to Tender, Government took into account the risk related matters and included stringent user requirements in the system architecture design, project management, detailed design review, training, acceptance test and maintenance, safety and quality assurance and so on. You would note that these stringent user requirements were the joint efforts of our engineering and air traffic control staff.

~~6. Article XIII(4)(a) of the WTO GPA~~

6.1 The offers received in this tender exercise were evaluated in strict accordance with the evaluation procedures set out in the Tender Documents. The offer from Tenderer B [REDACTED] complies fully with all the mandatory requirements and essential specifications and achieves the highest combined score under the marking scheme in the Tender Documents. As explained in paragraphs 4 and 5 above, Government is satisfied that the proposed System complies with all the essential specifications. The award of the Contract to [REDACTED] is WTO GPA-compliant and a re-tendering exercise is considered not necessary and unfair to the successful Tenderer.

7. Thank you again for participation in this tender exercise. We understand and fully appreciate that you have put in efforts in preparing the tender. However, at the end of the day, there could only be one winning Tenderer after an evaluation based on the marking scheme set out in the Tender Documents. We genuinely hope that you find our further clarification helpful in answering your queries. In light of our explanations provided above, you may wish to reassess the necessity of pursuing your complaints further. Please let us know if you wish to have further explanation concerning Government's user requirements as stated in the Tender Documents.

Yours faithfully,



(YIP Man-chung)

for Director of Government Logistics

c.c. Director - General of Civil Aviation
(Attn.: Mr Peter YEUNG)
Fax No.: 852 2845 7160



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CIVIL AVIATION
DEPARTMENT

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15 May 2015

Clerk to the Public Accounts Committee
Legislative Council
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong
(Attn: Mr Anthony CHU)

Dear Mr CHU,

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the Air Traffic Control and Related Services

Thank you for your letter (Ref. CB4/PAC/R63) dated 11 May 2015.

With regard to the 28 July 2010 incident mentioned in your letter, we have no information of the circumstances, technical analysis or rectification of the said incident at New Delhi Airport. For any complex and large-scale system such as Air Traffic Management System (ATMS), even using the same system from the same manufacturer, there could be many causes, including causal factors attributable to external systems or human factors, leading to an apparently similar phenomenon. The new ATMS in Hong Kong is different with the installation in New Delhi in terms of system complexity, configuration, adaptation, and interfaces with other ATC systems adjacent to Hong Kong. Without being privy to the ATMS system at New Delhi Airport or details of the incident, we are unable to confirm if observations of similar nature of failure had occurred during the testing of our new ATMS, nor are we in a position to draw a comparison between a reported incident at other airports around the world and any of the observations recorded during a particular test event of the new ATMS in Hong Kong. Our recorded observations could be specific to the Hong Kong System.

As the cause of failure of our system during test could be different from the New Delhi incident, we could not draw a conclusion that they were similar incidents. The momentary loss of targets for about 10 seconds occurring in late September 2014 had been positively identified and subsequently rectified in November 2014 with no recurrence since then, we therefore did not advise the PAC during the public hearing on 28 March 2015.

For the kind consideration by the Chairman and members of PAC please.

致力於安全、有效率及可持續發展的航空運輸系統
Committed to a Safe, Efficient and Sustainable Air Transport System

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Simon Li', with a stylized flourish at the end.

(Simon Li)

for Director-General of Civil Aviation

Encl.

c.c. Secretary for Transport and Housing (Attn: Ms Monica Chen)
Director of Government Logistics (Attn: Mr M C Yip)

ATMS Tender Evaluation Conducted by Tender Assessment Panel (TAP)

Evaluation Stage	Name of Stage (Time Period)	(i) Corresponding Clauses in Tender Document	(ii) Activities Conducted by TAP
Stage 1	Completeness Check (3 Mar - 18 Mar 2010)	(a) Principal provision: “Stage 1 – Completeness Check” in Clause 24.1 of Part II – Conditions of Tender (CoT) (b) Reference provisions: <ul style="list-style-type: none"> ● Part I – Lodging of Tender ● the last sentence in bold in Clause 5.8 and Clause 17 of Part II – Conditions of Tender ● Part VI – Offer to be Bound 	This stage assessed completeness of the tenders and compliance with procedural requirements for tender submission. Prior to tender assessment, all TAP members had declared nil conflict of interest (actual, potential or perceived) and undertook not to disclose the tender information by signing a declaration and undertaking according to the Stores and Procurement Regulations (SPR). Each tender return was assessed by the TAP in accordance with the relevant provisions and evaluation criteria set out in the tender document. The TAP had consulted GLD on the procedures to handle some documentation issues. Following the assessment by TAP, a meeting between TAP and GLD was held to review the assessment results to ensure compliance with tender conditions and tender procedures. All tenders passed Stage 1 assessment and TAP proceeded to Stage 2 assessment.

Evaluation Stage	Name of Stage (Time Period)	(i) Corresponding Clauses in Tender Document	(ii) Activities Conducted by TAP
Stage 2	Assessment of Compliance with Mandatory Requirements (19 Mar - 5 May 2010)	(a) Principal provision: “Stage 2 - Assessment of Compliance with Mandatory Requirements” of Clause 24.1 of Part II – Conditions of Tender (CoT) (b) Reference provisions: <ul style="list-style-type: none"> ● Clauses 5.4, 8.1, 8.3, 8.5 and Clause 14.2 of Part II – Conditions of Tender ● Appendix B to Part II – Conditions of Tender ● Schedules 3A, 4 and 14 in Part V – Schedules 	This stage assessed the tenderers’ compliance with mandatory requirements specified in Appendix B of Part II – CoT of the tender document. Each tender return was assessed by the TAP in accordance with the relevant provisions and evaluation criteria set out in the tender document. In the process of evaluation, TAP verified the information provided in the tender proposals in accordance with Clause 5.4 and relevant provisions in Clause 8 of Conditions of Tender, and the Statement of Compliance in Schedule 14. Having sought comments from GLD and DoJ, the TAP sought clarifications from all tenderers on observations identified during the evaluation for further assessment. The TAP confirmed that all tenderers passed Stage 2 assessment. The TAP informed GLD of the completion of Stage 2 with the results of the assessment and proceeded to Stage 3 assessment.

Evaluation Stage	Name of Stage (Time Period)	(i) Corresponding Clauses in Tender Document	(ii) Activities Conducted by TAP
Stage 3	Assessment of Compliance with Essential Specifications (6 May to 5 Aug 2010)	(a) Principal provision: “Stage 3 - Assessment of Compliance with the Essential Specifications ” of Clause 24.1 of Part II – Conditions of Tender (CoT) (b) Reference provisions: <ul style="list-style-type: none"> ● Clauses 5.3, 8.2, 8.4 and 19.6.1 of Part II – Conditions of Tender ● Schedule 14 in Part V - Schedules ● The essential specifications in Part VII – Specifications 	This stage assessed the tenderers’ compliance with Essential requirements specified in Part VII of the tender document. TAP:- (a) conducted detailed document checks on the submitted documents, and sought clarifications with the tenderers; and (b) conducted factory visits to all five tenderers to verify that their proposed systems could meet the relevant essential requirements with conduct of on-site demonstrations, specific testings, verification and clarification using the same set of checklist items sent in advance to all tenderers. TAP also sent questionnaires to reference sites provided by the tenderers to solicit users’ feedback on stability performance, technical and operational performance of the tenderers’ systems, tenderers’ performance, etc. Each tender return was assessed by the TAP in accordance with the relevant provisions and evaluation criteria set out in the tender document. Based on the findings from (a) and (b) above, TAP proposed to DoJ and GLD to disqualify two tenderers due to their non-compliance with the essential requirements in accordance with the provisions in the tender specifications. With the two non-compliant tenderers disqualified, TAP proceeded to Stage 4 assessment.

Evaluation Stage	Name of Stage (Time Period)	(i) Corresponding Clauses in Tender Document	(ii) Activities Conducted by TAP
<p>Stage 4</p>	<p>Evaluation of Technical/Quality Feature and Calculation of Technical Score (5 Aug to 3 Sept 2010)</p>	<p>(a) Principal provision: “Stage 4 – Evaluation of Technical /Quality Features and Calculation of Technical Score” of Clause 24.1 of Part II – Conditions of Tender (CoT)</p> <p>(b) Reference provisions:</p> <ul style="list-style-type: none"> ● Clauses 5.3 and 5.5 of Part II – Conditions of Tender ● Appendix C to Part II – Conditions of Tender ● Schedule 18 in Part V - Schedules ● The desirable specifications in Part VII - Specifications 	<p>This stage assessed the tenderers’ claim on level of compliance with each of the desirable specifications specified in Appendix C of Part II – CoT in the tender document.</p> <p>After consulting DoJ and GLD, TAP issued letters to the tenderers to seek clarification on their technical proposals for the assessment of their level of compliance with the desirable specifications.</p> <p>TAP assessed each of the desirable specifications. The assessment was conducted on the same basis and in accordance with the detailed marking scheme pre-approved by the Central Tender Board (CTB).</p> <p>TAP members considered the supporting information and gave marks to each desirable specification in a 2-day TAP meeting. TAP then determined the technical score of each tender according to the marking scheme stated in Clause 24 of Conditions of Tender which was pre-approved by CTB.</p> <p>TAP consolidated outcomes and submitted a technical assessment report to GLD on 3 September 2010. GLD reviewed CAD’s technical assessment report to ensure compliance with tender conditions and tender procedures.</p>

Evaluation Stage	Name of Stage (Time Period)	(i) Corresponding Clauses in Tender Document	(ii) Activities Conducted by TAP
Stage 5	Price Assessment (15 Oct to 17 Nov 2010)	<p>(a) Principal provision: “Stage 5 – Price Assessment” of Clause 24.1 of Part II – Conditions of Tender</p> <p>(b) Reference provisions:</p> <ul style="list-style-type: none"> ● Clause 15 of Part II – Conditions of Tender ● Schedule 12 in Part V – Schedules 	<p>This stage assessed the price proposals of the conforming tender submissions and determined each tenderer’s price score in strict accordance with relevant provisions in the tender document.</p> <p>After reviewing CAD’s technical assessment report, GLD released the price proposals of the 3 conforming tenders to CAD for conduct of Stage 5 evaluation.</p> <p>TAP submitted all their observations on the tenderers’ price proposals to GLD who sought clarification from the tenderers to facilitate further assessment by TAP.</p> <p>TAP then determined the price scores of each conforming tender according to the marking scheme stated in Clause 24 of Conditions of Tenders which was pre-approved by CTB.</p>

Evaluation Stage	Name of Stage (Time Period)	(i) Corresponding Clauses in Tender Document	(ii) Activities Conducted by TAP
Stage 6	Calculation of Combined Score	(a) Principal provision: “Stage 6 – Calculation of Combined Score” of Clause 24.1 of Part II – Conditions of Tender	<p>This stage calculated the combined score (i.e. Technical score + Price score) of each conforming tender in accordance with the relevant provisions and the formulae laid down in the tender document.</p> <p>TAP calculated the respective combined scores for the 3 tenders according to the marking scheme pre-approved by CTB (i.e. 40% for technical and 60% for price).</p> <p>TAP recommended the contract to be awarded to the tenderer with the highest combined score.</p>

* * * * *



香港特別行政區政府
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APPENDIX 23

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[Translated Version]

15 January 2015

Clerk to the Public Accounts Committee
Legislative Council
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong
(Attn: Mr Anthony CHU)

Dear Mr CHU,

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the Air Traffic Control and Related Services

Thank you for your letter with attachment (Ref. CB4/PAC/R63) dated 8 January 2015.

With regard to the enquiries raised in your attachment, please find our responses detailed at the *Attachment and Annexes* for your kind consideration.

Please note that the names and email addresses of the aviation authority of India and Dubai were third party information and not subject to disclosure. The related information in Annex 2 was hence removed.

Yours sincerely,

(Simon Li)
for Director-General of Civil Aviation

Encl.

c.c. Secretary for Transport and Housing (Attn: Ms Monica Chen)
Director of Government Logistics (Attn: Mr M C Yip)

1. Tender document of Air Traffic Management System (ATMS)

There was no change in the requirements for “System” in the new ATMS tender document from the existing ATMS. Based on the operational experience of the existing ATMS, the Civil Aviation Department (CAD) had incorporated more detailed concrete system requirements into the new ATMS tender document and the Contractor is required to provide both system hardware and software for the new ATMS, same as in the case of the existing ATMS.

The tender document for the new ATMS is formulated based on CAD’s operational needs, latest Air Traffic Control (ATC) technologies, incorporating views of the industry and in strict compliance with relevant provisions in the Government Stores and Procurement Regulations (SPR) as well as World Trade Organisation Government Procurement Agreement (WTO GPA). Presently, there are over 20 ATC controller working positions at the existing ATC centre. Upon review of the operational experience of the existing ATMS and anticipating future growth in air traffic, CAD considered that around 40-50 ATC working positions would be required for the new ATC centre. Thus, the requirement that a reference system in a tenderer’s proposal should be equipped with a minimum of 40 ATC controller working positions was incorporated into the tender document.

Moreover, the new ATMS is required to have greatly enhanced processing capability and functions as compared to the existing ATMS. The new ATMS can handle 8,000 flight plans daily, roughly 5 times of that of the system in use at the existing ATC centre. The new ATMS can also simultaneously monitor 1,500 air or ground targets, roughly 1.5 times of the existing system, capable to cope with future air traffic growth.

The comment on drastic difference in air traffic volume between Delhi Airport in India and Hong Kong International Airport in the question concerned is inaccurate. Traffic volumes at the two airports are indeed comparable, with Delhi Airport handling around 900 daily departure/arrival flights, compared to 1,100 at Hong Kong International Airport.

Compensation clauses were included during the tender preparation and in full compliance with the views of the Government Logistics Department (GLD) and the Department of Justice (DoJ). Determination of compensation is in accordance with GLD’s usual practice for large-scale/complex systems, and the details of consideration on genuine pre-estimation of loss provided by DoJ, and is based on the associated daily cost of maintaining the operation of the existing system for each of day of delayed delivery of the new system (up to a maximum of 100 days). As for the tender document in the existing ATMS, the compensation for delay is capped at around 10% of the total contract cost.

2. Does the new ATMS possess the “proven performance record”?

Procurement of the new ATMS was conducted in strict compliance with the relevant rules and regulations of the SPR and WTO GPA.

The tender document was issued after endorsement from GLD and DoJ. GLD has explained in details in its reply to the Public Accounts Committee on Clause 8.4, Conditions of Tender and stated that Clause 8.4 should be interpreted with consideration given to the full text and spirit under Section 8.

When CAD conducted the tender exercise for the new ATMS in 2011, an unsuccessful tenderer alleged that the proposed system provided by the Contractor had failed to meet the requirement of possession of “proven performance record” as specified in the tender document, hence in breach of the relevant provision of the WTO GPA. In accordance with the relevant provisions of the WTO GPA, the Government had immediately referred the complaint to the Review Body on Bid Challenges¹, a dedicated and independent body established under the WTO GPA, for review. After careful review of the case, the Review Body found that the system proposed by the Contractor did possess the necessary “proven performance record”. The Review Body had not seen any unfairness or bias which the Government had operated on any tenderer including the complainant. The complaint was therefore dismissed. The rulings of the Review Body are provided in **Annex 1**.

The Contractor’s proposed system is in use at Dubai Airport as well as three Indian airports. Systems from the same Contractor are widely used at airports in the US, Germany and Canada. Although carrying different model numbers, the main functions and the latest technologies of such systems are identical to those of the new ATMS. Presently, the average daily departure/arrival flights are around 1,000 at Dubai Airport, 900 at Delhi Airport in India, and 1,100 at Hong Kong International Airport

Regarding the reported incidents of the ATMS at Indian airports, the CAD has enquired with the respective authorities in Dubai and India. Dubai authority has expressed satisfaction with the performance of the system provided by the Contractor and the Indian authority responded that the systems in use at its three ATC centres satisfactory. The Indian authority also clarified that the past incidents were unrelated to system performance. Replies from Dubai and Indian authorities are attached in **Annex 2** for reference.

¹ The Review Body provides a dedicated, independent and impartial avenue to review challenges by suppliers who are involved in the relevant procurement against any alleged breach of the WTO GPA during the procurement process. It is served by a Secretariat within the Trade and Industry Department, and comprises 12 members selected from a wide spectrum of society, including legal, engineering, accountancy fields, and are appointed by the Secretary for Commerce and Economic Development.

3. Contract variations for New ATMS

CAD believes that enhancement of the new ATMS prior to its commissioning is more cost effective and would help reduce safety risk associated with system changes if implemented after system commissioning.

(i) Contract Variation 1

For the two contract variations to enhance the new ATMS, CAD had strictly followed the relevant rule and procedures under SPR and both contract variations had been reviewed and approved by GLD. CAD did not conceal the costs of the contract variation. CAD had followed the relevant procedures in submitting its requests to the GLD with detailed relevant information and pricing.

The new ATMS has enhanced capacity and functions compared to the existing ATMS. Tender document of the new ATMS was finalised as early as April 2009. Immediately after award of contract in February 2012, system Detailed Design Review was commenced. Due to the large scale, complexity and stringent contractual requirements, there had been a substantial lapse of time following drafting of the tender document and request for contract variation to GLD in January 2012. During that time period, the International Civil Aviation Organization (ICAO) had provided new requirements with greater details and specific guidelines on regional contingency plans for operation by air space users and airport users to handle different emergency situations (such as when an ATMS is malfunctioning or operating in degraded mode), which would involve additional data exchange and synchronisation. Meanwhile, from its operational experience of the existing ATMS in use, CAD also noted the need to enhance other functions of the new ATMS, including Missed Approach procedures, ATS Inter-facility Data Communication and operational efficiency enhancements. In view of operational efficiency, training efficiency, air traffic safety and the latest ICAO requirements, the CAD recognised the need for system enhancements to better equip the ATMS to handle various emergency situations, including the ability for air traffic control staff to continue to provide air traffic control services, further strengthening flight safety.

As stated in our 27 December 2014 reply to the Public Accounts Committee, when formulating the tender document in 2009, the new ATMS was to include three main systems, namely, Main System, Fallback System and Ultimate Fallback System (UFS). The tender document requires that the UFS is an independent system with software and system configuration completely detached from the main and fallback system. The purpose of such a design was to reduce the risk of complete system breakdown in the occurrence of concurrent Main and Fallback system malfunction to safe guard flight safety. Requirements of the UFS in the ATMS are in line with similar systems and best

practices in use at major overseas ATC centres in the US, Germany, Norway, etc.

The provision of around 32 simulator training and input operator positions in the original contract of the new ATMS was to ensure efficient operation of the air traffic management services at the Hong Kong Flight Information Region while professional training is provided to air traffic control staff. According to plan, the Simulator System of the ATMS was to be utilised for training air traffic controllers on Approach control, En-route control and Terminal control as well as evaluation of air traffic control procedures. With continuing review of operational experience of the existing ATMS by CAD's air traffic control staff, CAD had reviewed in details the training needs for operating the new system and the recognised the need to incorporate Terminal Control into training to render training more comprehensive so as to better equip air traffic control staff to cope with the sustained air traffic growth in the long term. CAD agrees that it would have been desirable to incorporate such requirements when drafting the tender document.

The quantity of 343 installed air traffic control position as alleged in the question concerned is inaccurate. The new ATMS can accommodate concurrent operation of 120 air traffic control positions with 2 to 3 computer terminals at each position, respectively connected to the Main system, Fallback system and UFS to support air traffic control. Since the mode of operation of the Simulator System differs from real operation, the concerned proposal is impracticable.

Costs of the first contract variation have included enhancement items for latest developments from ICAO, Missed Approach procedures, AIDC and additional training positions.

(ii) Contract Variation 2

Hardware implementation of the new ATMS was gradually completed in mid-2012. During that time, CAD had been actively following on software items with the Contractor. Those items are non-essential items and do not affect overall system operation.

With non-objection from CAD, the Contractor had delivered its equipment in July 2012. Such an arrangement could help speed up the implementation of the project.

The ICAO has promulgated the requirements for the Asia Pacific Regional Performance-based Navigation (PBN) in September 2011, and endorsed the Global Air Navigation Plan (GANP) with the Aviation System Block Upgrades (ASBU) framework during the 12th ICAO's Air Navigation Conference

(ANConf/12) for enhancement of safety, airspace capacity and efficiency. In accordance with the recommendation endorsed during the ANConf/12, the ICAO has requested to finalize the alignment of regional air navigation plans with the GANP by May 2014, and focus on implementation of ASBU according to operational needs. Hong Kong, being a regional aviation hub, is required to timely implement the relevant requirements in accordance with the ICAO's recommendations and the actual operational needs in order to enhance safety, airspace capacity and efficiency.

CAD has completed enhancement of the related ATC systems and infrastructure to ensure such facilities would completely integrate with the new ATMS.

(4) Safety of New ATMS

Aviation Safety is always the first priority of the CAD. Given the stringent acceptance tests and the complexity of the new ATMS, it was unavoidable that some deficiencies/observations items were identified. The purpose of the test was to ensure that the system could operate safely, stably and reliably. It is not uncommon to have deficiencies/observations items identified during acceptance tests in the new ATMS in other airports.

During the Factory Acceptance Test conducted from June to August 2012, 308 deficiencies/observations items were identified, and over 84% of them have already been rectified. The CAD and contractor would proactively follow up the remaining items with a view to expediting their early rectification.

Nature of the deficiencies / observations identified during June 2012 to June 2013	Quantity
System Function ^{Note (1)}	121
Human-machine Interface ^{Note (2)}	101
Engineering Items ^{Note(3)}	86
Total	308

Note (1) System function refers to the data processing related functions.

Note (2) Human Machine Interface (HMI) refers to the user / operator's interface.

Note (3) Engineering items refer to the technical observation.

The new ATMS is in the final system acceptance testing stage. The CAD's priority and focus have to be the resolution of outstanding observations of the ATMS towards the goal of commissioning of the new air traffic control centre

in the 1st half of 2016 when all system testing, training and safety requirements have been satisfactorily completed. In the meantime, the CAD has not lost sight of contractual courses of actions, but with due consideration given to the detailed circumstances, potential argument and the overall ATC Replacement programme and sensitivity of the information, the matter would be pursued in due course.

In general, the hardware and software warranty of systems would be 2 and 5 years respectively. In the ATMS contract, there are provisions which the contractor is obliged to comply in areas of hardware maintenance, software maintenance, system enhancement and expansion. The contractor of the new ATMS is also the contractor of the existing ATMS and the service provider of the software maintenance of the existing ATMS. The performance of the existing ATMS has been very stable and reliable, whilst the contractor's performance in terms of provision of maintenance service had been satisfactory to the CAD since system commissioning in 1998. To ensure the safety, reliability and stability of the system, the CAD would conduct detailed and stringent functional tests, as well as comprehensive safety assessment on the new ATMS in accordance with the international aviation safety management standards and established procedures.

* * * * *

[Home](#) » [Trade Relations](#) » [Major Trade Fora](#) » [Agreement on Government Procurement](#) »

Review Body on Bid Challenges

Hearings

Summary of Case No. 02/2011

The Rejection of a Tender Proposal for the Design, Supply and Installation of a Replacement Air Traffic Management System and the Provision of Related Services to the Hong Kong International Airport

Company A (the complainant) lodged a bid challenge to the Review Body against the Government of the Hong Kong Special Administration Region (HKSARG) (the respondent) for breaching the Agreement on Government Procurement (GPA) of the World Trade Organization (WTO) in a tender exercise for the design, supply and installation of a replacement Air Traffic Management System (ATMS) and the provision of related services to the Hong Kong International Airport.

The complainant alleged that the ATMS proposed by the successful tenderer did not have a proven performance record prior to the date of tender submission. As one of the Conditions of Tender provided that "[a] proposed system with no proven performance record will not be considered further", the complainant considered that the respondent had breached Article XIII.4(c) of the WTO GPA, which reads "[a]wards shall be made in accordance with the criteria and essential requirements specified in the tender documentation".

A Panel comprising the Chairman and two members of the Review Body was set up to consider the bid challenge. As the contract between the respondent and the successful tenderer had commenced, the complainant applied for no further steps to be taken by the HKSARG as a Rapid Interim Measure (RIM) with a view to preserving its business opportunity. Having considered the written representations of the respondent and the response of the complainant, the Panel decided not to recommend the respondent to implement RIM on grounds of public interest and given the correspondence thus far suggested that the issue at stake was at most a question of semantics.

Following the Panel's decision against the recommendation for an RIM, the complainant informed the Review Body that it no longer requested a hearing, but that a Paper Review would suffice. The respondent adopted a neutral position on the matter of whether a hearing should be held. The Panel then decided to consider the bid challenge based on the written submissions of both the

complainant and the respondent without conducting a hearing. The decision of the Panel is summarised as follows -

1. The Panel accepted that the wording "a system with proven performance record" must be read in context with relevant provisions of the tender document, and hence the word "System" should mean "the tenderer with the umbrella System", otherwise the respondent could neither install a new sub-system nor adopt new technology, because a new sub-system by its very nature could not possess a proven performance record. The insistence on interpreting the relevant clause to mean a past system in its entirety with a proven performance record therefore could not be correct.
2. Moreover, the Panel found that the relevant sub-system of the ATMS proposed by the successful tenderer did possess the necessary "proven performance record". It had not seen any unfairness or bias which the respondent had operated on any tenderer including the complainant.
3. The Panel could see no basis to support the complainant's case and therefore dismissed the complaint.

2012 ©

Last Updated Date : 20 February 2013

From:
Sent:
To: Richard CK Wu
Cc: LK Yeung
Subject: RE: Use of Raytheon Autotrac 3 Automation System by Dubai Air Navigation Services (DANS)

Dear Richard,

Thank you for your e-mail.

DANS would welcome the opportunity to send a small delegation to see your deployment of the AutoTrac-III system, your contingency / fall-back systems and the integration of AMAN. We understand that such an opportunity could arise once the Site Acceptance Test of AT-3 is complete next year.

We use the AutoTrac-III system for the radar operation in the Dubai CTA. The radar operation supports traffic operating to Dubai International, Dubai World Central, Sharjah International and Minhad air force base as well as low-level overflights.

The AT-3 system is currently operating in a 'dumbed down' mode. For instance, at this time we are still using printed paper strips for flight data information rather than the electronic HMI that AT-3 will eventually support.

DANS has invested significantly in the AT-3 platform and our intention is to retain it for future operations. In fact, we have just started a new initiative to have 18 modifications made to the AT-3 platform in the near-term. We also have plans for mid to longer-term changes and capabilities that we would like to have implemented on the platform. There is therefore no plan to move away from AT-3 anytime soon! That is not to say that we don't have specific challenges on the AT-3 system.

I am pleased to say that the AT-3 system has been reliable in its performance to-date, although the full capability of the platform has yet to be enabled. We are in the process of integrating OLDI with AT-3 and, due to other major changes underway, we probably won't activate the full capabilities of AT-3 until early in 2015.

Regards,

From:
To: "ckyu@cad.gov.hk" <ckyu@cad.gov.hk>
Date: 05/08/2013 13:36
Subject: Re: Fw: AutoTrac III System in Delhi

Good Morning Mr C K Yuen,

I was consulting my colleagues on this issue on how best to answer your queries.

First of all there is no person called Willy Wonka working in AAI. It looks like a malicious attempt by some interested parties to throw doubts regarding AT 3 .

Now, regarding the two mentioned newspaper links:

- one was related to main power failure - where AAI electrical maintenance personnel inadvertently switched the main power off and backup UPS had issues. AT3 worked fine under these conditions.
- 2nd one was related to AIDC - Raytheon had provided work-around solutions to Mumbai, Chennai, and Delhi. AAI Mumbai & Chennai followed the work around instructions, however, due to some sort of miss-communication AAI Delhi did not and hence the issue. This issue was resolved immediately.

You may also understand from the news reports that not all the above facts could be brought out immediately . Please rest assured that AAI has thoroughly tested AT 3 in operation at Mumbai , Delhi (older versions) and at Chennai (Newer version) . The system is functioning satisfactorily. As I had communicated in my earlier mail, the only reason why AAI is upgrading the system in Delhi is due to relocation of the ATS operating complex from its present position.

Please feel free to contact me for any clarifications.

With best regards

From: "ckyu@cad.gov.hk" <ckyu@cad.gov.hk>
To: @aal.aero>
Cc:
Sent: Monday, 5 August 2013 7:20 AM
Subject: RE: Fw: AutoTrac III System in Delhi

Morning

Sorry for bothering you and your colleagues to check for the identity of Mr Willy Wonda who claims to be employed by AAI and sent the two links to Hong Kong Government advising ATC problems caused by Raytheon Autotracs3 System at New Delhi.

To ease our concern, your early advice would be much appreciated.

My sincere thanks to you and your colleagues in advance.

Subject: Fw: AutoTrac III System in Delhi

Dear Mr ,

Thanks for your response to Peter's enquiry on 13 June 2013. Peter is now on leave and I am looking after his office during his absence.

Further to the rumour stated in Peter's email on 13 June 2013, Mr Willy Wonka of AAI sent the following two links to the Hong Kong Government advising ATC problems at Delhi.

Article on 29th May 2012 :

http://articles.timesofindia.indiatimes.com/2012-05-29/delhi/31887401_1_atc-software-igi-airport-alert-atc-officials (a)

Article on 8th Feb 2013 :

<http://indiatoday.intoday.in/story/power-outage-igi-airport-leads-to-mass-scare-india-today/1/249546.html> (b)

May I know whether Mr Willy Wonka is currently employed by AAI or he was employed by AAI in the past ? What is/was his position in AAI ?

Is the information stated in the two articles true or just a rumour ?

Grateful for your earliest advice.

Best Regards,
CK Yuen
Civil Aviation Department
Hong Kong

----- Forwarded by CK Yuen/CAD/HKSARG on 30/07/2013 20:29 -----

From: Peter HW Yeung/CAD/HKSARG
To: @aai.aero>
Cc:
Date: 13/06/2013 14:53
Subject: RE: AutoTrac III System in Delhi

Dear Mr ,

Many thanks for your prompt response that really clarified the situation.
I look forward to meeting you in another ICAO meeting soon.

Best regards,
Peter

From: |@aal.aero>
To: <phwyeung@cad.gov.hk>
Cc:
Date: 13/06/2013 14:23
Subject: RE: AutoTrac III System in Delhi

Dear Mr Peter,

Greetings.

First of all I should express my gratitude for the wonderful hospitality from all of you which made my stay a memorable one.

The layout and design of the new ACC is very impressive. I have spoken to my colleagues on the same

To rest your concerns, the Delhi ATC building is being shifted to a new location . Also as per the new Airspace Organization Plan , Delhi ACC is being reorganized from the present 4 sectors to 9 sectors and terminal APP sectors from 3 to 6 sectors. The present system has design and space limitations to accommodate these requirements.

To accommodate the new requirements , we are planning to procure a new ATS automation system for the new ATC center. The present system will continue to function till the new system becomes functional and will continue to be the Backup system.

The present Raytheon Autotrac III is working fine , after overcoming the initial glitches during the implementation phase.

Hope this answers your query.

Regards

Integrated Planning Group-ANS
Airports Authority Of India

From: phwyeung@cad.gov.hk [<mailto:phwyeung@cad.gov.hk>]
Sent: Thursday, June 13, 2013 11:13 AM
To: [@aai.aero](mailto:)
Subject: AutoTrac III System in Delhi

Dear Mr

I am very glad to meet you in Hong Kong during the ICAO APSAPG-4 meeting and I hope you enjoyed your stay in Hong Kong.

Recently I have heard a rumour that AAI plans to replace the AutoTrac III system in Delhi because the system is unreliable and there was a system crash in February 2013. I recalled we spoke on the subject of new Raytheon systems operating in Delhi, Mumbai, and Chennai and these systems are running fine since their commissioning. To ease my concern, I should be most grateful if you would advise me the otherwise.

Best regards,
Peter

~~7.4 If a Parent Guarantee is stated to be required in the conditional acceptance of tender issued pursuant to Clause 28.2, and any of the parent guarantor(s) is an overseas company, unless and to the extent waived by the Government, a legal opinion will equally be required similar to the one described in Clause 7.2 save that references therein to "Tenderer" and "Contract"/"tender" shall mean the parent guarantor and the Parent Guarantee respectively.~~

8. Track Records

- 8.1 The Tenderer must satisfy the experience requirements as specified in item 3 of the list of mandatory requirements in Appendix B hereto; and it or its proposed Sub-contractor must satisfy the experience requirements as specified in item 4 of the list of mandatory requirements in Appendix B hereto.

For the mandatory requirement in item 3 of Appendix B, as evidence that the Tenderer satisfies such requirement, the Tenderer shall provide a list of reference site(s) of one or more air traffic management system(s) which the Tenderer has supplied, installed and assisted in the commissioning for the purposes of air traffic control and which have been completed within the last 10 years preceding the Tender Closing Date. The air traffic management system at any one of the aforementioned reference site(s) must have been operated as the main system in at least one (1) air traffic control centre with no less than 40 ATCC air traffic controller working positions to provide air traffic control services for no less than 6 consecutive months and have been completed within the last 10 years preceding the Tender Closing Date. In addition, the air traffic management system must have the capacity and capability to handle no less than 2,000 active flight plans at any one time during the aforementioned 6 months' period.

For the mandatory requirement in item 4 of Appendix B, as evidence that the Tenderer or its proposed Sub-contractor satisfies such requirement, the Tenderer shall provide a list of reference site(s) of one or more ultimate fallback system(s) which the Tenderer or its proposed Sub-contractor (whether then as a prime contractor or sub-contractor) has supplied, installed and assisted in the commissioning and which have been completed within the last 10 years preceding the Tender Closing Date. The ultimate fallback system in at least one (1) air traffic control centre must have been operated as the main or backup system with no less than 10 air traffic controller working positions to provide air traffic control services for no less than 6 consecutive months and have been completed within the last 10 years preceding the Tender Closing Date.

For each of the air traffic management systems and ultimate fallback systems (each "system") as mentioned above, the following information for each reference site at which such system is installed is required:

- (a) name of reference site;
- (b) name, address, telephone number and fax number of contact person;
- (c) product name, model and version;

- (d) summary of equipment, functions and services provided and its size and type, including evidence from relevant sections of the system specification to support a system capacity and capability to handle no less than 2,000 active flight plans at any one time;
 - (e) date of installation;
 - (f) number of ATCC air traffic controller working positions in operation;
 - (g) date of commissioning;
 - (h) serviceability/availability figures showing that the system was put in service for no less than 6 consecutive months any time within the last 10 years preceding the Tender Closing Date;
 - (i) for the air traffic management system only: the system capacity in handling active flight plans at any one time;
 - (j) location of the air traffic control centre at which the system is installed;
 - (k) date of de-commissioning, if applicable; and
 - (l) the role of the supplier of the above systems whether as a prime contractor or a sub-contractor.
- 8.2 Site visits to the factory(ies) and reference site(s) of any Tenderer who has passed Stage 2 evaluation in Clause 24.1 may be required so as to enable the Government to inspect the operational equipment as proposed in its tender in the course of the evaluation. In this regard, a Tenderer shall specify in its tender for such site visits: (a) the locations of its factory(ies), each of which shall be installed with a minimum of 5 controller working positions at the time of visit by the Government; and (b) the location of its reference site(s), each of which shall be installed with a minimum of 20 controller working positions at the time of visit by the Government.
- 8.3 In addition to the details required in Clause 8.1, the Tenderer shall provide documentary evidence to demonstrate its technical expertise and working experience in performing the installation and testing and providing assistance in the commissioning of the proposed System, particularly with the local on-site work experience in a multi-contractor environment to control, monitor and manage the contractors' work and activities.
- 8.4 The Government may, and is hereby authorised by the Tenderer to, contact any of the users whose details are provided by the Tenderer. The Government also reserves the right to request additional references and such other supplementary information either from the Tenderer or from the users as is considered necessary or desirable by the Government. In the event that the reference from a user indicates the System proposed cannot meet with the requirements in the Specifications, the Tenderer shall provide explanations and a new user reference to prove the performance of the proposed System. **A proposed System with no proven performance record will not be considered further.**

8.5 Details of experience to be provided in accordance with Clause 8 shall demonstrate that the Tenderer fulfils the mandatory requirement specified in Items 3 and 4 of Appendix B hereto. There are explanatory notes below Items 3 and 4 which further explain what experience will and will not be accepted for the purpose of determining whether the mandatory requirement has been fulfilled. The Tenderer is reminded to pay careful attention to the mandatory requirement and the notes when preparing and collating the details of experience to be submitted.

9. ~~Particulars of Offer~~

9.1 A Tenderer is requested to provide in Schedule 3 the particulars of the Equipment items offered in Schedule 1 (both hardware and software).

- (a) name of products;
- (b) place of origin/substantial place of manufacture/development;
- (c) name of manufacturer/developer;
- (d) address of manufacturer/developer;
- (e) brand name;
- (f) model;
- (g) the duration that it has been available in the market in Hong Kong or in a place other than Hong Kong;
- (h) whether the relevant item is in production or in development; and
- (i) the information required in Clause 9.2.

9.2 Continuous support of the System, including maintenance and enhancement of the hardware/software to meet the changing operational environment and training needs, is essential. In this respect, Tenderers shall be required to confirm in relation to each item of hardware and software (a) whether they or their Sub-contractors (if any) own the full Intellectual Property Rights subsisting in such hardware or software; and (b) whether they or their Sub-contractors (if any) have played a major role in the design and development of the relevant hardware or software, and will continue to have full control over the future enhancement, modification and maintenance of the relevant hardware or software.

9.3 For the avoidance of doubt, the Government does not intend to acquire any Intellectual Property Rights in the hardware or software to be proposed by the Tenderer in Schedule 1.

REVIEW BODY ON BID CHALLENGES

Bid Challenge No. 02 of 2011

**IN THE MATTER OF
THE WORLD TRADE ORGANIZATION
AGREEMENT ON GOVERNMENT PROCUREMENT
AND
IN THE MATTER OF A BID CHALLENGE**

BETWEEN

Tenderer A

Complainant

AND

**GOVERNMENT LOGISTICS DEPARTMENT
OF THE GOVERNMENT
OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION**

Respondent

CORRIGENDUM

The Decision made by this Panel on 21 September 2011 has the following amendments:

(a) Paragraph 4, page 2

- “Article VIII 4.(c)” in the last line should be “Article XIII 4.(c)”.

(b) Paragraph 11, page 3

- “during all 3 stages” in the 4th line should be “during Stage 3”.
- “from the 3 visits” in the 6th to 7th lines should be deleted.

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(c) Paragraph 15, page 5

- “major systems” in the 10th line should be “major components”.

(d) Paragraph 16, page 5

- “Respondent’s letter” in the 9th line should be “Complainant’s letter”.

Dated this 12th day of October 2011.



(Mr LAM Kui-po, William)
Chairman
Review Body on Bid Challenges

投標投訴審裁組織
Review Body on Bid Challenges

根據世界貿易組織政府採購協定
 under the World Trade Organization Agreement
 on Government Procurement

Our Ref : CR RB 02/02/2011

Tel : (852) 2398 5482
 Fax : (852) 2787 7799
 Email : frederickcheng@tid.gov.hk

By Fax (2 + 9 pages)

22 September 2011

To: Tenderer A
 (Attn:)

[Fax No.:]

Department of Justice
 (Attn: Mr Louie WONG)

[Fax No.: 2869 0062]

Dear Madam/Sir,

**Bid Challenge against the Government Logistics Department
 for Breaching of the World Trade Organization (WTO)
 Agreement on Government Procurement (GPA)**

Further to my letter of 15 August 2011, I would like to inform you that having examined the challenge lodged by Tenderer A against the Government Logistics Department for breaching of the GPA, the Panel concludes that the challenge is not substantiated. A copy of the Panel Decision is attached.

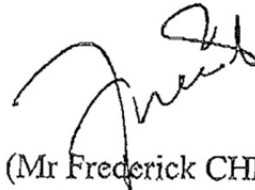
I should be grateful if you would inform me by **6 October 2011 (Thursday)** whether there is any part of the Decision that needs to be redacted in order to preserve the necessary confidentiality of the tendering process. The Panel will then consider your views and decide whether any part of the Decision should be redacted. The redacted Decision will be made available to the public upon request.

/

香港九龍彌敦道 700 號 17 樓
 17/F, 700 Nathan Road, Kowloon, Hong Kong

Should you have any queries concerning this letter, please feel free to contact me at 2398 5482 or Mr Toby MAK at 2398 5360.

Yours sincerely,



(Mr Frederick CHENG)
Secretary

Review Body on Bid Challenges

c.c. Director of Government Logistics
(Attn: Mrs Cassandra CHUI)

[Fax No.: 2116 0103]

Director-General of Civil Aviation
(Attn: Mr Peter YEUNG)

[Fax No.: 2845 7160]

REVIEW BODY ON BID CHALLENGES

Bid Challenge No. 02 of 2011

**IN THE MATTER OF
THE WORLD TRADE ORGANIZATION
AGREEMENT ON GOVERNMENT PROCUREMENT**

AND

IN THE MATTER OF A BID CHALLENGE

BETWEEN

Tenderer A

Complainant

AND

**GOVERNMENT LOGISTICS DEPARTMENT
OF THE GOVERNMENT
OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION**

Respondent

DECISION

Panel

Mr LAM Kui-po, William - Chairman
Dr CHAN Yin-nin, Sammy – Member
Mr FUNG Pak-tung, Patrick – Member

Background

1. Pursuant to an invitation to tender via a Tender Document numbered PT/0230/2009 issued by the Respondent acting on behalf of the Civil Aviation Department for the design, supply and installation of a replacement Air Traffic Management System ("ATMS") and the provision of related services to the Hong Kong International Airport, the Complainant placed its tender in competition with others. The new ATMS is to replace the existing system which provides display services for air traffic controllers, where the present system will reach the end of its usable life in about 2013. The Complainant was informed by the Respondent on 2 February 2011 that it was unsuccessful, and that the contract was awarded to another company called **Tenderer B** ("**Tenderer B**").
2. It is not in dispute that the tender exercise was governed by the Agreement on Government Procurement of the World Trade Organization ("GPA") which, in simple terms, may be summarised as an effort to ensure fair dealing when government procurers select prospective suppliers which in their view would best suit their requirements.
3. As a result of the tender having been awarded to **Tenderer B**, the Complainant lodged a complaint on 18 February 2011 to the Review Body on Bid Challenges, and this is the subject matter of the Board's Decision today.

The Subject Matter of the Complaint

4. The Complainant's grievance hinges on Clause 8.4 in the Conditions of Tender in the abovementioned tender number PT/0230/2009, which contains, *inter alia*, the sentence "A proposed System with no proven performance record will not be considered further". The Complainant says that **Tenderer B**'s ATMS,

- 2 -

a system named "[REDACTED]", was only in an experimental stage and so did not have any "proven performance record". The Complainant says, therefore, that the award of the contract to **Tenderer B** was in breach of Article VIII 4.(c) of the GPA.

5. Clause 8 of the Conditions of Tender concerns the provision of track records including reference sites to prove:

(a) the tenderer has track records which show that it complies with certain mandatory requirements for the purposes of the evaluation under Stage 2 of Clause 24.1 of the Conditions of Tender, namely track records mentioned in Clause 8.1 of the Conditions of Tender;

and

(b) the tenderer has track records which can enable the Government to check upon inspection (if and to the extent it so elects to do so) that the tenderer's proposed System complies with the essential specifications for the purposes of the evaluation under Stage 3 of Clause 24.1 of the Conditions of Tender (namely track records mentioned in Clause 8.2 of the Conditions of Tender).

6. It is not disputed that the Respondent had carried out site inspections of the tenderers including **Tenderer B** and the Complainant, and these steps were mentioned in Clauses 8.1 and 8.2 of the Conditions of Tender.

7. Clause 8:1 states, *inter alia* (paraphrased) that a tenderer must satisfy the Respondent with past experience requirements, supply evidence to show that the proposed system was capable of handling no fewer than 2,000 active flight plans at any one time during a 6-month period and the number of working positions for Air Traffic Controllers when in operation as well as the location of the relevant

Air Traffic Control centre at which the system was installed, and whether the supplier was a prime contractor or a sub-contractor in the relevant past experience.

8. Clause 8.2 states, *inter alia* (paraphrased) that any tenderer who has passed Stage 2 evaluation in Clause 24.1 may be required to enable the Government to inspect the operational equipment concerned, and a reference site must have a minimum of 20 air traffic controller working positions at the time of the visit.
9. It is also not disputed that the tests which enabled the Respondent to be satisfied about the safety of a system consisted of Factory Acceptance Tests, Site Acceptance Tests, Flight Check Acceptance Tests, Reliability Acceptance Tests, and System Integration Tests and that the subject [REDACTED] system has been used by air traffic control centres in [REDACTED] and [REDACTED].
10. The Complainant seeks a declaration from this Board that the contract with Tenderer B should not be proceeded with or be rescinded, that if the Complainant had the second highest combined score then the contract should be awarded to the Complainant, and if the above cannot for any reason be implemented, then there should be a re-tender, or if everything fails then an award of damages.
11. It is not in dispute that in assessing suitability of tender, the Respondent would carry out site visits to the tenderers' premises, and that factory site visits (not "reference site" visits) had been carried out by the Respondent to all tenderers during all 3 stages of its assessment exercise, and all assessments had been made on the same basis. The Respondent has totalled the scores from the 3 visits in each tenderer's case, and eventually awarded the contract to the tenderer which scored the highest, which in this case was Tenderer B.

The Issue about the Term

“Proven Performance Record” in Clause 8.4

12. The Complainant says that Tenderer B's [REDACTED] system had met with difficulties at trial in [REDACTED], and that it was only in an experimental stage and had no “proven performance record”, and hence the Respondent has breached its own Tender Conditions and the GPA.

13. Several media articles submitted by the Complainant e.g. “[REDACTED]”, “[REDACTED]”, “[REDACTED]” and “[REDACTED]”, reported “a technical snag” for several minutes with the [REDACTED] system leading to disruption of 50 flights “on Wednesday” (the newspaper was dated Wednesday 28 July 2010) which lasted about 30 minutes but “with no disruption to any flight in any way”. The Complainant has also provided two letters written by the “Air Traffic Controllers’ Guild [REDACTED]” dated March and June 2010 respectively, which were critical of [REDACTED], and stated that “its adoption should be held in abeyance”. The Complainant says, therefore, that [REDACTED] was not a system with a proven performance record and hence a risky system to adopt. But this Board notes that the Respondent *did not rely* on the reference site in [REDACTED] under Stage 2 of its assessment as to whether the conditions in the Conditions of Tender Appendix B Items 3 and 4 were satisfied, and this the Complainant was not in a position to dispute, because data existing between other tenderers and the Respondent were privy to the parties and information was not disclosable to any other party without consent.

14. The Respondent had carried out “Stage 3” site inspections at all tenderers’ factories which had passed Stages 1 and 2 of the selection process. This is not in dispute. The Respondent totalled the scores for each tenderer and awarded the contract to the tenderer with the highest overall score, which is Tenderer B. This was explained to the Complainant in the Respondent’s letter dated

- 5 -

25 February 2011. Although the Complainant may have scored higher than Tenderer B in the technical aspects of the ATMS, in relation to price it scored lower than Tenderer B and the price score had accounted for 60% of the overall score. The Complainant was not in a position to challenge the scores, and has fairly not made such a challenge. The only challenge is in the wording under Clause 8.4 as detailed in paragraphs 4 and 12 above.

15. The Respondent says that the wording "with no proven performance record" must not be taken out in isolation, but must be read in context with the wordings and spirit in Clauses 8.1 and 8.2 regarding past experience. The term "Air Traffic Management System" refers to a collection of sub-systems, and not merely the sub-system [REDACTED]. The words "with proven performance record" refers only to Stage 3 reference sites (see its letter to the Complainant dated 15 April 2011). [REDACTED] in the context of Clause 8.4 was a sub-system of an overall system under Clauses 8.1 and 8.2 where the major systems were the Surveillance Data Processing System (SDP) and the Flight Data Processing System (FDP): see the Respondent's letter to the Complainant dated 11 March 2011 at paragraph 3.2.
16. In other words, the term "proven performance record" has a wide meaning and refers to the *tenderer* as a whole, not to one particular sub-system. This Board notes that the fact that it is the *tenderer* which must have a proven track record is apparent in the Conditions of Tender Clause 24.1 Stage 3 paragraph (d), and Appendix B Items 3 and 4. This interpretation, i.e. the proven track record refers to a *tenderer* and not the [REDACTED] sub-system, is the core of the dispute to be resolved today: see the Respondent's letter to this Board dated 24 March 2011. As mentioned above, the Complainant focuses its attack on these all-important words as referring to the [REDACTED] system, while tenderer Tenderer B was only a consequent target of its attack.

17. The Respondent says that *even if* the words “proven performance record” should refer to the [REDACTED] system, the system has shown a proven performance record, because it has already been adopted and functioning in [REDACTED], which is supported by a media article published by “[REDACTED]” reporting that “In December 2008 the [REDACTED] systems at [REDACTED] and [REDACTED] successfully completed Site Acceptance Test. ... The AT3 system contains the most advanced Flight Data Processor (FDP), Surveillance Data Processor (SDP) and displays available today ...”. Under another heading there is a report on “[REDACTED] System for [REDACTED] Successfully Completes Factory Acceptance Test” which had taken place in January (2009). Yet another article has reported “Air Traffic Control Optimum Training Solution Contract Positions Tenderer B to Showcase Training Capabilities Globally”.

Findings

18. This Board accepts that the meaning of “a system with proven performance record” means “a system with a proven performance record *of the producer company which supports the fact that the relevant sub-system is safe*”. It may be that the Respondent could have used the word “Tenderer” rather than “System” in its Conditions of Tender so that the unfortunate ambiguity would not have arisen as was now seized upon by the Complainant. The Board considers that the “wider interpretation” for the word “System” to mean “the Tenderer with the umbrella System” must be correct, otherwise the Respondent could never install a new sub-system, nor can it adopt new technology, nor can the Complainant itself ever succeed in tendering a new sub-system to the Respondent, because a new sub-system by its very nature (being new) cannot possess a proven performance record unless, of course, Hong Kong is content to never be in the forefront of technology but must wait for other countries to have used any new system and for sufficient lengths of time, perhaps many months, in

- 7 -

order to see that this “new” technology is proven. This Board does not consider this requirement to be what the Respondent had in mind when inviting the tender in question. The insistence on interpreting Clause 8.4 to mean a *past* system with a proven performance record cannot in our view be correct.

19. Even if the abovestated “wide” interpretation of the words “with proven performance record” is not accepted, this Board finds as a matter of fact, that Tenderer B’s [REDACTED] system had been approved by the [REDACTED] aviation authorities, that the Respondent had conducted site visits to all the tenderers including the Complainant’s premises and those of Tenderer B before the Respondent totalled the scores and accepted Tenderer B’s system, and that the [REDACTED] sub-system is one which possessed the necessary “proven performance record”. Further and in any event, this Board has not seen any unfairness or bias which the Respondent had operated on any tenderer including the Complainant.

Conclusion

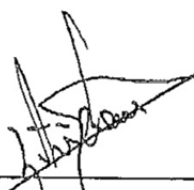
20. For the above reasons this Board can see no basis to support the Complainant’s case. The complaint is dismissed.

DATED this 21st day of September, 2011.

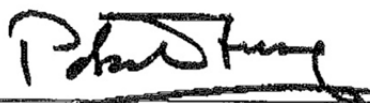
Signed:



Mr LAM Kui-po, William - Chairman



Dr. CHAN Yin-nin, Sammy - Member



Mr FUNG Pak-tung, Patrick - Member

Review Body on Bid Challenges

Hearings

Summary of Case No. 02/2011

The Rejection of a Tender Proposal for the Design, Supply and Installation of a Replacement Air Traffic Management System and the Provision of Related Services to the Hong Kong International Airport

Company A (the complainant) lodged a bid challenge to the Review Body against the Government of the Hong Kong Special Administration Region (HKSARG) (the respondent) for breaching the Agreement on Government Procurement (GPA) of the World Trade Organization (WTO) in a tender exercise for the design, supply and installation of a replacement Air Traffic Management System (ATMS) and the provision of related services to the Hong Kong International Airport.

The complainant alleged that the ATMS proposed by the successful tenderer did not have a proven performance record prior to the date of tender submission. As one of the Conditions of Tender provided that "[a] proposed system with no proven performance record will not be considered further", the complainant considered that the respondent had breached Article XIII.4(c) of the WTO GPA, which reads "[a]wards shall be made in accordance with the criteria and essential requirements specified in the tender documentation".

A Panel comprising the Chairman and two members of the Review Body was set up to consider the bid challenge. As the contract between the respondent and the successful tenderer had commenced, the complainant applied for no further steps to be taken by the HKSARG as a Rapid Interim Measure (RIM) with a view to preserving its business opportunity. Having considered the written representations of the respondent and the response of the complainant, the Panel decided not to recommend the respondent to implement RIM on grounds of public interest and given the correspondence thus far suggested that the issue at stake was at most a question of semantics.

Following the Panel's decision against the recommendation for an RIM, the complainant informed the Review Body that it no longer requested a hearing, but that a Paper Review would suffice. The respondent adopted a neutral position on the matter of whether a hearing should be held. The Panel then decided to consider the bid challenge based on the written submissions of both the complainant and the respondent without conducting a hearing. The decision of the Panel is summarised as follows -

1. The Panel accepted that the wording "a system with proven performance record" must be read in context with relevant provisions of the tender document, and hence the word "System" should mean "the tenderer with the umbrella System", otherwise the respondent could neither install a new sub-system nor adopt new technology, because a new sub-system by its very nature could not possess a proven performance record. The insistence on interpreting the relevant clause to mean a past system in its entirety with a proven performance record therefore could not be correct.
2. Moreover, the Panel found that the relevant sub-system of the ATMS proposed by the successful tenderer did possess the necessary "proven performance record". It had not seen any unfairness or bias which the respondent had operated on any tenderer including the complainant.

3. The Panel could see no basis to support the complainant's case and therefore dismissed the complaint.



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GOVERNMENT LOGISTICS DEPARTMENT

10th Floor, North Point Government Offices

333 Java Road, North Point, Hong Kong

20 March 2015

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

Dear Mr Chu,

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the air traffic control and related services

I refer to your letter dated 12 March 2015 regarding the procurement of air traffic management system.

For the information requested, we have prepared our detailed responses in the Attachment for your kind attention please.

Yours sincerely,

(YIP Man-chung)

for Director of Government Logistics

Encl.

- c.c. Secretary for Transport and Housing (fax no. 2523 9187)
Director-General of Civil Aviation (fax no. 2910 6384)
Secretary for Financial Services and the Treasury (fax no. 2147 5239)
Director of Audit (fax no. 2583 9063)

Attachment

(a)(i) information on GLD's usual practice for determining the compensation for large-scale/complex systems; and

Reply:

In determining the liquidated damages for delays in the completion dates for large-scale/complex systems, it is the Government's practice that the user department will assess the genuine pre-estimate of loss of the concerned system on a case-by-case basis. The amount, subject to a cap, is set either at a fixed daily or weekly amount or percentage of the one-off cost / the contract value.

(a)(ii) compensation clauses in the tender for the procurement of the existing ATMS Autotrac I in 1993. If there were changes to the compensation clauses, the justifications for such changes;

Reply:

A copy of the relevant contract conditions on liquidated damages for the last purchase of the existing ATMS (Autotrac I) is at Annex I. For the last and present purchases of the concerned systems, the methods of determining the liquidated damages in the contract conditions are generally the same, viz the Civil Aviation Department (CAD) determined the liquidated damages, subject to a cap, basing on the genuine pre-estimate of loss per day at that time. However, due to the different implementation plans of the two systems, the liquidated damages were based on the delays in the completion dates of different parts of the systems. In the last contract, the liquidated damages were based on the delays in the completion dates of the simulator and the system. Under the current contract, liquidated damages are based on the delays in the completion dates of Phases 1 and 2 of the system.

***Note by Clerk, PAC: Please see Appendix 26 of this Report for Annex I.**

(b) with reference to clause 8.1 to 8.4 of the Conditions of Tender to the procurement of the new ATMS regarding the track records requirements, please provide the following information:

(i) whether similar clause had been used in the conditions of tender in the procurement of other large-scale/complex systems. If yes, the relevant details of such tenders;

Reply:

Clauses 8.1 to 8.4 of the Conditions of Tender covered the requirements of the past experience of the tenderer or its sub-contractor, site visits to the factory and reference sites of the tenderer together with the relevant information to be submitted. According to our records, similar requirements will generally be set in the procurement of other large-scale/complex systems.

For the procurement of large-scale/complex systems or those which are mission-critical to user departments, the Government will include provisions in the tender for assessment of the tenderers' experience. Based on the specific aspects of the systems, the user departments will set the experience requirements which are considered relevant for assessing the tenderers' experience on a case-by-case basis, for example, the scale of similar systems handled and the staff's experience. Requirements on demonstration of the system, site visits to the factory and obtaining relevant information from reference sites will also be included in these purchases. However, as the technical specifications and applications of each system are different, the relevant requirements will also be different.

(ii) copy of similar provisions in the tender for the procurement of the existing ATMS (Autotrac 1) in 1993;

Reply:

The procurement method of the existing ATMS (Autotrac I) was different from the one adopted in the new ATMS. A two-stage approach was adopted in the selection of tenderers for the provision of the existing ATMS (Autotrac I). The first stage was to prequalify the tenderers. In the second stage of the tender exercise, those prequalified tenderers were invited to submit tenders.

CAD was responsible for the pre-qualification exercise in the first stage. The relevant clause on the experience requirements of the tenderers provided by CAD is attached at Annex II. As for the second stage, the relevant provision on the demonstration arrangement is at Annex III.

(iii) whether the description “A proposed System with no proven performance record will not be considered further” in Clause 8.4 was included in the first draft of the Tender documents submitted by CAD to GLD. If no, the details on how this description was included in Clause 8.4;

Reply:

In the first draft of the tender documents submitted by CAD to GLD, Clause 8.4 read as “**A proposed System with no proven performance (that meet the requirements in the Specifications) will not be considered further.**” This sentence was subsequently amended during the drafting process to make it more clear and concise.

(iv) whether the description referred to in (iii) above had been used in the procurement of other large-scale/complex systems. If yes, the relevant details of such tenders, including how the description had been incorporated in these procurement exercises;

Reply:

According to our records, the exact description of “A proposed System with no proven performance record will not be considered further” had not been used by the Government in the procurement of other large scale/complex systems.

(v) number of enquiries received on the interpretation of Clause 8 before the Tender Closing Date and from tenderers.

Reply:

According to our records, there was no enquiry on the interpretation of Clause 8 before the Tender Closing Date from the tenderers or other companies except that a tenderer enquired about the type of air traffic controller working positions under Clause 8.1 of the Conditions of Tender.

The Company Profile information requested as part of the Executive Summary shall include the following details:

1. Company Information.
 - Name and address of the Company/Business organisation;
 - Length of business experience;
 - Shareholders/Partners of the Company/Business Organisation;
 - Names and residential addresses of the following:
 - Managing Director/Partners
 - Other Directors
 - Sole Proprietor
 - Names and addresses of bankers who are prepared to provide references, recent balance sheets, profit and loss accounts or other relevant financial data which will indicate the financial viability of the Tenderer; and
 - A copy of the Memorandum and Articles of Association or other documents providing evidence of the business status.
2. The Tenderer must have had extensive experience in the development and implementation of computerised RDPDS, FDPDS and SIM systems and must have sufficient expertise to implement the required system in the time specified and to provide the required post-implementation services. As evidence of this experience, the Tenderer shall provide a list of users of systems similar to the proposed system which it has supplied within the last ten years. For each user the following information is required:
 - Name of User;
 - Name, address and telephone number for contact;
 - Summary of hardware and software used and its inter-connection;
 - Date of installation;
 - Date of commissioning; and
 - Serviceability/availability figures for the previous 12 months.
3. The Offer to be Bound set out in Part VIII of this Tender Document must be signed by the Tenderer's authorised signatory (or signatories), and suitable written evidence of his (or their) authority to sign the Tender Document on behalf of the Tenderer should be included in the Tender.

17. Separate Offers

17.1 The tenderer acknowledges that the Government may elect at its sole option to accept all or any part of the tenderer's offers and that the Government has sole discretion whether or not to accept any tender irrespective of its price.

18. Tenderer's Commitment

18.1 All tenders, information and responses from each tenderer must be submitted in writing. The relevant provisions of this tender document and any documents so submitted by the tenderer shall be treated as a material representation of the tenderer.

19. Free Demonstration

19.1 During the tender validity period, the tenderer shall make available the equipment specified in the tenderer's proposal for demonstration at a location specified by the Government within 14 days after receipt of a request from the Government for such demonstration. The tenderer acknowledges that it shall be in the Government's sole discretion whether or not to request such demonstration.

20. Assessment of Tender Prices

20.1 The tender prices will be assessed on the basis of capital costs plus the running costs, licence fees and other charges.

21. Award of Contract

21.1 The Government is not bound to accept any of the tenders submitted or to award any contract. In evaluating the tenders submitted, the Government is not bound to accept the lowest tender. The award of a contract, if made, will be made to the tenderer who is determined by the Government to be fully capable of undertaking the contract and whose tender is determined by the Government to be the most advantageous.

22. Consultant

22.1 Tenderers are informed that the Government has appointed Hughes Systems Pacific Limited, a wholly owned subsidiary of Hughes Aircraft Company, as Project Management Consultant (PMC) for the Chek Lap

Annex I

Autotrac I17. Delays

- 17.1 The Contractor shall provide the Simulator and the System Ready for Service on or before the relevant Completion Date.
- 17.2 If the Contractor shall fail to provide the Simulator or the System Ready for Service by the relevant Completion Date then the Contractor shall pay to the Purchaser as and by way of liquidated damages for any loss or damages sustained by the Purchaser resulting from delay during the period from the relevant Completion Date to the date on which the Contractor provides the Simulator or the System Ready for Service the sum of Twenty two thousand, eight hundred and eight US dollars (US\$22,808) for each day or part of the day of such delay up to a total maximum of Eight hundred and seventy six thousand, six hundred and eighty US dollars (US\$876,680) for delay in providing the Simulator and up to a maximum of one million, seven hundred and fifty three thousand, three hundred and sixty US dollars (US\$1,753,360) for delay in providing the System (excluding the Simulator). Subject to the provisions of Clause 17.3 below the payment of such sums shall be in full satisfaction of the Contractor's liability for such delay only. The payment of liquidated damages shall not relieve the Contractor from its obligation to provide the System Ready for Service or from any other liability or obligation under this Implementation Contract.
- 17.3 If the Contractor shall fail to provide the System Ready for Service within 60 days after the Completion Date then notwithstanding anything else contained in this Implementation Contract, unless the Contractor has been given an extension of time under Clause 6 which extends the time to provide the System Ready for Service, the Purchaser shall be entitled to terminate this Implementation Contract at any time thereafter on giving written notice to the Contractor and the provisions of Clause 38.5 shall apply.



10/11

(I) Reply to PAC Letter Dated 30 April 2015

(a) with reference to the seven out of the eight major contracts for implementing the new air traffic system project (excluding the Air Traffic Management System (“ATMS) contract), please provide the following details of each contract:

- (i) the contract completion date;
- (ii) duration and expiry date of the warranty period;

Reply to (i) – (ii):

Please refer to **Appendix I**.

- (iii) whether extra cost would be incurred to extend the warranty periods of the contracts as a result of the delay in the implementation of the ATMS contract, if yes, the amount involved; and
- (iv) if the warranty period cannot be extended, any provisions in the contract to allow CAD to procure maintenance service after the expiry of the warranty period. If yes, please provide details.

Reply to (iii) – (iv):

Seven out of the eight major systems of the new Air Traffic Control (ATC) System have been substantially completed, two of the systems have been operational since 2013 and others will be put into use by phases from 2015. These systems are now operating to support the existing ATC equipment operations and training of the Air Traffic Control Officers. Upon the commencement of the new ATMS, they will be fully integrated with the new system. The commencement and expiry of the warranty periods of these systems

***Note by Clerk, PAC:** *Please see Appendix 28 of this Report for Appendix I.*

are independent from the implementation of the new ATMS contract. No extra costs were incurred in extending the warranty periods for these systems as a result of the delay of the implementation of the new ATMS contract. There are provisions in the contracts allowing CAD to procure maintenance services for all the systems after the expiry of the warranty period.

(b) [Redacted]

[Redacted]

[Redacted]

[REDACTED]

[REDACTED]

**Contract Completion Date for Phase 1 of the New ATC System Project and
Respective Warranty Period (Note 1)**

Contract	Completion date	Duration of Warranty Period	Expiry of Warranty Period
(a) Air Traffic Management System	Contract work in progress	2 Years	Warranty not yet started
(b) Air Traffic Services Data Management System	System acceptance is being finalized for planned completion in June 2015	2 Years	Warranty not yet started
(c) Aeronautical Information Management System	1 Apr 2013	2 Years	31 Mar 2015
(d) Aeronautical Messaging System	15 Aug 2012	2 Years	14 Aug 2014
(e) Communication Backbone	13 Jun 2012	2 Years	12 Jun 2014
(f) Communications and Recording System	16 Jan 2013	2 Years	15 Jan 2015
(g) Relocation and Expansion of Air Traffic Services Message Handling System	9 Sep 2013	2 Years	8 Sep 2015
(h) Ancillary and Technical Support Systems	5 Nov 2012	2 Years	4 Nov 2014

Note 1: Phase 1 refers to the new systems installed and commissioned at the new ATC Centre in the CAD Headquarters building.

* * * * *

**Milestone of Phase 1 and Phase 2
Implementation of the ATMS contract**

Ref.	Milestone	Date of Completion	System(s) to be Involved
<i>Phase 1 of the ATMS contract</i>			
1.15a	<p>Transition from the existing system to the new Phase 1 ATMS</p> <p>Note: Under this stage, after the new ATMS is installed and commissioned at the new ATC Centre in the CAD Headquarters building, the existing air traffic control operations will transit from the existing ATC Centre to the new ATC Centre.</p>	The latest projected date for the transition is expected to commence by end-2015 / early 2016, and completed by mid-2016.	Main, Fallback and Ultimate Fallback Systems (including both hardware and software) (Note 2)
1.16	<p>Computer Based Training (CBT) software to incorporate the latest human machine interface (HMI) and functionalities of the ATMS</p> <p>Note: CBT system is used to train air traffic controllers of the CAD to make them familiarize with and refresh their skills regularly of performing ATC duties by using the ATMS.</p>	The latest projected date for new ATMS is expected to be fully installed by end-2015 / early 2016. The CBT software is expected to be finalized by mid-2016.	Computer Based Training System (including both hardware and software)
<i>Phase 2 of the ATMS contract (retrofitting work of the existing ATC Centre has yet to commence) (Note 1)</i>			
1.17	Delivery, installation and putting into commission of ATMS consoles in the ATMS Phase 2 Buildings	13 weeks after completion of the retrofitting work of the existing ATC Centre	Main, Fallback and Ultimate Fallback Systems (including both hardware and software)
1.18	Delivery and Installation of the Equipment and installation materials for Phase 2 ATMS in ATMS Phase 2 Buildings	16 weeks after completion of the retrofitting work of the existing ATC Centre	

Appendix I

1.18a	Submission of Site Acceptance Tests (SAT) schedule and procedures for Phase 2 ATMS for approval	17 weeks after completion of the retrofitting work of the existing ATC Centre	
1.18b	Delivery of Initial Spares for Phase 2 ATMS to Site	28 weeks after completion of the retrofitting work of the existing ATC Centre	
1.19	Site Acceptance Tests for Phase 2 ATMS	24 weeks after completion of the retrofitting work of the existing ATC Centre	
1.20	Reliability Acceptance Tests for Phase 2 ATMS equipment and the complete ATMS Software in the ATMS covering both Phase 1 and 2	29 weeks after completion of the retrofitting work of the existing ATC Centre	
1.21	System Integration Tests for Phase 1 and Phase 2 ATMS	30 weeks after completion of the retrofitting work of the existing ATC Centre	
1.22	Completion Date – Phase 2 ATMS	39 weeks after completion of the retrofitting work of the existing ATC Centre	

Note 1: All dates of completion are in accordance with the contract for Phase 2 only. The dates of completion for items 1.17, 1.21 and 1.22 are specified under the Schedule 4 of the original tender document, which the ATMS Contractor is obliged to comply. The dates of completion for other items are proposed by the ATMS Contractor in their tender proposal, and agreed with the Government in the contract.

Note 2: The Main System is a fully self-contained system that is able to deliver on its own the full ATMS system capacity, functions and capabilities. The Fallback System is a separate but identical system to the Main System for continuing the operations of the ATMS in case of a meltdown of the Main System. Either the Main or Fallback System allows CAD officers to exercise ATC duties with the other system as standby for immediate backup. The Ultimate Fallback System (UFS) is a separate system fully independent from those of the Main ATMS and Fallback ATMS systems. The purpose of including the UFS is to mitigate the risk of encountering a total system failure of the ATMS when both the Main and Fallback ATMS systems fail at the same time, thus ensuring flight safety.

Reply to PAC's Letter of 20 May 2015

Further to my letter dated 18 May 2015 on the above subject, I should be grateful if you could provide the information below.

- (a) according to Item (a) of your reply dated 15 May 2015, “seven out of the eight major systems of the new Air Traffic Control (“ATC”) System have been substantially completed, two of the systems have been operational since 2013 and others will be put into use by phases from 2015. These systems are now operating to support the existing ATC equipment operations and training of the Air Traffic Control Officers”. In this regard, for the new systems that are now operating to support the existing ATC equipment, please advise:
- (i) the name of the systems;
 - (ii) as the existing ATC has been functioning without the support of the systems, the reason(s) for using these systems to support the existing ATC equipment operations and whether they are used to replace some old systems; and
 - (iii) the recurrent cost and other costs incurred for using the systems to support the existing ATC equipment operations.

Reply to (i), (ii) and (iii)

The two new systems of the new ATC system which have been operational since 2013 are:-

1. Communications Backbone System (CBS); and
2. Ancillary and Technical Support Systems (ATSS).

The above new systems serve to connect the outstation surveillance and radio communications systems to the main ATC systems. Given the above new systems have more bandwidth, they could enhance the transmission of data from outstations to the existing ATC Centre, and strengthen the communication between the frontline and management ATC staff, by increasing the volume and speed of data transmission, and providing higher system reliability and capacity, thereby supporting the existing ATC systems to handle the continued growth of the air traffic volume of Hong Kong. The above new systems will be fully integrated with the other new ATC systems and the new ATMS upon the commencement of new ATC Centre operations.

The annual maintenance costs of the CBS and ATSS are around HK\$2.2M and HK\$70,000 respectively procured from the system providers.

(b)



For each of these remaining outstanding priority items, please advise whether they have been rectified by now. If no, please advise the possibility that they will be rectified by mid-2015, i.e. 30 June 2015.

We have stated our concern in our 20 May 2015 letter (replying to PAC's letter of 15 May 2015) and our 15 May 2015 letter (replying to PAC's letter of 30 April 2015) over disclosure of the requested information to the public, having regard to the fact that number of the follow-up items is progressively decreasing. However, noting PAC's consideration, and upon our further review of the situation, we would like to provide the following more updated figures as at 15 May 2015 for PAC to consider including in the PAC Report.

During the Site Acceptance Test (SAT) of the new ATMS conducted in August to November 2014, about 1,000 follow-up items were recorded on site. Of these follow-up items, about 80% of them are minor in nature and would not affect the safety and the commencement of operation of the ATMS. CAD has been closely monitoring the performance of the Contractor, and has requested the Contractor to take all possible measures to expedite the rectification of the remaining 20% (i.e. 200 items) outstanding priority items. The ATMS Contractor has been working closely with CAD in putting additional resources to address the 200 outstanding priority

items in question. As at 15 May 2015, there are about 14 outstanding priority items which would be rectified / addressed by the Contractor before end June 2015.

* * * * *

Appendix V

Cost breakdowns forContract Variation No.1 (CV#1) and Contract Variation No.2 (CV#2)

Contract Variation #1 in Para. 2.6 of Audit Report R63/4	Cost breakdown
(a) enhancements of the scope of data synchronization between the live system and the ultimate fallback system;	HK\$4.9M (11.6%)
(b) enhancements of aircraft arrival sequence logic and human-machine interface for handling of missed approach flights, and improving operational efficiency of coordination among various operational units within the CAD as well as interoperability with the neighbouring ATC centres; and	HK\$25.1M (59.2%)
(c) simulator system expansion by increasing the number of simulator training and input operator positions from 32 to 48.	HK\$12.4M (29.2%)
Total:	HK\$42.4M

Contract Variation #2 in Para. 2.9 of Audit Report R63/4	Cost breakdown
(a) During the procedure evaluation and training sessions of the ATMS (commencing in August 2012), the CAD identified the need to implement further system enhancements to improve the operational efficiency	HK\$27.7M (59.2%)
(b) as well as to meet new requirements of the ICAO Global Air Navigation Plan (GANP) and Regional Performance-based Navigation Implementation Plan (PBN).	HK\$19.1M (40.8%)
Total:	HK\$46.8M

Appendix II**Details and Cost of each new function/enhancement for Contract Variations added to the ATMS****Contract Variation #1**

The details and cost for each new function/enhancement added to the ATMS under the scope of item 2.6(b) of the Audit Report are given as follows:-

Description	Cost
<p><i>(i) enhancements of aircraft arrival sequence logic and human-machine interface for handling of missed approach flights</i></p> <p>Additional functions were added to the Arrival Manager (AMAN) for enhancement of aircraft arrival sequence logic including average delay algorithm, two aircraft holding stack feature, pre-sequencing for all Flight Information Region (FIR) entries, Secondary Surveillance Radar (SSR) code duplication enhancement, as well as enhancement of the human machine interface (HMI) to improve handling of missed approach flights for safe and efficient ATC operations.</p>	HK\$8.4M
<p><i>(ii) improving operational efficiency of coordination among various operational units within the CAD</i></p> <p>Additional features were added to the Electronic Flight Strip (EFS) for enhancement of the flight related information in the EFS, so as to improve coordination among the flight data operators, control tower operators and control centre operators for more efficient ATC operations.</p>	HK\$4.2M
<p><i>(iii) interoperability with the neighbouring ATC centres</i></p> <p>Enhancement on the Air Traffic Services (ATS) Interfacility Data Communications (AIDC) interface so that the ATMS could communicate with different air traffic control centres using different versions of AIDC message protocols developed by the ICAO to enhance operational efficiency.</p>	HK\$12.5M
Total:	HK\$ 25.1M

Appendix IV**Details and Cost of each new function/enhancement for
Contract Variations added to the ATMS****Contract Variation #2**

The details and cost for each item under the scope of Contract Variation #2:-

Description	Cost
<p><i>(a) with the evolution of the project and more insight gained from the hands-on experience during the training sessions, new or enhanced functionalities (in particular functions in air traffic flow management and human-machine interface) were found necessary to improve the operational efficiency and competency of the air traffic controllers in managing the increased airspace capacity which would in turn enhance flight safety</i></p> <ul style="list-style-type: none"> • Enhancement of the operational ATMS to improve operational efficiency of air traffic controllers in managing increased airspace capacity while maintaining flight safety. • Enhancement of various simulation and pseudo-pilot display functions to increase the fidelity, flexibility and comprehensiveness of air traffic simulation scenarios, thereby enhancing quality of training for air traffic controllers and improving operational competency of air traffic controllers , which in turn will enhance flight safety during real operations. 	<p>HK\$17.5M</p> <p>HK\$10.2M</p>
<p><i>(b) the enhancements were related to meeting the new requirements of ICAO viz. the GANP (which was endorsed in November 2012) and PBN.</i></p> <ul style="list-style-type: none"> • Additional functions were added to enable creation of circular “special use of airspace” on real-time basis, and manual highlighting of flight level box as assigned by air traffic controllers to improve operational safety and efficiency in compliance with the latest GANP endorsed by ICAO in its Air Navigation Conference held in November 2012. • Additional functions were added to provide Required Navigation Performance 1 capability in the Arrival Manager in compliance with the latest ICAO Asia Pacific Regional PBN Implementation Plan for provision of efficient and safe air traffic control operations. 	<p>HK\$3.4M</p> <p>HK\$15.7M</p>
Total:	HK\$46.8M



香港特別行政區政府
The Government of the Hong Kong Special Administrative Region

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APPENDIX 34

13 February 2015

Clerk to the Public Accounts Committee
Legislative Council
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

(Attn: Mr Anthony CHU)

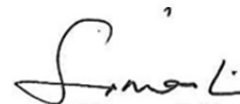
Dear Mr CHU,

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the Air Traffic Control and Related Services

We refer to your letter (Ref. CB4/PAC/R63) dated 7 January 2015. Subsequent to our reply issued on 12 January 2015, we provide at the Attachment our further response to item (m) about the countries in the Asia-Pacific Region and other regions of the world which have adopted the Air Traffic Management contingency arrangements.

Thank you for your kind attention.

Yours sincerely,



(Simon Li)

for Director-General of Civil Aviation

Encl.

c.c. Secretary for Transport and Housing (Attn: Ms Monica Chen)
Director of Government Logistics (Attn: Mr M C Yip)

Attachment

We have consulted the International Civil Aviation Organization (ICAO) regarding the implementation of the Air Traffic Management (ATM) contingency plan by States/Administrations, and understand that 5 States/Administrations in the Asia Pacific Region namely Australia, French Polynesia, Myanmar, Singapore and Sri-Lanka have adopted the ATM contingency plan and are equipped to deal with contingency situations at sub-regional level (involving two or more States/Administrations). Another 11 States/Administrations in the Asia Pacific Region, including Hong Kong, Macao, India, Indonesia, Malaysia, New Zealand, Pakistan, Philippines, Thailand, Tonga and USA have committed to adopt the said ATM contingency plan, subject to enhancement of relevant system and procedure provisions.

Apart from the Asia-Pacific Region, other regions, such as the Middle East, and European/North Atlantic regions, have also developed similar ATM Contingency Plans on a regional basis.

財經事務及庫務局



香港金鐘添美道二號
政府總部二十四樓

FINANCIAL SERVICES AND THE
TREASURY BUREAU

24/F, Central Government Offices,
2 Tim Mei Avenue, Admiralty
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電話號碼 Tel. No. : 2810 2257
本函檔號 Our Ref. : L/M (1) to TsyB 00/520/99/2/0
來函檔號 Your Ref. : CB4/PAC/R63

29 December 2014

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

Dear Mr Chu,

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the air traffic control and related services

I refer to your letter dated 17 December 2014 regarding the two contract variations to the Air Traffic Management System ("ATMS") contract. Our responses are set out in the ensuing paragraphs.

Promoting fair, competitive and open bidding has all along been a fundamental principle in government procurement. All bureaux/departments are required to comply with the Stores and Procurement Regulations ("SPR") when conducting their procurement activities. Tendering for the ATMS contract was conducted through an open bidding process. The tender requirements were made known to all tenderers and acceptance was based on the tender attaining the highest score in terms of the pre-determined tender evaluation criteria. As such, the contract was awarded through an open, fair and transparent bidding process.

The Government has clear guidelines for bureaux/departments to deal with contract variations to ensure that they are properly conducted. As stipulated in SPR, contract variations should be avoided as far as possible and should normally be used as a stop-gap measure. Under no circumstances may a department vary a contract which will result in the approved commitment or approved project estimate being exceeded. For contract variations amounting to new procurements covered by the Agreement on Government Procurement of the World Trade Organization (“WTO GPA”), the procuring department shall ensure that all relevant requirements of WTO GPA are complied with and seek advice from the Department of Justice if needed. There are different levels of authorities for approval of contract variations of different nature and value. The department should copy the approved contract variations to the Director of Audit for record.

The ATMS contract was awarded by the Government Logistics Department (“GLD”) on behalf of the Civil Aviation Department (“CAD”). Under SPR, for goods and service contracts awarded by GLD on the advice of the Central Tender Board, the GLD Tender Board (“GLDTB”) is the approving authority for variations with the accumulated value of the variations up to 30% of the original contract value. According to the information provided by CAD to the GLDTB, the two contract variations to the ATMS contract were required to meet the higher international standards on air traffic management, new requirements of the International Civil Aviation Organization and the operational needs of the future air traffic growth in Hong Kong. CAD had confirmed that they were **not** aware of these additional/new requirements at the time of preparing the tender specifications for the ATMS contract. The additional/new requirements were essential to meet CAD’s operational requirements and hence a genuine need of procurement.

ATMS is a highly complex and mission-critical system. Installation of any enhancements requires modifications of the proprietary software developed by the ATMS contractor, which has the exclusive intellectual property rights over the source codes. According to CAD, there was no other potential and suitable supplier with such technical expertise which could arrange software customization and development for the additional/new requirements of the ATMS. In the absence of any reasonable alternative, procuring the additional/new requirements by contract variation with the existing ATMS contractor was the only viable option.

CAD had also sought legal advice on the appropriateness to procure the additional/new requirements by contract variations from the WTO GPA's perspective. For protection of the intellectual property rights of the products provided by the ATMS contractor, and for reasons of compatibility and interchangeability with the existing functions of the ATMS, no legal objection to procuring the additional/new requirements by contract variations was received.

The ATMS contractor had provided proposals for the contract variations with detailed costs and manpower requirements for evaluation by the Government. After comparing the prices quoted in the proposals and those in the ATMS contract, CAD had confirmed that the quoted prices were fair and reasonable for the Government to accept as they were no less favourable than the existing contract rates. CAD had also evaluated the manpower requirements to ensure that these were commensurate with the work required.

In considering the two contract variations concerned, the GLDTB had critically examined the justifications provided by CAD to ensure that the process was conducted in a fair manner and the Government's interest was duly protected. When granting approval for the contract variations, the GLDTB had nevertheless remarked that it was unsatisfactory for a procuring department to seek multiple contract variations and requested CAD to review its tendering strategy and better plan its purchases in the future.

Against the above, we are content that the contract variations were approved in accordance with the established procedures and guidelines in this respect.

Yours sincerely,



(Miss Winky Wong)

for Secretary for Financial Services and the Treasury

財經事務及庫務局

香港金鐘添美道二號
政府總部二十四樓



FINANCIAL SERVICES AND THE
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來函檔號 Your Ref. : CB4/PAC/R63

13 January 2015

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

Dear Mr Chu,

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the air traffic control and related services

I refer to your letter dated 8 January 2015 seeking further information on the contract variations to the Air Traffic Management System ("ATMS") contract. Our response is set out in the ensuing paragraphs.

As mentioned in paragraph 4 of our reply to you of 29 December 2014, the Government Logistics Department Tender Board ("GLDTB") is the approving authority for variations to the ATMS contract with the accumulated value of the variations up to 30% of the original contract value. According to the information provided by the Civil Aviation Department ("CAD") to the GLDTB, the two contract variations to the ATMS contract involved additional/new requirements necessitated to meet the higher international standards on air traffic management, new requirements of the International Civil Aviation Organization and the operational needs of the future air traffic growth in Hong Kong. They were **not** products or services in the original scope of the ATMS contract. Hence, the tenderers could not have priced such additional/new requirements in their original offers for the ATMS.

Moreover, Clause 9.4 of the Conditions of Contract for the ATMS stated clearly that where a change of the system or services was requested by the Government to overcome an actual or likely failure of the contractor to meet any of the contract requirements, the contractor shall not be entitled to any increase in the total system price or maintenance charges. When approving CAD's applications for the two contract variations involving increase of the Total System Price and/or Maintenance Charges, the GLDTB was satisfied that Clause 9.4 of the Conditions of Contract was not applicable and that the additional/new requirements to the ATMS were essential to meet CAD's operational requirements and hence a genuine need of procurement.

Yours sincerely,



(Miss Winky Wong)

for Secretary for Financial Services and the Treasury

c.c. Director of Government Logistics

- ~~43.3 Only upon the expiry of the Guarantee Period, the Contract Deposit (if in the form of cash and if any remains) will be refunded to the Contractor without interest; or, if in the form of a Banker's Guarantee, it together with the Parent Guarantee (if any) shall be discharged or released.~~
- 43.4 The Government Representative shall have the right to deduct from time to time from the Contract Deposit or call on the Banker's Guarantee (irrespective of whether or not a demand for payment has been made against the Contractor) any amount due or payable by the Contractor to the Government under the Contract but which remains outstanding, in such order as the Government in its absolute discretion deems fit. The Contract Deposit (whether in cash or in the form of the Banker's Guarantee) and/or the Parent Guarantee may be deducted or called on, without the Government first having recourse to any other security or rights or taking any other steps or proceedings against the Contractor or any other person, or may be enforced for any balance due after resorting to any one or more other means of obtaining payment or discharge of the monies, obligations and liabilities owing by the Contractor to the Government.
- 43.5 If any deduction shall be made by the Government from the Contract Deposit or a call shall be made on the Banker's Guarantee during the continuance of the Contract, the Contractor shall, within 30 days on demand in writing by the Government, deposit a further sum or provide a further Banker's Guarantee, in a sum equal to the amount so deducted or so called which further sum shall be added to the residue of and form part of the Contract Deposit and, where applicable, the additional security amount required under Clause 43.1.1.
- 43.6 In addition to the Contract Deposit, as a condition for payment of each of the first and second instalments of the Total System Price under the payment schedule specified in paragraphs 2.1 and 2.2 of Schedule 13, the Contractor shall deposit with the Government a Banker's Guarantee in the form set out in Annex B for an amount equal to such relevant instalment ("Advance Payment Banker's Guarantee"), provided always the validity period of each such Advance Payment Banker's Guarantee shall be from the date of its issue until the Acceptance Date for Phase 2 ATMS. In the event that the Acceptance Certificate for Phase 2 ATMS has not been issued prior to the Completion Date for Phase 2 ATMS, and/or the Government terminates the Contract (due to whatever ground as specified in Clause 44), all Advance Payment Banker's Guarantees will only be released if all sums payable to the Government under these Advance Payment Banker's Guarantees have been fully paid and discharged, whether through drawing on the Advance Payment Banker's Guarantees or otherwise.

44. Termination

- 44.1 Without prejudice to other rights and claims of the Government under the Contract or at law, the Government shall be entitled to terminate the Contract by serving a 14 days' notice in writing on the Contractor if:
- 44.1.1 the Contractor persistently or flagrantly fails to carry out the whole or any part of the Services punctually or in accordance with the terms and conditions of the Contract; or
- 44.1.2 the Contractor fails to observe or perform any of its obligations under the Contract

and (in the case of a breach capable of being remedied) has failed to remedy the breach to the satisfaction of the Government Representative within 30 days (or such longer period as the Government Representative may, in its sole discretion, allow) after the issuance by the Government Representative to the Contractor of a notice in writing requiring it to do so; or

44.1.3 the Contractor fails to pay any of the sums payable by the Contractor under the Contract; or

44.1.4 any of the warranties, representations or undertakings made or deemed to have been made by the Contractor to the Government in the Contract or in its tender for the Contract or otherwise during the continuance of the Contract (including without limitation any of the Warranties) is untrue or incomplete or inaccurate; or

44.1.5 a petition is presented or a proceeding is commenced or an order is made or an effective resolution is passed for the winding-up, insolvency, bankruptcy, administration, reorganization, reconstruction, or dissolution of the Contractor otherwise than for the purpose of a solvent reconstruction or amalgamation previously approved by the Government Representative in writing, or the Contractor makes any composition or arrangement with creditors; or a receiver, administrator, trustee or similar officer has been appointed in respect of the Contractor or all or any part of its business or assets; or

44.1.6 the Contractor abandons the Contract in part or in whole; or

44.1.7 the Contractor assigns or transfers or purports to assign or transfer all or any part of the Contract or all or any of its rights or obligations thereunder without the prior written consent of the Government; or

44.1.8 without prejudice to the generality of the foregoing grounds for termination, if any event or circumstance occurs which enables the Government to terminate the Contract under any one of the following provisions:

Clause 12.3(d) (FAT);

Clause 13.3(d)(i) (SAT);

Clause 14.3(d) (FCAT)

Clause 15.2(c)(i) (RAT);

Clause 17.3 (Delays);

Clause 30.3.4 (Intellectual Property Rights Indemnities);

Clause 40.4 (Prevention of Bribery);

Clause 46.3 (Force Majeure);

Clause 48.4 (Software Asset Management);

Clause 51.1 (Illegal Workers); and

Clause 52.6 (Admission to Government's Premises).

44.2 The Government may terminate the Contract to the extent it relates to Phase 2 ATMS (“Partial Termination”) if any event or circumstance occurs which enables the Government to do so under any one of the following provisions:

Clause 13.3(d)(ii) (SAT);

Clause 15.2(c)(ii) (RAT); or

Clause 17.3 (Delays).

45. Consequences of Early Termination

45.1 Upon early termination (howsoever occasioned) or expiry of the Contract (“Termination”):

45.1.1 the Contract shall be of no further force and effect, but without prejudice to:

(a) the Government’s rights and claims under the Contract or otherwise at law against the Contractor arising from antecedent breaches of the Contract by the Contractor (including any breach(es) which entitle the Government to terminate the Contract);

(b) the rights and claims which have accrued to a party prior to the Termination; and

(c) the continued existence and validity of those provisions which are expressed to or which in their context appropriately survive Termination and any provisions of the Contract necessary for the interpretation or enforcement of the Contract including without limitation Clauses 1 (Definitions), 22 (Title and Risks to the System), 23 (Vesting of Intellectual Property Rights in the Government), 24 (Exclusion from Vesting), 25 (Licences), 26 (Warranties and Undertaking), 27 (No Warranty on the Part of the Government), 29 (Indemnities), 30 (Intellectual Property Rights Indemnities), 35.5 to 35.6, 35.9 to 35.13 (apart from Clause 35.11) (Payment), and all remaining Clauses thereafter except for Clause 49 (Policy of Insurance and Compensation), 52 (Admission to Government’s Premises); the obligations of the parties under these provisions shall continue to subsist notwithstanding the Termination regardless of whether or not it is so expressly stated in these individual provisions;

45.1.2 the Government shall not be responsible for any claim, legal proceeding, liability, loss (including any direct or indirect loss, any loss of revenue, profit, business, contract or anticipated saving), damage (including any direct, special, indirect or consequential damage of whatsoever nature) or any cost or expense, suffered or incurred by the Contractor due to the Termination;

45.1.3 the Government may, without prejudice to any accrued rights and claims of the Government for breach of the whole or any part of Contract, itself take up the uncompleted Services (or any part thereof) or contract out the uncompleted Services (or any part thereof) to another contractor(s) or procure the Contractor Supplied Components and/or other items offered by the Contractor in the

Contract from other contractor(s) whereupon in the event of termination pursuant to Clause 44.1, the Contractor shall be liable for all losses, damage, costs and expenses thereby incurred by the Government arising from the Termination including without limitation the amounts payable to any subsequent contractor or supplier and/or the cost of maintaining an in-house team for procuring all or any of the Services and/or Contractor Supplied Components and/or other items which are in excess of the amounts which would have been payable to the Contractor for the same had the Contract not been terminated;

- 45.1.4 the Contractor shall refund to the Government forthwith any sums previously paid under the Contract for the SS&M Services in respect of the unexpired Hardware and Software Maintenance Periods and for Contractor Supplied Components which were ordered but have not been delivered and accepted prior to the Termination; and in the case the Termination occurs before Phase 1 ATMS becomes Ready for Service, the Contractor shall refund to the Government forthwith all sums paid in discharge of the Total System Price;
- 45.1.5 for the avoidance of doubt, the Government may exercise its right under Clause 55 in relation to any sum payable to the Contractor;
- 45.1.6 not used;
- 45.1.7 the Contractor shall forthwith deliver to the Government all parts of the System, all Acquired Property (including Licensed Property), all Government Data and all Records in whatever format, and stored in whatever media, which are in the possession or under the control of the Contractor. In the event that any of the aforesaid materials or items are located within the premises of the Contractor, the Government Representative and any person(s) authorized by it are hereby granted an irrevocable licence to, anytime and from time to time within one year after termination of the Contract, enter such premises for the purpose of taking possession of such materials or items. In the event that any of the aforesaid materials or items is lost or damaged whilst in the possession or control of the Contractor or its employees, sub-contractors or agents, the Contractor shall pay to the Government for such loss or damage being an amount equal to the original cost plus 10% as and for liquidated damages and not as a penalty. A count of the articles or materials in the possession or control of the Contractor may be made at any time by the Government and the Contractor shall render such assistance as is necessary for this purpose;
- 45.1.8 the Contractor shall certify to the Government that no hardcopies or softcopies or duplicates of any of the items referred to in sub-clause 45.1.7 have been retained;
- 45.1.9 the Contractor shall compile and submit to the Government a report of the Services performed, including without limitation a report on all Implementation Services and the SS&M Services which have thus far been completed and discharged up to the date of the Termination;
- 45.1.10 notwithstanding anything herein to the contrary, and regardless of the cause (the absence thereof) or basis for the Termination, the Government shall have no obligation to pay to the Contractor any money whatsoever arising from the Termination;

- 45.1.11 the Contractor shall make good, to the satisfaction of the Government, any damage to the System or any part thereof or the Acquired Property (including Licensed Property) or Government Data or Records;
- 45.1.12 at the request of the Government, the Contractor shall enter into and perform all deeds of assignment, transfer or novation in favour of the Government or in favour of any person whom the Government may designate, for the assignment, transfer or novation of any contract, arrangement or other subject matter whatsoever (including insurance policy, equipment lease, software licence) on such terms and conditions as the Government may stipulate; and procure any other third party whom the Government considers necessary for effecting or perfecting such assignment, transfer or novation to enter into and perform any such deeds of assignment, transfer or novation;
- 45.1.13 the Contractor will, or will procure its associates or associated persons to, do all such acts, and sign all such deeds and documents, which are required to be done or signed, under the Contract, or otherwise as directed by the Government Representative, to ensure the complete handover of the System and the Services to the Government or a succeeding contractor, or otherwise as may be necessary or desirable to implement or to give legal effect to the provisions of the Contract, and the transactions provided for or contemplated by the Contract including this Clause 45; and
- 45.1.14 all Contractor Personnel shall immediately vacate the Government premises which they were allowed to be stationed or were given access to for performing the Services and surrender all access cards/keys.
- 45.2 Upon a termination of the Contract to the extent it relates to Phase 2 ATMS (“Terminated Services”) (ie Partial Termination) pursuant to Clause 44.2:
- 45.2.1 the provisions in the Contract which concern or relate to the Phase 2 ATMS shall be of no further force and effect, but without prejudice to:
- (a) the Government’s rights and claims under the Contract or otherwise at law against the Contractor arising from antecedent breaches of the Contract by the Contractor;
 - (b) the rights and claims which have accrued to a party prior to the Partial Termination;
 - (c) the continued existence and validity of all remaining provisions of the Contract;
- 45.2.2 the same consequences specified in Clause 45.1 (apart from Clause 45.1.1 and 45.1.4) shall apply save that references to “Termination” shall mean “Partial Termination; references to “Services” shall mean “the Services as they apply to Phase 2 ATMS”, “Contractor Supplied Components” shall mean those for Phase 2 ATMS; and reference to “Clause 44.1” in Clause 45.1.3 shall read Clause 44.2; and
- 45.2.3 references in the Contract to “ATMS” or “System” shall from then on mean Phase 1 ATMS only.



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APPENDIX 38

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檔案編號 Our ref:
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香港特別行政區政府
The Government of the Hong Kong Special Administrative Region

27 May 2015

Clerk to the Public Accounts Committee
Legislative Council
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

(Attn: Mr Anthony CHU)

Dear Mr CHU,

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the Air Traffic Control and Related Services

Thank you for your letter (Ref. CB4/PAC/R63) dated 26 May 2015.

To ensure Air Traffic Control (ATC) operational staff would be confident and competent in using the new Air Traffic Management System (ATMS) smoothly, effectively and safely after its formal commencement of operations, CAD has already commenced providing simulation training on system functionalities of the new ATMS for the ATC operational staff to familiarize themselves with the functions of the new ATMS in January this year. Furthermore, upon the completion of all the acceptance test events of the new ATMS by Q3 2015, CAD has scheduled a series of conversion training and transition activities which will last for 9 to 12 months for all the ATC operation staff, which comprise a total of about 350 officers including supervisors, Air Traffic Control Officers, and Air Traffic Flight Services Officers, to ensure the smooth transition of from the existing ATMS to the new one. All the training and transition activities are prepared in accordance with the international standards and best industry practice. The detailed work plan is set out at **Attachment**.

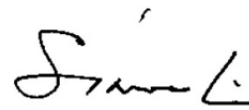
CAD will continue to conduct regular review on the above training

***Note by Clerk, PAC: Please see Appendix 39 of this Report for Attachment.**

致力於安全、有效率及可持續發展的航空運輸系統
Committed to a Safe, Efficient and Sustainable Air Transport System

programmes and transition arrangements having regard to the latest development of the implementation of the new ATMS and the needs of the ATC operational staff in order to ensure the smooth and timely transition of the existing ATMS to the new one, which is expected to be completed in the first half of 2016.

Yours sincerely,



(Simon Li)

for Director-General of Civil Aviation

Encl.

c.c. Secretary for Transport and Housing (Attn: Ms Monica Chen)
Director of Government Logistics (Attn: Mr M C Yip)

Attachment

Work plan of transition of the existing ATMS to the new ATMS

Time	Tasks
Q3 2015	Completion of all the acceptance test events of the new ATMS
Q3 to end 2015	Training on the ATC operations – to provide training on the conduct of actual ATC operations by using the new ATMS
Q3 to end 2015	Briefing sessions – to provide briefings on the operations of the other systems of the new ATC system to be integrated with the new ATMS
January to May 2016	Shadowing operations – to conduct virtual handling of the various air traffic scenarios by using the new ATMS by mimicking real live air traffic operations taking place at the existing ATC Centre
January to May 2016	Operational trials – to conduct actual handling of real live air traffic at the HKIA using the new ATMS, to be supported by the existing ATC Centre
June 2016	Commencement of operation of the new ATMS

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Government Secretariat

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24 December 2014

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

Dear Mr CHU,

**Chapter 4 of the Director of Audit's Report No. 63 on the
Administration of the air traffic control and related services**

Thank you for your letter dated 16 December 2014. Regarding the issues mentioned in your letter, I am authorised to reply as follows.

With the robust development and growth of the Hong Kong International Airport and the regional aviation industry, the Transport and Housing Bureau ("THB") supported the Civil Aviation Department ("CAD") from the aviation policy perspective to replace its Air Traffic Control ("ATC") system with a view to enhancing the handling capacity of CAD in providing ATC and other aviation-related services, thereby coping with future growth in air traffic, and ensuring aviation safety and efficiency.

The Secretary for Transport and Housing ("the Secretary") and the Permanent Secretary for Transport and Housing (Transport) ("the Permanent Secretary") have regular meetings with the Director-General of Civil Aviation ("the Director") respectively at bi-monthly intervals to receive reports from the Director on the major work of CAD. The meetings are also attended by key

Directorate officers of CAD. At the meetings, CAD will submit written reports on the latest progress of the various tasks before the meetings to facilitate the discussions. During the discussions, the Secretary and the Permanent Secretary will give comments, but verbatim minutes of the meetings are not prepared. Nonetheless, follow-up actions after the meetings are taken forward in accordance with the established work procedures.

Since funding approval for the replacement of the ATC system was obtained from the Finance Committee of the Legislative Council in May 2007, the Director has been regularly updating THB at the above meetings on the progress of work related to the replacement of the ATC system. Since the second half of 2012 when THB was informed by CAD that the commissioning date for the new ATC system would be postponed due to the slower progress of work related to the replacement of the Air Traffic Management System (“the ATMS”), the Bureau advised the Director and his colleagues to double the efforts and work more closely with the contractor of the ATMS to settle the outstanding issues of the new system as soon as possible to minimise the delay, while ensuring that the smooth operation, safety and stability of the new system would not be compromised. In order to expedite the implementation of the replacement project, CAD has adopted the following improvement measures:-

- (a) establishing a steering committee chaired by the Deputy Director-General of Civil Aviation on the new ATC Centre and system project in April 2013 to enhance monitoring of the progress of the replacement of the ATMS, and give timely instructions on key issues;
- (b) visiting the contractor’s plant in Boston of the United States between October and November 2013 by CAD staff responsible for the project to discuss and examine the items being enhanced as well as the outstanding issues and operational details of the ATMS;
- (c) conducting meetings between the Director / Deputy Director-General of Civil Aviation / Assistant Director-General of Civil Aviation and the contractor’s senior management in Hong Kong in November 2013 and May, August and October 2014. At the meetings, CAD requested the contractor to take all possible measures to minimise the delay of the project, including the deployment of additional resources and personnel with relevant experience, settling outstanding issues of the ATMS as early as possible, and submitting a practicable implementation plan for the project;

- (d) conducting weekly teleconferences between the subject Assistant Director-General of Civil Aviation and Chief Electronics Engineer and the contractor's senior management since early 2014, with a view to reviewing the project progress, adjusting work priorities and human resources, etc, to tackle the major issues in a timely manner, and enhance communication and collaboration between the two sides; and
- (e) as per CAD's request, the contractor's project management and professional personnel came to Hong Kong on several occasions since early 2014 to discuss with CAD staff the outstanding issues of the ATMS. The expert project team of the contractor stayed in Hong Kong for four weeks between April and May 2014 to expedite the completion of the site acceptance test.

Regarding the contract variations for the new system, CAD has followed the Stores and Procurement Regulations stipulated by the Government in setting out the details and expenditure involved for the enhancement items, and were submitted to the Government Logistics Department for vetting and approval. THB was not involved in the process.

Yours sincerely,



(Desmond WU)

for Secretary for Transport and Housing

c.c. Director-General of Civil Aviation
Secretary for Financial Services and the Treasury
Director of Audit

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**Transport and
Housing Bureau
Government Secretariat**

Transport Branch
East Wing, Central Government Offices,
2 Tim Mei Avenue,
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本局檔號 Our Ref.: THB(T)CR 2/2172/08
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12 January 2015

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

Dear Mr CHU,

**Chapter 4 of the Director of Audit's Report No. 63 on the
Administration of the air traffic control and related services**

Thank you for your letter dated 7 January 2015. Regarding the issues mentioned in your letter, I am authorised to reply as follows.

The Transport and Housing Bureau ("THB"), through its regular meetings with the Director-General of Civil Aviation ("the Director"), receives reports regularly from the Director and other key Directorate officers of the Civil Aviation Department ("CAD") on the major work of the Department, including progress on the replacement of the air traffic control system ("ATC system"). Apart from the said meetings, THB also maintains close contact with CAD regarding the progress of the ATC system and related work.

Since the tendering process of the ATC system took longer time than anticipated, and coupled with the delay in the commissioning date of the new CAD headquarters building, CAD anticipated in the first half of 2010 that the commissioning date of the Air Traffic Management System ("ATMS") would be deferred from the original estimate of December 2012 to 2013, and reported the development to THB. Subsequently, CAD set out in the contract of the ATMS

that the completion date of the ATMS was mid-2013.

As regards the implementation of the ATMS contract, THB was informed in the second half of 2012 that, considering the results of the Factory Acceptance Tests of the ATMS which indicated that follow-up actions were required on a number of outstanding issues, the commissioning date of the new Air Traffic Control Centre (“ATC Centre”) would be affected. THB, through its meetings with CAD, have repeatedly requested CAD while ensuring the smooth operation, safety and stability of the new system to step up its efforts to enhance its supervision of the work of the contractor of the ATMS, and settle the outstanding issues of the new ATC system as soon as possible to minimize the delay. In order to expedite the project, CAD has adopted a host of improvement measures, details of which have been set out in THB’s reply to the Committee of 24 December 2014, and are not repeated here.

THB and CAD have been reporting on a regular basis the progress of the implementation of the new ATC Centre to the Legislative Council (“LegCo”) Panel on Economic Development, including the commissioning date of the new ATC system, and proactively replied to the queries from the LegCo Finance Committee and other LegCo Members regarding the new ATC system, including the progress. Please find attached copies of the documents submitted to LegCo by THB and CAD since we were aware of the delay in the commissioning date of the new ATC centre in 2010 for reference.

In addition, the contract of the ATMS was awarded by the Government Logistics Department (“GLD”) on behalf of CAD. According to the Government Stores and Procurement Regulations (“the Regulations”), variations to such contract required approval from the GLD Tender Board. CAD had handled the contract variations of the ATMS in accordance with the requirements under the Regulations.

Yours sincerely,



(Desmond WU)

for Secretary for Transport and Housing

c.c. Director-General of Civil Aviation
Director of Government Logistics
Secretary for Financial Services and the Treasury
Director of Audit

**The reports of progress of the implementation of
the Air Traffic Control System to the Legislative Council
by the Transport and Housing Bureau and Civil Aviation Department**

Date	Details	Attachments
March 2010	In response to Hon Tong Ka-wah, Ronny's question during the examination of estimates of expenditure for financial year 2010-11 by the Finance Committee of the Legislative Council ("LegCo"), the Director-General of Civil Aviation ("DGCA") pointed out that the Civil Aviation Department ("CAD") was closely working with the Government Logistics Department in the procurement of the new air traffic control ("ATC") systems and the progress had been satisfactory. It was anticipated that the new equipment/systems would be delivered in phases starting from end 2010. Upon satisfactory installation, testing and commissioning of the new ATC systems, the new ATC centre was scheduled for operation by end 2013.	1
March 2011	In response to the questions from Hon Lau Kin-ye, Miriam, Hon Fung Kin-kee, Frederick, Hon Ip Wai-ming and Hon Wong Sing-chi during the examination of estimates of expenditure for financial year 2011-12 by the LegCo Finance Committee, DGCA reported progress of the new ATC systems. The reply pointed out that the new ATC Centre was planned for commissioning for operational use by end 2013 after completion of system acceptance and integration testing, and controller training.	2
October 2011	In the paper for briefing the LegCo Panel on Economic Development ("ED Panel") on relevant policy initiatives in the Chief Executive's 2011-2012 Policy Address, the Transport and Housing Bureau ("THB") reported the progress of the new ATC Centre to Members. The paper pointed out that installation, acceptance and integration testing, technical and operational training on the new ATC system would be carried out in 2012-13. The new ATC Centre was planned for operational use by end 2013 the earliest, upon satisfactory completion of all the training and system reliability testing works.	3
January 2013	In the paper for briefing the LegCo ED Panel on relevant policy initiatives in the Chief Executive's 2013 Policy Address, THB reported the progress of the new ATC Centre to Members. The paper pointed out that CAD was progressively implementing the	4

Date	Details	Attachments
	<p>installation as well as the acceptance and integration testing of the new ATC systems. CAD would conduct integration and pilot testing for the new ATC systems, and provide technical and operational training for the air traffic controllers. Upon satisfactory completion of the work above, the new ATC Centre was expected to commence operation by the second quarter of 2014.</p>	
March 2013	<p>In response to the question from Hon Wong Kwok-hing during the examination of estimates of expenditure for financial year 2013-14 by the LegCo Finance Committee, DGCA reported progress of the new ATC systems. The reply pointed out that construction of the ATC Centre was completed in December 2011 and installation of the new ATC systems was underway. Subject to satisfactory completion of system integration and testing, and training of operational and technical staff, the new ATCC was expected to commence operation in 2014.</p>	5
22 July 2013	<p>In the reply to the letter from Hon Gary Fan of 9 July 2013 referred by the LegCo ED Panel, THB reported the development of the contract variations concerning the Air Traffic Management System (“ATMS”) contract, and the commissioning date of the new ATC Centre. The reply pointed out that due to delay in tendering of the “Design and Construction” works of the new CAD Headquarters Building, coupled with the need to optimize the Autotrac 3 system and the longer time taken to test and evaluate the system than expected, commissioning of the new ATC Centre could not commence by end of 2012 as originally scheduled. It was expected that the enhancement and functional testing of the new Autotrac3 system would be completed in the first quarter of 2014 the earliest, followed by comprehensive integration testing and training of the new systems. The earliest operation of the new ATC Centre was estimated to be in the second half of 2014.</p> <p>The reply also pointed out that in light of the need to meet the higher international standards on air traffic management and new requirements of the International Civil Aviation Organisation (ICAO) set out in the new Global Air Navigation Plan, there was a need to further enhance the new ATMS. The enhancement work would be undertaken in two phases. The phase one work</p>	6

Date	Details	Attachments
	<p>which costed around HK\$40 million included enhancement of the related functions in air traffic flow management and human-machine interface, as well as addition of training positions in the Simulator System. CAD was actively preparing for the phase two work. All contract variations arising from the enhancement work would be proceeded in strict accordance with the Stores and Procurement Regulations, and must be approved by the GLD. The total cost for the replacement of the air traffic control system project (including the enhancement work) would not exceed the limit of the approved budget.</p>	
22 July 2013	<p>In the reply to the letter from Hon Tang Ka-piu of 11 July 2013 referred by the LegCo ED Panel, THB reported the commissioning date of the new ATC Centre. The reply pointed out that due to delay in tendering of the “Design and Construction” works of the new CAD Headquarters Building, coupled with the need to optimize the Autotrac 3 system and the longer time taken to test and evaluate the system than expected, commissioning of the new ATC Centre could not commence by end of 2012 as originally scheduled. It was expected that the enhancement and functional testing of the new Autotrac3 system would be completed in the first quarter of 2014 the earliest, followed by comprehensive integration testing and training of the new systems. The earliest operation of the new ATC Centre was estimated to be in the second half of 2014.</p>	7
January 2014	<p>In the paper for briefing the LegCo ED Panel on relevant policy initiatives in the Chief Executive’s 2014 Policy Address, THB reported the progress of the new ATC Centre to Members. The paper pointed out that CAD was upgrading its ATC system to maintain its high efficiency in air traffic management, thereby consolidating Hong Kong’s leading status as a major aviation hub in the region. The new system was expected to come into operation in early 2015 after appropriate testing.</p>	8

Examination of Estimates of Expenditure 2010-11

Reply Serial No.

**CONTROLLING OFFICER'S REPLY TO
INITIAL WRITTEN QUESTION**

THB(T)028

Head: 28 – Civil Aviation Department

Subhead (No. & title):

Question Serial No.

1133

Programme: (4) Air Traffic Engineering and Standards

Controlling Officer: Director-General of Civil Aviation

Director of Bureau: Secretary for Transport and Housing

Question:

The Air Traffic Engineering and Standards Division is implementing the replacement of the air traffic control (ATC) systems. Please advise:

- (a) What is the progress of the replacement of the ATC systems?
- (b) Would the replacement incur additional expenditure for the Civil Aviation Department (CAD), such as in providing training for staff in the operation of the new systems?

Asked by: Hon. TONG Ka-wah, Ronny

Reply:

- (a) The CAD is closely working with the Government Logistics Department in the procurement of the new ATC systems and the progress has been satisfactory. It is anticipated that the new equipment/systems will be delivered in phases starting from end 2010. Upon satisfactory installation, testing and commissioning of the new ATC systems, the new ATC centre is scheduled for operation by end 2013.
- (b) The new ATC systems will enhance the operational efficiency and capacity of the CAD's air traffic control services. Comprehensive training programmes are being developed to ensure that all technical and operational staff are familiarised with the new ATC systems. Since provision has been made for the equipment contractors to provide technical and operational training, additional funding for training by the CAD is not necessary.

Signature _____

Name in block letters _____ **NORMAN LO**

Post Title _____ **Director-General of Civil Aviation**

Date _____ **16.3.2010**

Examination of Estimates of Expenditure 2011-12

Reply Serial No.

**CONTROLLING OFFICER'S REPLY TO
INITIAL WRITTEN QUESTION**

THB(T)005

Head: 28 – Civil Aviation Department

Subhead (No. & title):

Question Serial No.

1206

Programme: (3) Air Traffic Management

Controlling Officer: Director-General of Civil Aviation

Director of Bureau: Secretary for Transport and Housing

Question:

On the enhancement of the existing runway capacity, will the Administration inform this Committee of the specific work in this area over the past two years (i.e. 2009-10 and 2010-11); of the expenses and manpower involved; of the enhanced capacity in percentage; of any assessment of the effectiveness of such work; if so, of the results; of the estimated work and expenses in 2011-12.

Asked by: Hon. FUNG Kin-kee, Frederick

Reply:

- (a) The Civil Aviation Department (CAD) has continued to take forward various measures to enhance the runway capacity of the Hong Kong International Airport (HKIA):
- (i) a new Arrival Manager System for more efficient sequencing of arrival flights was implemented in 2010;
 - (ii) air traffic control (ATC) procedures are being reviewed with a view to establishing a new control position in 2011 to share the workload of the existing control positions;
 - (iii) the procurement of the new ATC systems is in good progress and the systems are expected to be operational by end 2013; and
 - (iv) the ATC training curriculum has been streamlined to enhance its effectiveness.
- (b) With our continuing efforts, the runway capacity of the HKIA has been increased from 56 movements per hour in early 2009 to 60 movements per hour at present. This capacity, which is equivalent to 1 256 movements per day, is sufficient to handle the estimated annual aircraft movements of 325 000 in 2011.

To cater for further traffic growth, we will increase capacity of the existing two runways at the HKIA to 62 movements per hour by end 2011, and then progressively to 68 movements per hour by 2015. The handling capacity of the airport is expected to be able to cope with the anticipated air traffic demand up to 2020.

- (c) The above increase in runway capacity will be achieved by the use of the new ATC systems, the replacement cost of which is \$1,565 million. In terms of manpower resources, 35 air traffic controller posts were created during 2009-10 and 2010-11. The annual staff cost of these additional posts in terms of notional annual mid-point salary value is \$24.41 million, and the training provision required in 2011-12 is \$13.5 million.

Reply Serial No.

THB(T)005

Question Serial No.

1206

Signature _____

Name in block letters _____ **NORMAN LO** _____

Post Title _____ **Director-General of Civil Aviation** _____

Date _____ **17.3.2011** _____

**CONTROLLING OFFICER'S REPLY TO
INITIAL WRITTEN QUESTION**

THB(T)007

Head: 28 – Civil Aviation Department

Subhead (No. & title):

Question Serial No.

1441

Programme: (4) Air Traffic Engineering and Standards

Controlling Officer: Director-General of Civil Aviation

Director of Bureau: Secretary for Transport and Housing

Question:

Regarding “finalise the detailed design of the Air Traffic Control Centre in the new headquarters of the Department”, would the Administration advise this Committee:

- i. when will the content and timetable of the above project be submitted to the Legislative Council;
- ii. what is the expenditure of the project involved; and
- iii. will additional civil servants be recruited accordingly and if so, what are the details?

Asked by: Hon. IP Wai-ming

Reply:

- i. & ii. The two projects involve the replacement of the existing Air Traffic Control (ATC) systems at the Hong Kong International Airport, and the construction of a new Civil Aviation Department (CAD) headquarters cum ATC Centre on the Airport Island to house the new ATC systems and other CAD facilities (including offices). The Finance Committee approved funding of \$1,565 million and \$1,997 million in money-of-the-day prices for the two projects in May 2007 and January 2008 respectively.

The construction of the new CAD headquarters will be completed by end 2012. The new ATC Centre is planned for commissioning for operational use by end 2013 after completion of system acceptance and integration testing, and controller training.

There is no individual cost breakdown for detailed design of the ATC Centre, equipment rooms and workshops as they form part of the entire headquarters building. The estimated expenditure in 2011-12 for the replacement of air traffic control systems and the construction of the new CAD headquarters are \$130 million and \$470 million respectively.

- iii. To oversee the construction of the new CAD headquarters building and the replacement of air traffic control systems, creation of one supernumerary directorate grade post was approved in 2007. Besides, 21 time-limited posts, including two Air Traffic Control Officer I, 17 Air Traffic Control Officer II and two Electronics Engineers were also created to support the projects.

Reply Serial No.

THB(T)007

Question Serial No.

1441

Signature _____

Name in block letters NORMAN LO

Post Title Director-General of Civil Aviation

Date 17.3.2011

**CONTROLLING OFFICER'S REPLY TO
INITIAL WRITTEN QUESTION**

THB(T)008

Head: 28 – Civil Aviation Department

Subhead (No. & title):

Question Serial No.

1640

Programme: (3) Air Traffic Management

Controlling Officer: Director-General of Civil Aviation

Director of Bureau: Secretary for Transport and Housing

Question:

- (a) According to paragraph 14, “the declared runway capacity [of the Hong Kong International Airport (HKIA)] will be increased from 60 to 62 movements per hour in 2011”. Will the Administration provide additional manpower, equipment, instruments and capital to cope with the increased movements? If yes, what are the details?
- (b) Is the Administration’s estimated increase of only two movements per hour for the coming year too conservative?
- (c) According to paragraph 16, the Administration will “continue to improve the efficiency of air traffic management in order to further enhance the runway capacity of the HKIA”. What are the improvement measures and the expenditure involved?

Asked by: Hon. IP Wai-ming

Reply:

- (a) The Civil Aviation Department (CAD) has continued to take forward various measures to enhance the runway capacity of the Hong Kong International Airport (HKIA):
- (i) a new Arrival Manager System for more efficient sequencing of arrival flights was implemented in 2010;
 - (ii) air traffic control (ATC) procedures are being reviewed with a view to establishing a new control position in 2011 to share the workload of the existing control positions;
 - (iii) the procurement of the new ATC systems is in good progress and the systems are expected to be operational by end 2013; and
 - (iv) the ATC training curriculum has been streamlined to enhance its effectiveness.
- (b) With our continuing efforts, the runway capacity of the HKIA has been increased from 56 movements per hour in early 2009 to 60 movements per hour at present. This capacity, which is equivalent to 1 256 movements per day, is sufficient to handle the estimated annual aircraft movements of 325 000 in 2011.

To cater for further traffic growth, we will increase capacity of the existing two runways at the HKIA to 62 movements per hour by end 2011, and then progressively to 68 movements per hour by 2015. The handling capacity of the airport is expected to be able to cope with the anticipated air traffic demand up to 2020.

Reply Serial No.

THB(T)008

Question Serial No.

1640

- (c) The above increase in runway capacity will be achieved by the use of the new ATC systems, the replacement cost of which is \$1,565 million. In terms of manpower resources, 35 air traffic controller posts were created during 2009-10 and 2010-11. The annual staff cost of these additional posts in terms of notional annual mid-point salary value is \$24.41 million, and the training provision required in 2011-12 is \$13.5 million.

Signature _____

Name in block letters _____ **NORMAN LO** _____

Post Title _____ **Director-General of Civil Aviation** _____

Date _____ **17.3.2011** _____

**CONTROLLING OFFICER'S REPLY TO
INITIAL WRITTEN QUESTION**

THB(T)011

Head: 28 – Civil Aviation Department

Subhead (No. & title):

Question Serial No.

1006

Programme: (3) Air Traffic Management

Controlling Officer: Director-General of Civil Aviation

Director of Bureau: Secretary for Transport and Housing

Question:

To increase the runway capacity progressively to 68 movements per hour by 2015, the Administration stated last year that it would introduce a number of measures including assessments of the new operating procedures for air traffic management, enhanced familiarisation with the new operating procedures, procurement of new air traffic control systems and enhanced training for air traffic controllers. Please advise on the progress of the work and the resources involved.

Asked by: Hon. LAU Kin-ye, Miriam

Reply:

The Civil Aviation Department (CAD) has continued to take forward various measures to enhance the runway capacity of the Hong Kong International Airport (HKIA):

- (a) a new Arrival Manager System for more efficient sequencing of arrival flights was implemented in 2010;
- (b) air traffic control (ATC) procedures are being reviewed with a view to establishing a new control position in 2011 to share the workload of the existing control positions;
- (c) the procurement of the new ATC systems is in good progress and the systems are expected to be operational by end 2013; and
- (d) the ATC training curriculum has been streamlined to enhance its effectiveness.

With our continuing efforts, the runway capacity of the HKIA has been increased from 56 movements per hour in early 2009 to 60 movements per hour at present. The capacity will be further increased to 62 movements per hour by end 2011, and then progressively to 68 movements per hour by 2015.

The above increase in runway capacity will be achieved by the use of the new ATC systems, the replacement cost of which is \$1,565 million. In terms of manpower resources, 35 air traffic controller posts were created during 2009-10 and 2010-11. The annual staff cost of these additional posts in terms of notional annual mid-point salary value is \$24.41 million, and the training provision required in 2011-12 is \$13.5 million.

Reply Serial No.

THB(T)011

Question Serial No.

1006

Signature _____

Name in block letters NORMAN LO

Post Title Director-General of Civil Aviation

Date 15.3.2011

**CONTROLLING OFFICER'S REPLY TO
INITIAL WRITTEN QUESTION**

THB(T)025

Head: 28 – Civil Aviation Department

Subhead (No. & title):

Question Serial No.

0292

Programme: (4) Air Traffic Engineering and Standards

Controlling Officer: Director-General of Civil Aviation

Director of Bureau: Secretary for Transport and Housing

Question:

Concerning the detailed design of the Air Traffic Control Centre, equipment rooms and workshops in the new headquarters of the Civil Aviation Department mentioned in the Matters Requiring Special Attention in 2011-12, please inform this Committee of their estimated completion date and the respective expenses.

Asked by: Hon. WONG Sing-chi

Reply:

We are finalising the detailed design of the new headquarters of the Civil Aviation Department (CAD), including the new Air Traffic Control (ATC) Centre, equipment rooms and workshops. The construction of the new CAD headquarters will be completed by end 2012. The new ATC Centre, supported by the equipment rooms and workshops, is planned for commissioning for operational use by end 2013 after completion of system acceptance and integration testing, and controller training.

The approved project estimate for the construction of the new CAD headquarters is \$1,997 million in money-of-the-day (MOD) prices. The estimated expenditure in 2011-12 is \$470 million. Also, the approved cost estimate of replacing the air traffic control systems, which will be accommodated in the new CAD headquarters, is \$1,565 million. The estimated expenditure in 2011-12 is \$130 million. There is no individual cost breakdown for the detailed design of the ATC Centre, equipment rooms and workshops as they form part of the entire headquarters building.

Signature _____

Name in block letters NORMAN LO

Post Title Director-General of Civil Aviation

Date 17.3.2011

**For information
on 14 October 2011**

Legislative Council Panel on Economic Development

**Policy Initiatives of the Transport Branch of the
Transport and Housing Bureau**

Introduction

This paper elaborates on the on-going initiatives relating to the air and maritime transport portfolio in the 2011-12 Policy Agenda. On civil aviation, we have been strengthening Hong Kong's status as an international and regional aviation hub, focusing on liberalising our air services regime, increasing the runway capacity, improving airport infrastructural facilities and strengthening the connectivity between the airport and the Pearl River Delta (PRD) Region. On marine transport, our policy objectives are to enhance the competitiveness of the Hong Kong Port and to strengthen Hong Kong's position as an international maritime centre.

2011-12 Policy Agenda

On-going Initiatives

2. We will continue to implement the on-going initiatives, including –

Chapter 1 – Developing the Infrastructure for Economic Growth

- (a) ***Continuing to pursue with the Airport Authority (AA) the Hong Kong International Airport (HKIA) Master Plan 2030.***
 - It is important that the HKIA has sufficient runway capacity to handle the forecast growth in traffic. During the period from 3 June 2011 to 2 September 2011, the AA consulted the public and stakeholders on the two development options set out in its HKIA Master Plan 2030. We expect the AA to submit a recommendation on the way forward to the Government in late 2011. The Government will carefully consider the recommendation, with a view to deciding on the next stage of

works which will include the funding arrangements, detailed engineering design and the statutory environmental impact assessment. The Government and the AA will liaise with the stakeholders and carry out appropriate consultation.

- (b) *Improving air traffic management through the establishment of a new air route to cater for flights between Hong Kong and the eastern part of the Mainland and the implementation of the recommendations of a study to increase our runway capacity by improving the existing infrastructure of the HKIA, air traffic control and flight procedures.*
- To facilitate the long-term development of the civil aviation industry, the Civil Aviation Department (CAD) will continue to liaise with the Civil Aviation Administration of China (CAAC) and the Macao Civil Aviation Authority (CAAM) with a view to improving the use of airspace and the co-ordination of air traffic management in the PRD Region. Through the concerted efforts of the three sides, a new transfer point was established on 22 September 2011 at the west of Hong Kong for flights overflying the Hong Kong Flight Information Region and entering into the Mainland, so as to alleviate the pressure on the two existing transfer points.
 - The three sides also met on 31 August 2011 to further discuss enhancement measures regarding the PRD's air traffic control procedures and airspace structure. The meeting formulated a work plan for the next stage of work in accordance with the principles of joint airspace planning, use of common standards and harmonised flight procedure design to enhance airspace planning and air traffic management in the region. The three sides agreed to further study the enhancements to the planning proposals of the Guangzhou and Southern PRD Terminal Areas. The three sides also agreed to expedite the development of the related ancillary systems and to strengthen co-ordination at the operational level for the implementation of continued enhancement measures to address operational needs. A feasibility study will also be conducted on the use of common standards in the operational environment in the Southern PRD Terminal Area and the implementation arrangements. These relevant enhancement measures will adequately cater for the future development of the airports in the region, including the operating mode at the HKIA if a third runway is built.

- Separately, we will continue to pursue with the CAAC the establishment of a new air route to cater for flights between Hong Kong and the eastern part of the Mainland.
 - With the progressive increase of the runway capacity to 68 movements per hour by 2015, the AA is implementing a midfield expansion project to provide additional aircraft stands and apron facilities and a new passenger concourse. The project can maximise the use of the two existing runways and increase the handling capacity of the airport to 70 million passengers and 6 million tonnes of cargo, which is expected to cope with air traffic demand up to 2020. The advanced works of Phase 1 of the project began in August 2011, with the main works expected to begin in the first quarter of 2012 and be completed in the third quarter of 2015.
 - In addition, the new air cargo terminal project is expected to be completed in early 2013. This project will increase the airport's cargo handling capacity by 50% to 7.4 million tonnes per year. We expect more competition in the industry upon completion of this new terminal, which will help to enhance the airport's competitiveness.
- (c) *Continuing to foster closer co-operation between the HKIA and Shenzhen Airport, including further planning of the Hong Kong-Shenzhen Western Express Line (WEL) as a multi-purpose cross-boundary railway which complements the planning and development of Qianhai, Shenzhen and northwestern part of the New Territories and exploits the synergy from the complementary strengths of the two airports.*
- The WEL will be planned as a multi-function cross-boundary railway to support closer co-operation between the HKIA and Shenzhen Airport, as well as complementing the developments of Qianhai, Shenzhen and Hung Shui Kiu of the New Territories. The study on the Review and Update of the Railway Development Strategy 2000, which covers the WEL, has been commenced and will formulate a territory-wide railway development blueprint. Currently, the development of Qianhai New District, Shenzhen is included in the National 12th Five-Year Plan, with a view to developing by 2020 into an important production service centre in the Asia Pacific region and a Hong Kong-Guangdong modern service industry innovation and co-operation exemplary zone. The Hung Shui Kiu (HSK) New Development Area (NDA) Planning and Engineering Study has been launched which will assist in formulating development proposals for

the HSK NDA. In view of the latest updates in the above planning parameters, we will further plan the WEL, including matters such as alignment options, railway functionality, station locations, level of service, connectivity with the Hong Kong and Shenzhen railway networks etc.

(d) Reviewing the demand for air services from time to time and continuing to formulate appropriate development strategies to support the continued growth and development of the civil aviation industry.

- We reviewed and expanded our air services arrangements with seven aviation partners in 2010-11 to provide more growth and development opportunities for the civil aviation industry.
- We will continue to review the demand for air services from time to time and initiate air services negotiations with our aviation partners with a view to increasing air traffic capacity to meet market demand.

(e) Continuing to assist the AA to expand inter-modal connections to strengthen the links between the HKIA and the PRD Region.

- Since the launch of the transit passenger ferry service between the HKIA and the PRD Region in September 2003, the services now serve over 2 million passengers a year. There are currently eight routes serving Macau Maritime Ferry Terminal and Taipa, Shekou, Shenzhen Fuyong, Donguang, Zhongshan, Zhuhai (Jiuzhou) and Nansha.
- To further enhance the connectivity between the HKIA and the PRD Region, a new SkyPier began operation in December 2009. The AA will seek to increase the number of destinations for the ferry services and frequencies of existing services to the PRD Region.

(f) Replacing the CAD's air traffic control system and developing a new CAD Headquarters on the Airport Island to support the long-term growth of the aviation industry.

- With funding approval from the Legislative Council in May 2007 and January 2008, the CAD is implementing the replacement of its existing air traffic control (ATC) system and the development of a new headquarters on the Airport Island to enhance operational efficiency and support the long-term growth of the aviation sector. The target completion date for the construction works of the new headquarters

is end 2012. As regards the procurement of the new ATC system for the new ATC Centre (ATCC) through eight open tenders, five of them have been completed, with the remaining three contracts planned to be awarded by end 2011. Installation, acceptance and integration testing, technical and operational training on the new ATC system will be carried out in 2012-2013. The new ATCC is planned for operational use by end 2013 the earliest, upon satisfactory completion of all the training and system reliability testing works.

(g) *Following up the proposals arising from the review on the regulatory regime of the Air Transport Licensing Authority for our local airlines.*

- The ATLA, established under the Air Transport (Licensing of Air Services) Regulations (Cap 448A), is responsible for granting licences to local airlines to operate scheduled air services between Hong Kong and any point in the world. The stakeholders generally supported the proposals to improve the regulatory regime of ATLA, which have been revised to address their concerns. We aim to submit the legislative amendments to the Legislative Council soon in the fourth quarter of 2011.

(h) *Promoting maritime services of Hong Kong.*

- In the “Outline of the Twelfth Five-Year Plan for the National Economic and Social Development” (the National 12th Five-Year Plan) promulgated in March 2011, the Central Authorities pledges its support for Hong Kong to consolidate and reinforce our position as an international shipping centre. Over the years, we have anchored a well-established maritime cluster which offers comprehensive and high quality services in areas such as ship management, ship broking, marine insurance, maritime arbitration and ship finance. We also have institutional strengths such as being a free port, having a simple and low tax regime, allowing free flow of information and capital, etc. Against this backdrop, the Government will continue to join hands with the industry to help the sector to further develop. Through our support for manpower development and overseas and local promotional activities, we will continue to assist the industry to take advantage of opportunities arising from the more vibrant shipping activities in the Mainland and Asian Pacific markets.

(i) Implementing measures to enhance the competitiveness of the Hong Kong Port.

- We will continue to work closely with the industry to implement various measures to enhance port competitiveness.
- To better meet the operational needs of the industry, we have identified some 30 hectares of former construction sites for use as port back-up land following the opening of Route 8 in late 2009. We have since end-2010 been putting them out to the market in phases under short term tenancy. As at end-August 2011, over 95 hectares of land in Kwai Tsing area was let out for port back-up use.
- We are pressing ahead with the project to dredge the Kwai Tsing Container Basin and its approach channels to 17 metres so that the new generation of ultra-large container vessels can visit HKP at all tides. The project is expected to be completed by 2016. We are also actively studying the feasibility of developing Container Terminal 10 (CT10) at Southwest Tsing Yi. The Preliminary Feasibility Study to evaluate the technical feasibility and environmental acceptability of the proposal is underway. Meanwhile, we are also undertaking the “Study on the Strategic Development Plan for Hong Kong Port 2030” to update the port cargo forecasts as well as to review how to make more efficient use of the existing port facilities and the future development plan of HKP. Upon completion of the two studies by end-2012, we will carefully consider the study results, the then global and local economic situation, the performance of the port sector, and the views of stakeholders when deciding on the need and timetable for CT10 development.

(j) Facilitating the development of a logistics cluster and high value-added third party logistics services in Hong Kong by making available suitable sites around the Kwai Tsing area and keeping in view the development of the Lantau Logistics Park (“LLP”) in the light of the need of the logistics sector and the global and local economic situation.

- Sustained economic development in Mainland China and Asia and the growing trading activities have created an increasing demand for quality logistics services. Hong Kong is well-positioned to capitalize on these development opportunities by specializing in the provision of high value-added logistics services. The National 12th Five-Year Plan has also indicated support for Hong Kong to develop into a high-value

goods inventory management and regional distribution centre. To support the industry's development towards this direction, we will continue to make available sites in Kwai Tsing for developing modern logistics centres that can best meet the present-day operational needs of third party logistics service providers. A site of about 2.4 hectares in Tsing Yi was successfully granted through open tender for this purpose on a fifty years lease term in December 2010. Our plan is to release another logistics site in Tsing Yi, also of 2.4 hectares, in 2011 Q4 on similar lease terms specifying that the site can only be used for the operation of logistics and freight forwarding related activities.

- We will continue to identify and assess the feasibility of other sites for logistics use. We will also keep in view the development needs of the logistics sector having regard to the global and local economic situation, and how Hong Kong takes advantage of, and positions itself in, the rapid growth of the Mainland economy.

Members' Views

3. We welcome Members' views on the various initiatives.

**Transport Branch
Transport and Housing Bureau
October 2011**

**2013 Policy Address
Policy Initiatives of
Transport and Housing Bureau: Economic Development**

Our Vision

The maritime, logistics and aviation industries constitute around 6% (HK\$105 billion) of Hong Kong's Gross Domestic Product (GDP). The Government attaches great importance to the development of our port, maritime and logistics sectors, which provide about 200 000 jobs. The Central Authorities have clearly indicated support for Hong Kong to reinforce and enhance its status as an international aviation and maritime centre, and to develop into a high-value goods inventory management and regional distribution centre. The Hong Kong International Airport (HKIA) is the world's busiest cargo gateway, and one of the world's 10 busiest passenger airports. At present, there are over 100 foreign airlines operating about 6 700 flights per week, serving about 170 destinations worldwide. The current employment on the airport island is about 65 000 people, and the number would be a few times higher when indirect and induced jobs created by the aviation industry outside the airport island are taken into account.

2. The Government is committed to consolidating Hong Kong's leading position as an international aviation and maritime centre and a regional logistics hub. We will continue to enhance Hong Kong's capacity to handle the needs of the travelling public and shippers, review the demand for air services from time to time, strengthen the regulatory regime of local airlines, and maintain high efficiency in air traffic management. The Government will, in collaboration with the industry, work towards enhancing our maritime services, and will ensure that the port and its supporting infrastructural facilities are provided in a timely manner having regard to the growth in cargo throughput, so as to maintain the competitiveness of the Hong Kong Port.

New Initiatives

3. The Chief Executive has announced in the Policy Address that an Economic Development Commission (EDC) would be established to explore and identify growth sectors which present opportunities for Hong Kong's further economic growth from the perspective of the overall strategy and policy to enhance Hong Kong's growth and development. A number of working groups will be set up under the EDC, including the Working Group on Transportation to make concrete recommendations to the Government. Furthermore, having

regard to the findings of the two consultancy studies underway (viz. the Consultancy Study on Enhancing Hong Kong's Position as an International Maritime Centre and the Study on the Strategic Development Plan for Hong Kong Port 2030), we will review comprehensively the policy formulation and institutional arrangements for supporting the maritime and port development, such as adjusting and reinforcing the work of the Transport and Housing Bureau and Marine Department, as well as the functions of and coordination among the three related advisory bodies (i.e. the Hong Kong Maritime Industry Council, the Hong Kong Port Development Council and the Hong Kong Logistics Development Council), with a view to promoting more effectively the long-term development of the relevant sectors and Hong Kong's position as a maritime centre.

On-going Initiatives

Consolidating Hong Kong's status as an international and regional aviation hub

Improving the infrastructure of the HKIA, replacing the Civil Aviation Department (CAD)'s air traffic control system and developing a new CAD Headquarters

4. To cope with air traffic demand for passengers and cargo up to 2020, the Airport Authority Hong Kong (AAHK) is implementing a midfield expansion project, including the construction of a midfield passenger concourse, 20 aircraft parking stands, automated people mover linking to Terminal 1, a new cross-field taxiway, and relevant airfield infrastructures. The works are expected to be completed by mid-2015.

5. In addition, the new air cargo terminal project is expected to be completed in 2013. This project will increase the airport's cargo handling capacity by 50% to 7.4 million tonnes per year. In line with the medium-term development plan, AAHK will also construct 16 new aircraft parking stands on the western part of the midfield area in two phases by the end of 2014.

6. CAD obtained funding approval from the Legislative Council in May 2007 and January 2008 to implement the replacement of the existing air traffic control (ATC) system and the development of a new headquarters on the Airport Island to enhance operational efficiency of the department and support the long-term growth of the aviation sector. The construction works of the new headquarters were completed in mid-2012, and all units of CAD (except the Air Traffic Management unit) had moved into the new headquarters and commenced

operation by end 2012.

7. As regards the replacement of the existing ATC system, CAD is progressively implementing the installation as well as the acceptance and integration testing of the new ATC systems. CAD will conduct integration and pilot testing for the new ATC systems, and provide technical and operational training for the air traffic controllers. Upon satisfactory completion of the work above, the new ATC Centre is expected to commence operation by the second quarter of 2014.

Expanding HKIA into a three-runway system

8. Connectivity is key to enhancing Hong Kong's competitiveness and status as an international business and aviation centre. It is therefore crucial to ensure that the HKIA has sufficient runway capacity to handle the forecast growth in the air traffic volume in the long run. The Government has given in-principle approval to adopt the three-runway system as the future development and planning option for HKIA. AAHK is carrying out the relevant planning work, including the Environmental Impact Assessment (EIA) in light of the study brief issued by the Director of Environmental Protection in August 2012. The EIA is expected to be completed in around two years. The Government and AAHK will liaise with and consult the stakeholders during the process. At the same time, AAHK will carry out other related planning work, including the associated design details and financing arrangements. When the planning report and assessment details are ready, the Government will make a final decision on whether to proceed with the implementation of the three-runway system.

9. According to AAHK's proposal, when the third runway is commissioned in 2023, it can cope with air traffic demand up to at least 2030. By such time, the annual passenger and cargo throughput as well as air traffic movements will increase to 97 million, 8.9 million tonnes and 602 000 from the current 56.5 million, 4 million tonnes and 352 000, respectively.

Reviewing the demand for air services from time to time

10. In 2012, we concluded air services negotiations and initialled an Air Services Agreement with a new aviation partner (the Republic of Seychelles). In addition, we also reviewed and expanded our air services arrangements with eight aviation partners (Luxembourg, India, Kazakhstan, Mongolia, the Mainland, Russia, South Korea and Saudi Arabia) to provide more growth and development opportunities for the civil aviation industry.

11. We will continue to review the demand for air services from time to time and initiate air services negotiations with our aviation partners with a view to increasing air traffic capacity to meet market demand.

Following up the proposals arising from the review on the regulatory regime of the Air Transport Licensing Authority (ATLA) for our local airlines

12. The ATLA, established under the Air Transport (Licensing of Air Services) Regulations (Cap 448A), is responsible for granting licences to local airlines to operate scheduled air services between Hong Kong and any point in the world. The legislative amendments which aimed at improving the regulatory regime of ATLA were passed by the Legislative Council in 2011. We have drawn up the procedural guidelines for the new regulatory regime to facilitate the new applicants and existing licence holders to make applications under the requirements of the new regulatory regime. In addition, we are also conducting a tender exercise to commission an independent consultant to assist ATLA in discharging its duties under the new regulatory regime. Upon completion of the tender process for the consultant, the new regulatory regime is expected to be implemented in early 2013.

Improving air traffic management

13. To facilitate the long-term development of the civil aviation industry, CAD will continue to liaise with the Civil Aviation Administration of China and the Macao Civil Aviation Authority with a view to improving the airspace planning and the co-ordination of air traffic management in the Pearl River Delta (PRD) Region. The three sides held the latest meeting in June 2012, and agreed to continue pursuing various measures to optimize the usage of the airspace and enhance the communication and coordination among the air traffic management authorities in three places, in accordance with the principles of joint airspace planning, use of common standards and harmonised flight procedure design formulated previously. Examples include rationalising flight procedures and air routes, developing related ancillary systems, such as a network platform used for sharing air traffic related information messages, etc. The three sides also agreed to further push forward the planning proposals of the Southern PRD Terminal Areas to remove airspace constraints within the region and increase regional air transport capability. These measures will adequately cater for the future development of the airports in the region, including the operating mode at the HKIA when a third runway is built.

Consolidating and Reinforcing Hong Kong's Position as an International Maritime Centre and Regional Logistics Hub

Port and Maritime Development

14. Strategically located on the Far East trade routes and at the geographical centre of the fast-developing Asia Pacific region, Hong Kong is a regional hub port and an international maritime centre. The Hong Kong Port provides frequent and comprehensive liner shipping services with about 410 container liner services per week to about 520 destinations worldwide. Added to a superb airport and efficient land boundary crossings and transport facilities, it has enabled Hong Kong to become a regional hub port with a vast service network.

15. At present, there are over 700 companies in Hong Kong running businesses related to the maritime industry and providing diversified international maritime services. Not only is Hong Kong a place where shipowners concentrate, our markets for marine insurance and international arbitration services are also well established. Leading and renowned classification societies have all set up offices in Hong Kong. Furthermore, the Hong Kong Shipping Register (HKSR) continues to perform well in terms of ranking. According to the Danish Shipping Statistics November 2012 published by the Danish Shipowners' Association, Hong Kong has risen to the third position in the world in ranking as a place for ship registration. As at end-December 2012, 2 193 ships with a total gross tonnage of 78.9 million were registered with the HKSR. This represents a 15% increase in gross tonnage from a year ago.

16. Hong Kong is a deep-water harbour. To maintain the competitiveness of the Hong Kong Port, we plan to seek funding approval from the Legislative Council later this year for a project to dredge the Kwai Tsing container basin and its approach channels from the present navigable depth of 15 metres to 17 metres. This will enable the Kwai Tsing container terminals to meet the draught requirements of the new generation of ultra-large container ships at all tides. Subject to approval for the funding application, the project is expected to be completed by 2016.

17. We are conducting the preliminary feasibility study for the proposed development of Container Terminal 10 at Southwest Tsing Yi. We are also proceeding with the Study on the Strategic Development Plan for Hong Kong Port 2030. Both studies are expected to be completed in a few months' time. We will consider the need to develop Container Terminal 10 having regard to the study results, global and local economic situation, performance of the port sector

and views of stakeholders, etc.

18. To build on the Central Authorities' support to Hong Kong under the National 12th Five-Year Plan and chart a blueprint for the future development of Hong Kong as a maritime centre, we are due to complete the Consultancy Study on Enhancing Hong Kong's Position as an International Maritime Centre. The aim of the Study is to review Hong Kong's strengths and challenges we face as compared with other maritime centres; analyze the development potential of the related maritime services, including ship management, finance, insurance, law, arbitration, as well as ship broking and ship chartering etc. With reference to the policies and measures adopted by other international maritime centres, and having regard to future opportunities and challenges, the Study will make recommendations on the development roadmap of Hong Kong as an international maritime centre. The Study is expected to be completed in the first half of this year.

19. Meanwhile, the Government has been working with the industry through the Hong Kong Maritime Industry Council to support maritime-related manpower training. Supported by the industry, the Government has put in place a number of maritime training and subsidy schemes to develop a pool of talents to consolidate and reinforce our position as an international maritime centre. These include scholarship schemes for training professionals in maritime services and incentive schemes for training sea-going officers and ship-repair technicians. So far, over 850 persons have benefited under the various schemes. We will continue to support the industry in manpower training.

20. In addition, due to the international nature of shipping operations, shipping companies are more susceptible to double taxation than other taxpayers. To reinforce our position as an international maritime centre and enhance the competitiveness of our maritime industry in the global market, Hong Kong has entered into double taxation relief agreements covering shipping income with 34 major trading partners. We will continue to proactively engage other trading partners in establishing related relief arrangements.

21. The service industries of Hong Kong have a sophisticated and solid foundation. We will continue to make good use of such strengths, including our rule of law and judicial system, free flow of capital and information, and efficient customs clearance, in developing the maritime services industry of Hong Kong, so that we might support the development of the maritime industry worldwide and in the Mainland, and to create more jobs for Hong Kong.

Logistics Development

22. Hong Kong is a regional logistics hub with free port status, efficient and well-established external transport network, convenient multi-modal transport connectivity, efficient customs clearance and comprehensive protection for intellectual property, etc. In recent years, the increasing demand for high-value consumer goods in Asian markets has attracted many overseas brands to set up regional distribution centres in Hong Kong where the goods are stored, and to engage third party logistics service providers to provide a range of customized logistics services that are tailored to the needs of individual clients. These services include inventory management, packaging, labelling, quality control, and distribution of goods to points of sale in Asia just-in-time and just-enough in support of the brand's regional sales network. This development trend has spinned the sector's shift towards the provision of high value-added logistics services, which in turn helps consolidate Hong Kong's position as a regional logistics hub.

23. To support the sector's development in this aspect, we have released two logistics sites in Tsing Yi with a total area of 4.8 hectares for the development of modern logistics centres. In addition to warehousing service, modern logistics centres provide a range of high value-added services. They use advanced technologies such as electronic identification and radio frequency identification (RFID) for handling and tracking the goods accurately. They are also equipped with automated facilities and tight security system for handling cargo movement in and out of the centres. We will release the third logistics site of about 2.1 hectares in Tsing Yi early this year. Meanwhile, we are actively identifying other suitable sites for modern logistics development.

24. Through the Hong Kong Logistics Development Council, we will continue to collaborate with the sector to explore and implement initiatives that will help promote industry development in respect of manpower training, technology application, marketing and promotion, etc. To promote e-logistics, the Government has sponsored industry organizations to conduct "A Feasibility Study for Cross-Border Supply Chain Visibility Across Guangdong, Hong Kong and Asia". The study aims to examine the economic benefits brought about by enhancement in cross-boundary supply chain visibility (SCV), its technical feasibility and business model. The study is proceeding to its second phase under which pilot case studies will be launched and completed by the end of this year. The study findings will help explore how to enable the wider use of electronic platforms to enhance SCV and strengthen the competitiveness of local logistics enterprises.

Marketing and Promotion

25. On marketing and promotion, we co-organized with the Hong Kong Trade Development Council the Second Asian Logistics and Maritime Conference in November 2012, which attracted the participation of about 1 300 industry experts and service users from over 21 countries or regions and a number of provinces in Mainland China. The Conference was successful in highlighting Hong Kong's premier status as a regional logistics hub and an international maritime centre. It also updated the participants on the latest global trends and facilitated them to expand their networks. We plan to organise another international conference of similar nature in the second half of this year to further reinforce Hong Kong's role as a hub and intermediary in the global market.

26. The joint delegation of the Hong Kong Port Development Council and Hong Kong Maritime Industry Council visited Dalian in November 2012 to promote the various maritime and related services provided by Hong Kong as an international maritime centre. We will continue to maintain close contact with major maritime centres in the Mainland so as to create greater business opportunities for the industry through complementary development on a mutually beneficial basis. The Hong Kong Logistics Development Council will visit Europe in the first half of this year to promote Hong Kong's competitive edges in providing high value-added logistics services and to attract European companies to establish their regional distribution centres in Hong Kong. We will continue to work in partnership with the industry to conduct local and overseas promotional activities and facilitate the sector in seizing development opportunities.

27. We will also continue to improve our maritime, land and aviation transport facilities and their linkages, and promote the development of maritime services in collaboration with the industry, with a view to reinforcing Hong Kong's position as a regional hub port and an international maritime centre.

Maritime Management

28. Further to the vessel collision incident on 1 October last year, the Chief Executive has set up an independent Commission of Inquiry to conduct investigation into the matter. Upon completion of the investigation, the Commission of Inquiry will submit recommendations for improvement to the Government. In parallel, the Transport and Housing Bureau, Marine Department as well as the industry are reviewing comprehensively the existing regulatory regime and related legislation on local passenger-carrying vessels and

the crew. After the incident, the Marine Department has also adopted immediate measures to strengthen inspection and enhance the safety of passenger-carrying vessels. During the pyrotechnic display on the New Year's Eve last year, the Marine Department adopted new management measures in collaboration with other enforcement agencies in enhancing the safety of passenger-carrying vessels. In the coming months, the Government will continue to cooperate with the investigation work of the independent Commission of Inquiry. The Government will also take follow-up actions arising from the recommendations of the Commission of Inquiry and the Local Vessels Advisory Committee on maritime safety to prevent the recurrence of similar incidents in future in response to public concern on marine traffic safety.

Transport Branch
Transport and Housing Bureau
16 January 2013

Examination of Estimates of Expenditure 2013-14

**CONTROLLING OFFICER'S REPLY TO
INITIAL WRITTEN QUESTION**

Reply Serial No.

THB(T)190

Question Serial No.

4273

Head: 28 – Civil Aviation Department Subhead (No. & title):

Programme: (4) Air Traffic Engineering and Standards

Controlling Officer: Director-General of Civil Aviation

Director of Bureau: Secretary for Transport and Housing

Question:

Please advise the details, schedule and initial expenses regarding “planning the reprovisioning of the Air Traffic Control Centre (ATCC) and implementing the replacement of the air traffic control systems” as highlighted in paragraph 18.

Asked by: Hon. WONG Kwok-hing

Reply:

The project comprises the setup of a new ATCC in the new Civil Aviation Department (CAD) Headquarters building, and the replacement of the existing air traffic control (ATC) systems to meet the growing demand of air traffic. Construction of the ATCC was completed in December 2011 and installation of the new ATC systems is underway. So far, about \$320 million has been spent on the ATC systems replacement project. Subject to satisfactory completion of system integration and testing, and training of operational and technical staff, the new ATCC is expected to commence operation in 2014.

Name in block letters: NORMAN LO

Post Title: Director-General of Civil Aviation

Date: 28.3.2013

Attachment 6

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22 July 2013

Clerk to the Legislative Council Panel on Economic Development
(Attn: Mr Noel Sung)
Legislative Council
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

Dear Mr Sung,

**Replacement of the Air Traffic Control System
of the Civil Aviation Department**

Thank you for your letter dated 9 July 2013.

The Government attaches paramount importance to maintaining aviation safety, and is committed to providing an efficient air traffic management service with a view to consolidating Hong Kong's leading position as an international aviation hub. The Civil Aviation Department (CAD) has strictly followed the relevant rules and procedures as stipulated in the Government Stores and Procurement Regulations (SPR) throughout the replacement process for the new air traffic control system. The new system fully meets the international requirements for air traffic management.

Our reply to the questions of Hon Gary Fan in the letter is set out in the ensuing paragraphs.

Procurement of the new system

The tender document for the procurement of the new Air Traffic Management System (ATMS) was developed by the CAD in 2009, and vetted by the Government Logistics Department (GLD), Department of Justice (DoJ), as well as the Government Central Tender Board which comprised representatives from the Financial Services and the Treasury Bureau (FSTB), GLD and DoJ. The new system was procured via an open tender process in accordance with the SPR. In the process of preparing the tender document, the CAD had conducted comprehensive market research of similar systems, and paid visits to major air traffic control centres in the United Kingdom, Australia, Italy, France, Norway, Guangzhou and Beijing, etc, to exchange views with the air traffic control personnel there and make reference to their views and experience in operating air traffic management systems. CAD had also incorporated the latest technology and safety requirements into the tender document.

The evaluation of the tenders for the new ATMS was conducted strictly in accordance with the SPR. A Tender Assessment Panel (TAP) with experienced engineering and air traffic control personnel was established by the CAD to evaluate the tender offers. The TAP was led by a Chief Electronics Engineer, with members of one Senior Electronics Engineer, three Electronics Engineers, one Senior Evaluation Officer, two Senior Air Traffic Control Officers, two Air Traffic Control Officers and one Technical Support Officer.

The TAP adopted a marking scheme as stipulated in the SPR to evaluate the tender offers. It consisted of two parts, namely the technical and price score, contributing to weighting of 40% and 60% respectively of the overall score. The tenderer obtaining the highest overall score would be awarded the contract. Such evaluation criteria were clearly stipulated in the tender document for reference by the potential bidders. To ensure that the evaluation was conducted in a fair and impartial manner, the TAP firstly conducted technical assessment against each tender and calculated the technical score. After completion of the technical assessment, the GLD then provided the TAP with the price information of the tenders to calculate the price score. CAD had not changed the evaluation criteria throughout the tendering process.

After completion of the tender evaluation by the TAP, the tender with the highest score was recommended for consideration and approval by the Government Central Tender Board which is chaired by the Permanent Secretary for Financial Services and the Treasury (Treasury), and comprised representatives from the FSTB, GLD and DoJ. Since the tender proposal of the Autotrak3 system offered by the Raytheon Company obtained the highest overall score, the Raytheon Company was awarded the contract for the new ATMS. The contract was signed between the GLD and the Raytheon Company in early 2011.

Enhancement of the new system

In light of the rapid development in air transport and aviation technology, and the need to meet the higher international standards on air traffic management and new requirements of the International Civil Aviation Organisation (ICAO), in particular the relevant requirements set out in the new Global Air Navigation Plan endorsed by ICAO for implementation at the 12th Air Navigation Conference held in 2012, the new ATMS Project team of CAD had conducted a thorough study and concluded that there was a need to further enhance the new ATMS. The enhancement work would be undertaken in two phases. The phase one work which costed around HK\$40 million included enhancement of the related functions in air traffic flow management and human-machine interface, as well as addition of training positions in the Simulator System. The above enhancement work would further enable CAD to meet the latest operational needs of air traffic in Hong Kong. CAD is actively preparing for the phase two work to meet the relevant requirements of the ICAO Global Air Navigation Plan. All contract variations arising from the enhancement work will be proceeded in strict accordance with the SPR and must be approved by the GLD. The total cost for the replacement of the air traffic control system project (including the enhancement work) will not exceed the limit of the approved budget.

Stability of the new system

The contract of the new ATMS was awarded to the Raytheon Company for designing and manufacturing the Autotrac3 system after undergoing a stringent tender evaluation process. The Raytheon Company has over 50 years of experience in designing and manufacturing air traffic control and radar systems, and their systems are widely used by civil aviation authorities around the world, including the United States, Dubai, India, etc.

The CAD has enquired with the Airports Authority of India (AAI) and was given to understand that the three air traffic control (ATC) centres in New Delhi, Mumbai and Chennai are currently using the Raytheon Company's Autotrac3 systems, which were officially put into full operations in 2011. The AAI is satisfied with the overall performance of the systems. Moreover, subsequent to the commissioning of the new systems in the three ATC centres in New Delhi, Mumbai and Chennai, the AAI was awarded the Jane's 2012 ATC Operational Efficiency Award¹ and the ATC Global Awards 2013 - Air

¹ The award is presented by Jane's Airport Review under IHS (Information Handling Services). This organisation is an independent and well recognised platform in the aviation industry. The award aims at commending and rewarding party with good performance records over the past 12 months across seven key areas of air traffic control. The Airports Authority of India was the winner of Operational Efficiency Award in 2012.

Navigation Services².

The CAD will conduct detailed and stringent functional testing on the new systems before the new ATC Centre is put into operational use. In addition, safety assessment will be conducted in accordance with the established international aviation safety management standards and procedures to ensure the safety, reliability and stability of the new systems.

Functions of the new system

The new ATMS can handle approximately 8,000 flight plans every day and monitor 1,500 air or ground targets simultaneously, which is about 5 and 1.5 times of existing system respectively. In addition, the new system adopts several advanced technologies, including (1) “Multi-sensor Tracking” technology which fuses and processes the radar and surveillance sensors information; (2) “ATS Inter-facility Data Communication” technology which exchanges the aeronautical information with the adjacent air traffic control centres and coordinate the transfer of aircraft control; (3) advanced flight trajectory prediction algorithm to enhance conflict prediction, alert and resolution capability; and (4) “Automatic Electronic Flight Strip” technology which automatically displays the important flight information for reference by the air traffic control officers.

Opening of the new Air Traffic Control Center

Due to delay in tendering of the “Design and Construction” works of the new CAD Headquarters Building, coupled with the need to optimize the Autotrac3 system and the longer time taken to test and evaluate the system than expected, commissioning of the new ATC Centre could not commence by end of 2012 as originally scheduled. The CAD is making every effort to complete the implementation of the air traffic control system replacement project. Installation work of the other six major systems at the new ATC Centre has been substantially completed, and acceptance tests are progressing.

To ensure the new systems are safe, reliable and stable, the systems of the ATC Centre will undergo a series of stringent tests and satisfy safety assessment conducted in accordance with the established international aviation safety management standards and procedures. It is expected that the enhancement and functional testing of the new Autotrac3 system will be completed in the first quarter of 2014 the earliest, followed by comprehensive

² The award is presented by the ATC Global in association with Air Traffic Management magazine. It aims at commending and rewarding individuals and organisations to drive forward the air traffic management industry.

integration testing and training of the new systems. The earliest operation of the new ATC Centre is estimated to be in the second half of 2014.

Thank you for the interest of the Members in the project.

Yours sincerely,



(Desmond Wu)

for Secretary for Transport and Housing

c.c. Director-General of Civil Aviation (Attn: Mr Simon Li)

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22 July 2013

Clerk to the Legislative Council Panel on Economic Development
(Attn: Mr Noel Sung)
Legislative Council
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

Dear Mr Sung,

**Replacement of the Air Traffic Control System
of the Civil Aviation Department**

Thank you for your letter dated 11 July 2013. With regard to the questions raised by Hon TANG Ka-piu in the letter, I am authorised to reply as follows.

The Government attaches paramount importance to maintaining aviation safety, and is committed to providing an efficient air traffic management service with a view to consolidating Hong Kong's leading position as an international aviation hub. The Civil Aviation Department (CAD) has strictly followed the relevant rules and procedures as stipulated in the Government Stores and Procurement Regulations (SPR) throughout the replacement process for the new air traffic control system. The new system fully meets the international requirements for air traffic management.

In the process of preparing the tender document, the CAD had conducted comprehensive market research of similar systems, and paid visits to major air traffic control centres in the United Kingdom, Australia, Italy, France, Norway, Guangzhou and Beijing, etc, to exchange views with the air traffic

control personnel there and make reference to their views and experience in operating air traffic management systems. CAD had also incorporated the latest technology and safety requirements into the tender document.

The Raytheon Company which was awarded with the Air Traffic Management System contract has over 50 years of experience in designing and manufacturing air traffic control and radar systems, and their systems are widely used by civil aviation authorities around the world, including the United States, Dubai, India, etc.

The CAD has enquired with the Airports Authority of India (AAI) and was given to understand that the three air traffic control (ATC) centres in New Delhi, Mumbai and Chennai are currently using the Raytheon Company's Autotrac3 systems, which were officially put into full operations in 2011. The AAI is satisfied with the overall performance of the systems. Moreover, subsequent to the commissioning of the new systems in the three ATC centres in New Delhi, Mumbai and Chennai, the AAI was awarded the Jane's 2012 ATC Operational Efficiency Award¹ and the ATC Global Awards 2013 - Air Navigation Services².

Due to delay in tendering of the "Design and Construction" works of the new CAD Headquarters Building, coupled with the need to optimize the Autotrac3 system and the longer time taken to test and evaluate the system than expected, commissioning of the new ATC Centre could not commence by end of 2012 as originally scheduled. The CAD is making every effort to complete the implementation of the air traffic control system replacement project. Installation work of the other six major systems at the new ATC Centre has been substantially completed, and acceptance tests are progressing.

To ensure the new systems are safe, reliable and stable, the systems of the ATC Centre will undergo a series of stringent tests and satisfy safety assessment conducted in accordance with the established international aviation safety management standards and procedures. It is expected that the enhancement and functional testing of the new Autotrac3 system will be completed in the first quarter of 2014 the earliest, followed by comprehensive integration testing and training of the new systems. The earliest operation of the new ATC Centre is estimated to be in the second half of 2014.

¹ The award is presented by Jane's Airport Review under IHS (Information Handling Services). This organisation is an independent and well recognised platform in the aviation industry. The award aims at commending and rewarding party with good performance records over the past 12 months across seven key areas of air traffic control. The Airports Authority of India was the winner of Operational Efficiency Award in 2012.

² The award is presented by the ATC Global in association with Air Traffic Management magazine. It aims at commending and rewarding individuals and organisations to drive forward the air traffic management industry.

Thank you for the interest of the Members in the project.

Yours sincerely,



(Desmond Wu)

for Secretary for Transport and Housing

c.c. Director-General of Civil Aviation (Attn: Mr Simon Li)

**For information
on 27 January 2014**

**Legislative Council Panel on Economic Development
The 2014 Policy Agenda
Policy Initiatives of the Transport Branch of the
Transport and Housing Bureau**

Introduction

This paper elaborates on the initiatives set out in the 2014 Policy Agenda that the Government will pursue and continue to pursue to reinforce and enhance Hong Kong's status as an international aviation and maritime centre.

Hong Kong as an international maritime and aviation centre and the global development trend

2. The centre of global economic development is shifting eastward. Asia has become the world's marine transport centre¹. Three out of top four world's busiest ports with highest throughput are in China, including Shanghai, Shenzhen and Hong Kong; China is becoming a world shipping power. The Central Authorities have clearly indicated support under the National 12th Five-Year Plan for Hong Kong to reinforce and enhance its status as an international maritime centre, and to develop into a high-value goods inventory management and regional distribution centre.

3. The Government has started preparations to provide input to formulation of the National 13th Five-Year Plan and is studying how to enhance Hong Kong's position as an international maritime centre, develop high-end maritime services, and strengthen Hong Kong as a high-value goods inventory management and regional distribution centre. The study covers how to attract maritime companies from different places (including Mainland and overseas) to use Hong Kong as a base for their business operations, assuming the strategic position of a maritime services and talent hub; as well as how Hong Kong's positioning would also tie in with the national development towards a world shipping power, becoming the springboard for

¹ In 2012, out of the top ten ports with the highest container throughput, nine are in Asia and seven in China, i.e. Shanghai, Hong Kong, Shenzhen, Ningbo-Zhoushan, Guangzhou, Qingdao and Tianjin.

more maritime companies in the Mainland to enter the international market, thus strengthening Hong Kong as an important international maritime services centre in Asia.

4. To seize the development opportunity and realise this policy goal, we are enhancing our competitiveness, improving transport infrastructure, and strengthening manpower training. Capitalising on its geographical and institutional advantages, Hong Kong is moving towards high value-added services and a knowledge-based economy, matching up with the rapid economic development in Asia and the global development trend. We will also make best endeavors to enhance the efficiency of the port and its supporting infrastructural facilities, having regard to the growth in cargo throughput, with a view to maintaining the competitiveness of the Hong Kong Port (HKP).

5. On civil aviation, we will continue to entrench and enhance Hong Kong's status as an international aviation hub. The major areas of work include enhancing manpower training and development for the aviation industry, pushing ahead with full force the Third Runway proposals, developing the North Commercial District on the airport island, enhancing Hong Kong's capacity to handle the passenger and cargo traffic, maintaining high efficiency in air traffic management, regularly reviewing the demand for air services, as well as strengthening the links between the Hong Kong International Airport (HKIA) and the Pearl River Delta Region, and optimizing the regulatory regime of local airlines.

New Initiatives

6. We will implement the new initiatives as set out in paragraphs 7 to 12 below in 2014.

(a) Take forward a consultancy recommendation to examine the feasibility of setting up a statutory body to drive the development of the maritime services in Hong Kong. The proposed body will be responsible for driving the diversification and development of maritime services, manpower training, as well as conducting policy research etc., with a view to strengthening and enhancing Hong Kong's position as an international maritime centre.

7. Commissioned by the Hong Kong Maritime Industry Council, the Consultancy on Enhancing Hong Kong's Position as an International Maritime Centre has been completed. According to the study analysis,

Hong Kong has advantages in soft power; at the regional level, we have the potential to congregate a diversity of high value-added maritime services, and further become the preferred base in Asia for international maritime business. At the same time, Hong Kong is well positioned to serve as a springboard for Mainland maritime companies to “go global” and provide services for overseas enterprises to tap into the Mainland market, thus becoming an important international maritime services centre for China and the Asia Pacific.

8. The study also pointed out that Hong Kong had advantages in developing high value-added maritime services, including ship registration, management, finance, marine insurance, and maritime law and arbitration, but that we needed to strengthen the institutional set-up and dedicate human resources to drive proactively the industry development. The consultant therefore proposed setting up a new statutory maritime body to propel the long-term development of the maritime industry in Hong Kong, including to undertake policy research, support manpower training, and conduct marketing and promotion regionally and internationally, with a view to strengthening and enhancing Hong Kong’s position as an international maritime centre.

9. The proposed new statutory maritime body will help drive and implement the development strategy and specific measures devised by the Government. The industry (including the Hong Kong Maritime Industry Council and the Sub-group on Maritime under the Economic Development Commission) in general supports the consultant’s recommendation. In the coming year, the Government will work out the functions, funding, structure, mode of operation etc., to ensure that the new body is practicable in terms of financial and business sustainability. We will consult the industry and the Legislative Council with a view to commencing the legislative process as early as possible.

(b) With the support of the Working Group on Transportation under the Economic Development Commission, conduct a study on the feasibility of establishing a civil aviation training institute, with a view to enhancing the skills for local and overseas practitioners of the aviation industry, thereby nurturing talents for the aviation industry, enhancing the safety standards and efficiency of air transport, and further strengthening Hong Kong’s leading status as a major aviation hub in the region.

10. At present, a wide array of aviation-related training courses are provided by the aviation industry, post-secondary education institutes, the Vocational Training Council, and the Civil Aviation Department (CAD), etc, to existing practitioners and those who are interested to join the aviation industry. The Government is committed to entrenching Hong Kong's leading status as a major aviation hub in the region. As the civil aviation industry continues to grow rapidly, Hong Kong needs to enhance training for practitioners of the aviation industry in order to cope with the associated opportunities and challenges.

11. With the support of the Working Group on Transportation under the Economic Development Commission, CAD will commission a consultancy study to explore the feasibility of establishing a civil aviation training institute. As a preliminary idea, the proposed civil aviation training institute will provide vocational or qualification training for local and overseas practitioners and persons who are interested to join the aviation-related sectors.

12. The preparation work for the consultancy study has already commenced. The scope of the study will include an assessment on the current and future manpower situation in Hong Kong and overseas aviation industry vis-à-vis the demand for training, and the feasibility of establishing a civil aviation training institute in Hong Kong and related issues, such as the scale of the institute, types and level of training to be offered, trainers, and interaction and collaboration with the stakeholders (including those existing training institutes), etc. Upon the completion of the consultancy study, the Government will carefully consider the outcome of the study.

On-going Initiatives

13. In addition, we will continue to implement various on-going initiatives in 2014, with details set out in paragraphs 14 to 41 below.

Manpower Training

(a) ***Taking forward initiatives under the Maritime and Aviation Training Fund to support manpower development for the maritime and aviation industry.***

14. On 10 January 2014, the Finance Committee of the Legislative Council approved \$100 million to establish the Maritime and Aviation Training Fund

(MATF) for use over a period of five years (from 2014-15 to 2018-19), to sustain and enhance the five existing training and scholarship schemes and launch new initiatives, to –

- (a) attract more new blood to expand the pool of talent and address the issue of aging workforce in the maritime and aviation sectors;
- (b) diversify expertise of the workforce to meet manpower demands of the sectors, especially in providing high value-added services; and
- (c) enhance the overall competency and professionalism of the sectors and in turn our global competitiveness as an international maritime centre.

15. In addition to encouraging young people to enrol in aviation- and maritime-related professional and skills training programmes, the target and scope of funding has also placed emphasis on supporting the manpower training for the local maritime sector for upgrading the overall marine safety in Hong Kong as well as the professional standard of the relevant workforce.

16. Implementation details for each of the new initiatives will be worked out shortly through the tripartite collaboration among Government, the industry and the academia. We aim to roll out the various funding/scholarship schemes starting from April this year with a view to building up a wealth of professional and skilled talent that is vibrant, diversified and competitive to support the long-term development of our maritime and aviation sectors. The Government, industry stakeholders and education institutions will set up tripartite committees for the maritime- and aviation-related initiatives respectively to monitor and review their implementation.

Maritime-related Initiative

- (b) *Working with industry players to consolidate and enhance our position as an international maritime centre.*

17. In respect of infrastructural facilities and business environment, we will continue to enhance the infrastructure of sea, land and aviation transport and strengthen multi-modal transport connectivity; upgrade the cargo-handling capacity and efficiency of the airport and port of Hong Kong. Through platforms such as the Hong Kong Port Development Council, the Hong Kong Maritime Industry Council, and the Sub-group on Maritime under the Economic Development Commission, the Government and the

industry will join hands in conducting marketing and promotion in the Mainland and overseas. To enhance the attractiveness of Hong Kong as a maritime centre, the Government will continue to work with our trade partners to establish arrangements on avoidance of double taxation covering shipping income². This will create a more competitive business environment and encourage more shipping companies to relocate to or set up branch operation in Hong Kong.

18. Last year, the Hong Kong Port Development Council and the Hong Kong Maritime Industry Council conducted promotion visits to Taipei and Shanghai to promote to the local industry the various maritime and related services provided by the Hong Kong maritime cluster. We organised the third Asian Logistics and Maritime Conference in November last year, attracting the participation of over 1 600 trade representatives from local and Mainland, as well as different countries or regions in Asia, Europe and America. We are planning to take part in a large-scale international maritime exhibition in Greece in June this year to promote to the local maritime industry Hong Kong's competitive edges in providing high value-added services such as ship registration, maritime law and arbitration, as well as ship management, broking and finance etc. We will also take the opportunity to market Hong Kong as a preferred base for establishing maritime business in Asia.

(c) Implementing measures to enhance the competitiveness of the Hong Kong Port.

19. HKP is one of the busiest container ports in the world. In the past decade, it handled an annual average of more than 22 million TEUs. We will continue to optimize our port facilities and enhance the port's handling capacity, including monitoring the dredging project of the Kwai Tsing Container Basin and its approach channels to a depth of 17.5 meters. This will enable HKP to meet the draught requirements of the new generation of ultra-large container ships at all tides. The project commenced in August of 2013 and is expected to be completed earliest towards the end of 2015.

20. In view of the scarce land resources in Hong Kong, both government and the trade recognised the need to rationalize and increase the utilization of

² As of now, Hong Kong has established arrangements with 37 trading partners on avoidance of double taxation covering shipping income. They are Austria, Belgium, Brunei, Canada, Chile, Czech, Mainland of China, Denmark, France, Germany, Guernsey, Hungary, Indonesia, Ireland, Italy, Japan, Jersey, Korea, Kuwait, Liechtenstein, Luxembourg, Malaysia, Malta, Mexico, the Netherlands, New Zealand, Norway, Portugal, Qatar, Singapore, Spain, Sri Lanka, Switzerland, Thailand, the United Kingdom, the United States and Vietnam.

the existing container port and back-up facilities for enhancing the port efficiency and maintaining the competitiveness of HKP. Government will continue to work closely with the trade this year to review the existing port facilities and the management mechanism of adjacent port back-up land with a view to working out a feasible option for enhancing the efficiency of the existing port facilities to meet the future operational need of HKP.

21. The government is conducting two consultancy studies for the long term development of HKP, i.e., “The Preliminary Feasibility Study of developing CT10 at Southwest Tsing Yi” and “Study on the Strategic Development Plan for Hong Kong Port 2030”. The two studies are expected to be completed soon. By then, the government will take all relevant factors into consideration, such as local demand and external economic trends, in setting the direction and strategy for the port’s long term development.

Logistics-related Initiative

(d) Facilitating the provision of high value-added third party logistics services in Hong Kong by making available suitable sites for the development of modern logistics facilities.

22. With the continuous development of the logistics industry towards the provision of high value added services, Hong Kong is developing into a high value goods inventory management and regional distribution centre. Comparatively, Hong Kong still has advantages over neighboring cities in providing high value added services, given our multimodal transport network, highly efficient transport infrastructure such as airport and port, free port status and sound judicial system protecting intellectual property, efficient customs clearance and accumulation of rich experience in providing third party logistics services.

23. Under the vibrant development of the Mainland consumer market, the demand of online trade in the region for high value added logistics services has increased. To increase the provision of logistics facilities in Hong Kong and to support the development of high value added services by the industry, we disposed of a site of about 2 hectares in Tsing Yi dedicated for logistics development in May 2013. At present, we are conducting a traffic impact assessment on the 10 hectares of land reserved in Tuen Mun West to confirm the feasibility of developing logistics facilities thereon. In parallel, we will continue to identify suitable land and consider reserving land in new development areas for developing modern logistics facilities, so as to support

the logistics industry's development towards provision of high value added services.

Aviation-related Initiative

(e) Working with the Airport Authority in considering initiatives to enhance airport capacity and airport services. Major projects being considered include the expansion of the Hong Kong International Airport into a three-runway system and implementing the midfield expansion project.

24. The Government has given in-principle approval in March 2012 for the Airport Authority (AA) to adopt the three-runway system (3RS) as the future development option for HKIA. Since then, AA has actively embarked on the planning work for the project, namely the statutory Environmental Impact Assessment (EIA), scheme designs and financing arrangement studies.

25. The EIA work is progressing according to the plan, and AA has been liaising with the stakeholders closely during the process. AA expects that the EIA process will be completed by Q3, 2014. Subject to the successful completion of the EIA process and the subsequent LegCo's approval of the funding arrangement, AA aims to start the construction works as early as possible with a view to commissioning the 3RS in 2023.

26. With the three-runway system in place, AA expects that the capacity of HKIA will increase from 420,000 flight movements per year under the two-runway system to 620,000 per year. The additional capacity can cope with the air traffic demand of HKIA until at least 2030. By that time, the HKIA will handle at least 97 million passengers and 8.9 million tonnes of cargo annually, up from 56.5 million passengers and 4 million tonnes of cargo in 2012.

27. Separately, to cope with both short and medium term air traffic demand and to tie in with the designed capacity of the two-runway system by increasing the handling capacity of HKIA to 70 million passengers and 6 million tonnes of cargo per annum, AA is implementing Phase 1 of its midfield expansion project. A passenger concourse is under construction to provide 20 additional aircraft stands. The project started in late 2011 and is expected to be completed by phases in 2015. At the same time, AA has started designing the development of Phase 2 of the midfield expansion project and is exploring the feasibility of providing additional aircraft stands. AA will also construct new aircraft parking stands on the western part of the

midfield area with a view to be completed by phases by the end of 2014. Upon completion of all these expansion projects, the number of aircraft stands will increase by more than 30%.

28. In October 2013, the third air cargo terminal came into full operation, which increased the overall cargo handling capacity of the airport by 2.6 million tonnes per annum. This facility will help strengthen the position of Hong Kong as an international and regional logistics centre.

(f) Working with the Airport Authority to develop the North Commercial District on the airport island. The aim is to maximise the development potential of this site, taking into account the future development of the Hong Kong International Airport including the three-runway system, and the synergy with Lantau as well as the Western Pearl River Delta Region.

29. To support the long-term economic development of Hong Kong, we will ensure the optimal use of the limited land on the Airport Island. We will work together with AA on the timely development of the North Commercial District (NCD) of the HKIA. The aim is to maximise the development potential of the site, taking into account the future expansion of the HKIA, including the three-runway system, as well as the synergy with the development on Lantau. On 17 December last year, the AA Board decided that AA would proceed immediately with the development of a new hotel at the NCD as the area's first phase of commercial development. AA will continue to actively pursue relevant planning work to finalise a Master Layout Plan for the entire NCD development.

(g) Assisting the Airport Authority to expand inter-modal connections to strengthen the links between the Hong Kong International Airport and the Pearl River Delta Region.

30. The HKIA is a gateway of Mainland China, supported by an integrated and multi-modal transport network. Cross-boundary coaches, limousine and ferry services connect passengers between the Pearl River Delta (PRD) and international destinations via the HKIA. Last year, an average of about 550 round trips by coaches were made every day to link the HKIA with 110 PRD cities and towns.

31. The SkyPier at HKIA provides speedy ferry services for air-to-sea/sea-to-air transit passengers travelling to and from the PRD and

Macao. SkyPier is currently connected to eight PRD ports, namely Shekou and Fuyong of Shenzhen, Dongguan, Zhongshan, Zhuhai Jinzhou, Nansha, Macao Taipa and Maritime Ferry Terminal in Macao.

32. With the planned completion of various major transport infrastructure in Hong Kong and PRD Region, including the Hong Kong-Zhuhai-Macao Bridge (HZMB), Guangzhou-Shenzhen-Hong Kong Express Rail-link, Tuen Mun Western Bypass and Tuen Mun-Chap Lap Kok Link in the coming future, the travelling distance for passengers and cargo to the HKIA will be further shortened and the network between Hong Kong and the PRD Region will be strengthened. To maximise the synergy effect between HZMB and HKIA and facilitate passengers in the Region, AA is exploring the expansion of intermodal facilities and provision of dedicated bus services for transit passengers to and from the HKIA.

(h) Improving air traffic management through optimising the use of airspace as well as implementing enhancement measures on air traffic control system.

33. CAD will continue to enhance air traffic management to regulate the continued growth of air traffic movements. The tripartite Technical Working Group formed by Hong Kong CAD, the Civil Aviation Administration of China and the Macao Civil Aviation Authority held its latest round of working-level meetings in May and December last year to continue taking forward the various measures to enhance the airspace management of the Pearl River Delta region, including improving flight procedures and air routes, establishing additional handover points, as well as developing network platform for sharing air traffic information and the multi-airport departure release system. In addition, in view of the rapid development of air transport and aviation technology, and to meet the latest international requirements in air traffic management, CAD is upgrading its air traffic management system to maintain its high efficiency in air traffic management, thereby consolidating Hong Kong's leading status as a major aviation hub in the region. The new system is expected to come into operation in early 2015 after appropriate testing.

34. Over the last year, through various enhancement measures of air traffic management, CAD has increased the maximum runway capacity from 63 to 65 movements per hour. Continued efforts will be made to further increase the capacity to 68 movements per hour in 2015 as planned to meet air traffic demands.

- (i) Reviewing the air services arrangements with our aviation partners, with the objective to further liberalising our air service regime, thereby supporting the continued growth and development of the local civil aviation industry.***

35. In 2013/14, we reviewed and expanded our air services arrangements with eight aviation partners (Belgium, Qatar, Mongolia, Myanmar, the UK, Bangladesh, South Africa and New Zealand) to support the growth of the civil aviation industry and to provide further development opportunities. At present, Hong Kong has signed Air Services Agreements (ASAs) with 62 countries and regions. We will continue to review the demand for air services from time to time and initiate air services negotiations with our aviation partners with a view to increasing air traffic capacity to meet market demand.

- (j) Supporting the Air Transport Licensing Authority in regulating our local airlines.***

36. The Air Transport (Licensing of Air Services) (Amendment) Regulation 2011 (“the Amended Regulations”) has come into operation on 22 April last year. The Amended Regulations strengthens the financial monitoring capability of the Air Transport Licensing Authority (ATLA), and puts in place requirements for licence holders to notify ATLA of specific incidents and to submit annual financial statements, thus enabling ATLA to more effectively assess the capability of licence holders to operate their air services on a continual basis.

37. To ensure a smooth rollout of the new regulatory regime, we have conducted briefing sessions for licence holders before the commencement of the Amended Regulations. The transition of the operational arrangements to the new regulatory regime has been smooth, with all incumbent licences successfully converted to the new licences stipulated under the Amendment Regulations. Moreover, ATLA has formulated procedural guidelines in regard to the new regulatory regime to facilitate the new applicants and existing licence holders in complying with the relevant requirements of the regulatory regime.

Marine Safety-related Initiative

- (k) Reviewing comprehensively the existing regulatory regime on local passenger-carrying vessels to enhance marine safety. We will take***

into account the recommendations in the report of the Commission of Inquiry into the Collision of Vessels near Lamma Island on 1 October 2012.

38. After the release of the Report of the Commission of Inquiry into the Collision of Vessels near Lamma Island on 1 October 2012 in April last year, to follow up on the recommendations of the report, the Secretary for Transport and Housing promptly set up the Steering Committee on Systemic Reform of the Marine Department (Steering Committee) in May to steer the Marine Department (MD) to undertake a comprehensive systemic review and reform. The Steering Committee has focused on three areas, including the improvement measures to enhance marine safety, the review of and improvements to the business processes and operational procedures of MD, and the manpower resources strategy and training matter of MD. In addition, with respect to possible problems with MD officers in carrying out their duties in the past as mentioned in the report, including possible maladministration and negligence of duty, an Investigation Team was set up in June to conduct an internal investigation on MD to identify any possible responsibilities and to ensure that the investigation is comprehensive, thorough and fair. The Investigation Team will later submit a report to the Secretary for Transport and Housing.

39. To enhance safety of local passenger-carrying vessels, MD had introduced the first phase of improvement measures by amending the Code of Practice in late November last year. The measures included enhancing look-out by crew, provision of a muster list, review of minimum manning scale, improving signage relating to lifejackets and fitting watertight-door alarms in wheelhouse. These measures will take effect by phases within a year. The work for the second phase has commenced this year. MD will deal with the improvement measures relating to the installation of navigation equipment and lifejackets. It will, where necessary, provide appropriate financial assistance to the industry to help facilitate them in meeting the requirements for enhancing marine safety. The Department is now working out the implementation details in consultation with the industry.

40. In addition, regarding the business and operational processes of MD, the Efficiency Unit (EU) is assisting the MD in the systemic review. The first phase of the review covered how the licensing and regulatory procedure work for local vessels could be improved. The EU is now preparing the report of the first phase review and will brief the Steering Committee when ready. Upon endorsement by the Steering Committee, MD will implement the proposals at the earliest opportunity. The second phase of the review will commence shortly in February. MD, in collaboration with the EU, will

review the work and operational process of other sections of the Department.

41. As regards the longstanding issue of manpower shortage of professional grades in MD, the Steering Committee has agreed to MD's proposal to revise the entry requirements currently applied to the two professional grades (i.e. the Marine Officer grade and the Surveyor of Ships grade) so as to engage young graduates at an earlier stage, and enhance the training programmes for new recruits by providing them with on-the-job and appropriate training in MD to meet their job needs. MD is actively working towards the implementation of the proposal.

Members' Views

42. We welcome Members' views on the various initiatives.

**Transport Branch
Transport and Housing Bureau
January 2014**

**For discussion
on 12 June 1996**

PWSC(96-97)19

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 702 - PORT AND AIRPORT DEVELOPMENT

Support - Intra-governmental services

New item - Government Facilities for the Second Runway of the new airport at Chek Lap Kok

Members are invited to recommend to Finance Committee the inclusion of a new item in Category A of the Public Works Programme as "Government Facilities for the Second Runway of the New Airport at Chek Lap Kok" at an estimated cost of \$602 million in money-of-the-day prices.

PROBLEM

We need to provide additional special equipment and systems and construct additional Government facilities to support the operation of the second runway at the new airport.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Works, proposes to include an item in Category A at an estimated cost of \$602 million in money-of-the-day (MOD) prices for the procurement of additional special equipment and systems and construction of additional government facilities at the new airport to support the operation of the second runway. A location plan for the proposed facilities is at Enclosure I.

PROJECT SCOPE AND NATURE

3. The Civil Aviation Department (CAD), the Royal Observatory (RO), the Customs and Excise Department (C&ED) and the Royal Hong Kong Police Force (RHKPF) need the following additional facilities and equipment and systems to support the operation of the second runway -

Air Traffic Control (ATC) Equipment and Systems for CAD

- (a) Two Instrument Landing Systems (ILS) are required for precise radio navigational guidance for aircraft approaching the second runway.
- (b) A Precision Runway Monitor (PRM) is required for monitoring of air traffic operating on parallel runways to guard against any aircraft deviation from their runway flight paths, so that the capacity of the two runways can be maximised within required safety standards.
- (c) Communications equipment is required to cater for aircraft using the second runway. Such equipment will include VHF/UHF transmitters and receivers, mobile/ portable receivers, cabling, data links and an uninterruptible power supply system and associated equipment.
- (d) Ancillary ATC equipment including a small automatic message switching system, speech processing system, microwave links, automatic terminal information system, meteorological information broadcast system for aircraft in flight, data and cabling network, uninterruptible power supply system and ancillary communications facilities is required. The ancillary ATC equipment will be used to perform certain essential ATC functions to enable continued operation of the airport in the event of an emergency affecting the normal operation of the ATC Tower and Complex constructed under the first phase of the new airport. It can also be used for staff training.

Meteorological Equipment for RO

- (e) An extension of the Aerodrome Meteorological Observation System (AMOS) for monitoring the meteorological conditions on the second runway will be required including anemometers, transmissiometers, masts, computer workstations and cables.
- (f) Ancillary meteorological equipment including computer workstations and accessories for the AMOS, geographic situation display for the terminal doppler weather radar, a small meteorological data processing system, associated communications facilities and cable network is required. The equipment will be used to support the ancillary ATC centre (see item 3(g) below) should the need for its operation arise. It will also be used for staff training.

Building and Airfield Facilities

- (g) A building cum tower known as the Precision Runway Monitor (PRM) Tower will be constructed to accommodate the PRM, an antenna farm for the communications equipment, and microwave links. This 56-metre high building cum tower will also function as the ancillary ATC tower and provide space for offices and equipment rooms for CAD and RO, observation/radio communication rooms for C&ED, and a radio equipment room with antenna for the RHKPF. The base of the building will be enlarged to function as the ancillary ATC centre and provide accommodation for the ancillary ATC and meteorological equipment (see items 3(d) and 3(f) above).
- (h) Airfield ATC and meteorological facilities to be constructed for the second runway will include equipment rooms, other antenna farms, building services facilities and a cable duct system.

- (i) Airfield Police facilities for the second runway will include observation posts constructed at strategic locations to maintain security of the new airport upon operation of the second runway. A cable duct system will be provided to link the observation posts with other airport police facilities.

JUSTIFICATION

4. In the light of higher forecasts of air traffic demand, and revised estimates of runway capacity at airport opening, the Airport Authority envisages that the first runway of the new airport at Chek Lap Kok will be unable to meet the full unconstrained peak hour demand for aircraft movements on airport opening, within desired operational service standards. It is estimated that with only one runway, the new airport may have to turn away up to four million passengers between 1998 and 2001. This could mean a loss of revenue not only to the Airport Authority and its business partners, but also to the Hong Kong economy as a whole. The loss of four million passengers equates to an estimated loss of nearly HK\$ 8 billion in visitor spending alone.

5. The Airport Authority has therefore concluded that there is a strong case on grounds of operational efficiency, maintenance of desired service standards and overall economic benefits to the community, for commissioning the second runway and associated facilities at the new airport as soon as practicable after airport opening. They have identified October 1998 as the earliest possible date for commissioning the second runway. At its meeting on 30 May 1996, the British and Chinese sides of the Airport Committee of the Sino-British Joint Liaison Group reached a common view that the Airport Authority may immediately proceed with the design and construction of the second runway of the new airport at Chek Lap Kok and associated facilities. According to the project implementation programme at Enclosure II, if we are to meet the target commissioning date of October 1998, we have to obtain the necessary funding now so that tendering for the additional facilities and equipment systems can start in accordance with the project implementation programme.

6. The second runway will require, as did the first, installation of an ILS at each runway direction. Additional communications equipment is needed for ATC when handling the second runway traffic. Ancillary ATC equipment is also required

to supplement and back up the ATC systems being provided for the first runway. Similarly, extension of the AMOS and ancillary meteorological equipment are required to cover the second runway and to support the ancillary ATC systems so that the essential ATC/meteorological functions can be maintained in case of any emergency affecting the normal operation of the ATC Tower and Complex constructed in the first phase of the new airport.

7. The PRM radar is required to monitor aircraft to guard against any deviations from their flight paths under independent operation (i.e. landings and departures on both runways), enabling full utilization of the capacity of the two runways. Without this PRM radar, the airport can only be operated under restricted segregated mode (i.e. one runway used exclusively for aircraft landings and the other used exclusively for aircraft departures but not at the same time, i.e. staggered use of the two runways will be necessary) and its capacity will be limited to 50 movements per hour which is expected to be exceeded by the forecast traffic demand around 2000/2001. The PRM must therefore be available before traffic demand exceeds runway capacity under restricted segregated mode. It will take about six months after the installation of the PRM for the development and evaluation of the operational procedures for using the PRM and for training of staff to use the equipment.

8. The PRM and the ancillary ATC/meteorological equipment will be ready for installation a few months after October 1998 because the 16-month construction period for the PRM Tower which will accommodate them can only start in June 1997 when the work site becomes available from the Airport Authority. This will not affect the opening of the second runway as the runway capacity will be increased in phases during the initial period of operation. However, it is necessary to have these facilities in place shortly thereafter to cater for the increasing air traffic demand.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the works to be \$602 million in MOD prices (see paragraph 11 below), made up as follows -

	\$ million
(a) ATC Equipment and Systems	
(i) Instrument Landing System	56.5

(ii)	Precision Runway Monitor	90.1	
(iii)	Communications Equipment	10.5	
(iv)	Ancillary ATC Equipment	72.3	
(b)	Meteorological Equipment		
(i)	Extension of Aerodrome Meteorological Observation System	17.9	
(ii)	Ancillary Meteorological Equipment	17.0	
(c)	Building and Airfield Facilities		
(i)	PRM Tower	100.9	
(ii)	Airfield ATC and Meteorological Facilities	79.7	
(iii)	Airfield Police Facilities	12.3	
(d)	Contingency	22.8	
	Sub-total	<u>480.0</u>	(at March 1996 prices)
(e)	Inflation allowance	122.0	
	Total	<u>602.0</u>	(in MOD prices)

10. We intend to let all the contracts on a fixed-price lump sum basis so that Government can have greater certainty in its financial planning. Like the first phase of the new airport works, we intend to entrust some of the work on the airfield facilities (items 3(h) and (i) above) to the Airport Authority because of cost and programme benefits.

11. Subject to approval of the necessary funds, we will phase the expenditure as follows -

Year	\$ million (Mar 1996)	Price adjustment factor	\$ million (MOD)
1996 - 97	16.1	1.05	16.9
1997 - 98	116.0	1.16	134.0
1998 - 99	276.3	1.27	351.1
1999 - 2000	71.6	1.40	100.0
	<u>480.0</u>		<u>602.0</u>

12. We estimate the additional annually recurrent expenditure for operating the additional government facilities required for the second runway to be \$44 million at current prices.

ENVIRONMENTAL IMPLICATIONS

13. We anticipate that the operation of the proposed systems and equipment will not cause adverse environmental impact. During the construction stage, we will carry out normal mitigation measures through provisions in the relevant contracts to control dust, noise, site runoff and waste.

LAND ACQUISITION

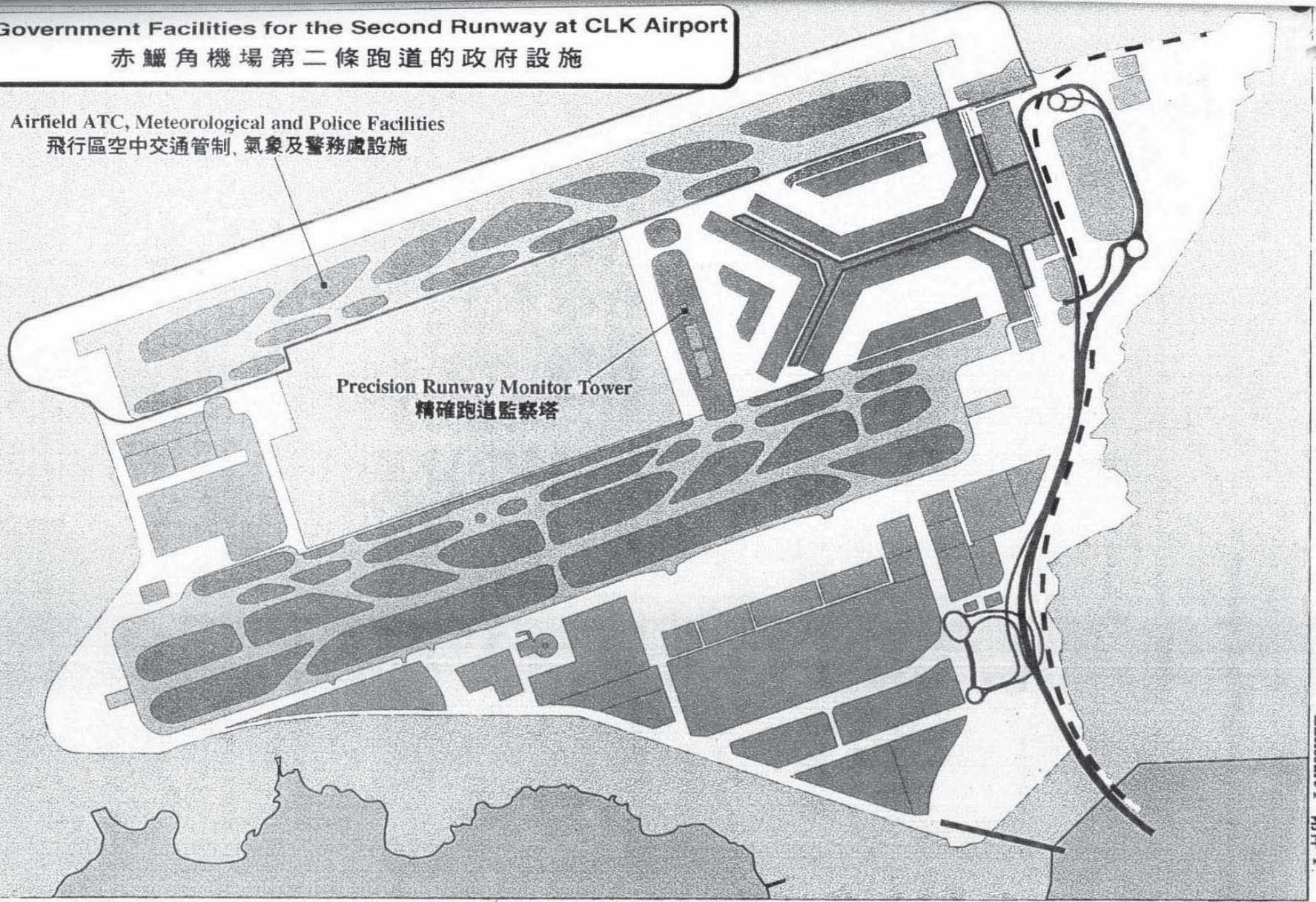
14. The project does not require any land acquisition.

Government Facilities for the Second Runway at CLK Airport

赤鱸角機場第二條跑道的政府設施

Airfield ATC, Meteorological and Police Facilities
飛行區空中交通管制、氣象及警務處設施

Precision Runway Monitor Tower
精確跑道監察塔



Enclosure I 附件 I

**Implementation Programme for Government Facilities
for the Second Runway
of the New Airport at Chek Lap Kok**

	Tender Invitation	Contract Award	Contract Completion	Contract Commissioning
(a) ATC Equipment and Systems				
(i) Instrument Landing System	Aug 96	Jan 97	Jun 98	Aug 98
(ii) Precision Runway Monitor	Jun 96	Apr 97	Mar 99	Sep 99 (Note 2)
(iii) Communications Equipment	Aug 96	Jan 97	Jul 98	Aug 98
(iv) Ancillary ATC Equipment	Jun 96	Feb 97	Feb 99	Mar 99 (Note 2)
	- Jan 97	- Aug 97		
(b) Meteorological Equipment				
(i) Extension of Aerodrome Meteorological Observation System	Feb 97	Sep 97	Aug 98	Oct 98
(ii) Ancillary Meteorological Equipment	Feb 97	Sep 97	Feb 99	Mar 99 (Note 2)
	- May 97	- Nov 97		
(c) Building and Airfield Facilities				
(i) PRM Tower	Mar 97	Jun 97	Oct 98	-
(ii) Airfield ATC and Meteorological Facilities	Note 1	Note 1	Note 1	-
(iii) Airfield Police Facilities	Note 1	Note 1	Note 1	-

Notes : (1) Programme to be developed in conjunction with the airfield civil works contract of Airport Authority.

(2) Although these facilities will not be fully completed when the second runway is commissioned, they will be required shortly thereafter to cater for growing air traffic demand.

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the air traffic control and related services

- (a) with reference to the six stages of tender evaluation conducted by the Tender Assessment Panel (“TAP”) for the Air Traffic Management System contract, please provide the activities carried out in each stage by filling in column (ii) of the table below.
Please refer to Appendix I.
- (b) the progress of seeking advice from the International Civil Aviation Organization regarding effective measures to tackle overdue en-route navigation charges, and the implementation plan of those measures; and CAD sought the advice of the International Civil Aviation Organization (ICAO) on overdue En-Route Navigation Charges (ENCs) in 2013, and further raised the issue for discussion at the Conference of Directors General of Civil Aviation, Asia and Pacific Regions in November 2014. The Conference suggested ICAO to facilitate the setting up of a mechanism for sharing information and best practices on the subject, and to continue identifying practical operational measures to deal with problems of overdue charges. ICAO has proposed to discuss the issue at its Air Navigation Services Economics Panel in May 2015. CAD will closely monitor the development.
- (c) the progress of consulting the Department of Justice (“DoJ”) on the criteria and details for implementation of demanding a one-month security deposit or banker’s guarantee from specific airline operators using the navigation services provided by the Civil Aviation Department on a case-by-case basis having regard to their payment records, including the date(s) CAD wrote to DoJ for advice and expected date of reply from DoJ.
CAD has written to the Department of Justice (DoJ) on 26 January 2015 to seek legal advice on a proposal of demanding a one-month security deposit or banker’s guarantee from specific airline operators having regard to their payment records. CAD will follow up closely with DoJ.

Encl.
Appendix I

* * * * *

****Note by Clerk, PAC: Please see Appendix 22 of this Report for Appendix I.***

Reply to Item (q) of PAC's Letter dated 7 January 2015

- (i) As at 7 January 2015, the total overdue amount of en-route navigation charges was \$21.3 million.
- (ii) The debtor with the longest overdue period owes \$0.8 million. The earliest outstanding demand note owed by this debtor was due in June 2008.
- (iii) As at 7 January 2015, the cases which involved an overdue amount of \$250,000 or more were as follows:

Case	Length of overdue period as at 7 January 2015 (number of months) (Note)	Total overdue amount (\$ million)
Company 1	79	0.8
Company 2	58	0.7
Company 3	46	7.2
Company 4	30	1.6
Company 5	8	0.3
Company 6	5	0.9
Company 7	4	0.4
Company 8	2	1.2
Company 9	1	0.3
Company 10	< 1	0.4
Company 11	< 1	0.9
Company 12	< 1	0.6
Company 13	< 1	0.5
Company 14	< 1	0.5

Note: The length of overdue period is calculated based on the earliest outstanding demand note owed by a debtor.

Companies 1, 2 and 4 have ceased operation. The CAD is following up the cases in

consultation with the DoJ.

Company 3 is referred to as Case A in the Audit Commission's report. Apart from issuing reminder and warning letter to the company, the CAD has sent chaser letters to the senior management of the company and sought the assistance of the civil aviation authority of the airline's home country. As the company has only partially settled its debt, the CAD will consider taking legal action against it.

Regarding Companies 5 to 14, the CAD is following the procedure set out in Table 7 of the Audit Commission's report, including the issue of reminders and warning letters and referral to the DoJ. For Company 5, the CAD has also written to the senior management of the airline and sought the assistance of the civil aviation authority of its home country. For long overdue cases, the CAD would consider taking legal actions against the defaulting airlines.

If after all these efforts a debt remains irrecoverable, the CAD would consider whether the amount needs to be written off upon the DoJ's advice.

In addition, the CAD is exploring on the criteria and details for implementation of demanding a one-month security deposit or banker's guarantee from specific airline operators using the CAD's navigation services on a case-by-case basis having regard to their payment records. The CAD is at present working out proposals and will consult the DoJ on whether the proposals are legally in order.

ACRONYMS AND ABBREVIATIONS

ADGCA	Assistant Director-General of Civil Aviation
AIDC	Air Traffic Services Inter-facility Data Communication
ASBU	Aviation System Block Upgrades
ATC	Air traffic control
ATMS	Air Traffic Management System
ATMS Contractor	Contractor of the ATMS
Audit	Audit Commission
Audit Report	Director of Audit's Report
CAD	Civil Aviation Department
CTB	Central Tender Board
DDR	Detailed Design Review
DoJ	Department of Justice
ED Panel	Panel on Economic Development
FC	Finance Committee
FDP	Flight Data Processing
FSTB	Financial Services and Treasury Bureau
GANP	Global Air Navigation Plan
GLD	Government Logistics Department
ICAO	International Civil Aviation Organization
LegCo	Legislative Council
MOR	Mandatory occurrence reporting
NCSC	Non-civil service contract
PBN	Performance-based Navigation Implementation Plan
PRM	Precision runway monitor
PWSC	Public Works Subcommittee
SDP	Surveillance Data Processing

ACRONYMS AND ABBREVIATIONS

SPR	Stores and Procurement Regulations
TAP	Tender assessment panel
Tender Document	Tender Document for replacement of ATMS
THB	Transport and Housing Bureau
UFS	Ultimate Fallback System
WTO GPA	World Trade Organization Government Procurement Agreement