

CONTROLLING OFFICER'S REPLY

THB(T)001

(Question Serial No. 0149)

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not Specified

Programme: (3) Air Traffic Management

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

What are the number of staff and the estimated expenditure involved in recruiting and training more air traffic control staff to meet air traffic services demand and support the future three-runway system by the Civil Aviation Department in 2017-18?

Asked by: Hon CHAN Chun-ying (Member Question No. 33)

Reply:

To cope with growing air traffic services demand and facilitate the implementation of the three-runway system (3RS) project, the Civil Aviation Department (CAD) plans to recruit 21 Air Traffic Control Officers III/Student Air Traffic Control Officers in 2017-18, which will incur an expenditure of \$9.7 million in terms of notional annual mid-point salary value. In addition, 2 posts in the Air Traffic Flight Services Officer grade will be created. As qualified applicants who applied for the same post in 2016-17 will be selected to fill these posts, no recruitment exercise is needed. These 2 posts will incur an expenditure of about \$530,000 in terms of notional annual mid-point salary value.

To meet increasing air traffic services demand, the CAD has all along arranged in-house training courses to its air traffic control (ATC) staff. These courses are conducted as part of the normal duties of CAD staff, and no additional expenses will be incurred. In addition, the CAD plans to arrange for various ranks of ATC staff specialised training provided by external local and overseas professional institutions in 2017-18. The training courses will cover daily ATC operations as well as various aspects in support of the future 3RS, including airspace design, flight procedure design, air traffic management, safety investigation and analysis, training in instructional techniques for supervisors of ATC staff and so on. The estimated expenditure involved is about \$840,000.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)002

(Question Serial No. 2540)

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not Specified

Programme: (-) Not Specified

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

Please give a breakdown of the actual expenditure on salaries, regularly-paid allowances, job-related allowances and non-accountable entertainment allowance payable to the Director-General of Civil Aviation (DGCA) in 2016-17, as well as the estimate for salaries, regularly-paid allowances, job-related allowances and non-accountable entertainment allowance payable to the DGCA in 2017-18.

Asked by: Hon KWOK Ka-ki (Member Question No. 30)

Reply:

The salary expenditure for the Director-General of Civil Aviation (DGCA) (D6) in terms of notional annual salary cost at mid-point in 2016-17 and the estimate for that in 2017-18 are both \$2,950,200. There is no job-related allowance or non-accountable entertainment allowance for the DGCA. Eligible civil servants will be paid regular allowances in accordance with the relevant regulations and guidelines, and the expenditures involved will not be paid under Head 28.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)003

(Question Serial No. 2394)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not specified
Programme: (3) Air Traffic Management
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

The third runway of the Hong Kong International Airport (HKIA) is targeted for completion in 2023. With the expansion of the HKIA, the demand for air traffic control staff will also increase. Does the Civil Aviation Department have any training plan for these staff in the 2017-18 financial year? If so, what are the estimated expenditure and details of the plan? If not, what are the reasons?

Asked by: Hon LAM Kin-fung, Jeffrey (Member Question No. 31)

Reply:

To cope with the increasing demand for air traffic services, the Civil Aviation Department (CAD) has all along been arranging various in-house training courses for its air traffic control (ATC) staff. As these courses form part of the normal duties of CAD staff, no additional expenses are incurred. In addition, in 2017-18, the CAD plans to arrange specialised training courses organised by local and overseas professional institutions for the various ranks of its ATC staff. These courses cover various aspects of daily ATC operation and also support for the future Three-Runway System, including Airspace Design, Flight Procedure Design, Air Traffic Management, Safety Investigation and Analysis, Instructional Techniques for officers in charge of ATC staff, etc. The estimated expenditure involved is around \$0.84 million.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)004

(Question Serial No. 1137)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not specified
Programme: (4) Air Traffic Engineering Services
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

It is mentioned under Programme (4) that the Air Traffic Engineering Services Division of the Civil Aviation Department (CAD) is responsible for the design, co-ordination, provision and maintenance of Air Traffic Control (ATC) systems, radar, navigational aids, communications equipment and information technology systems. Upon commissioning of the new ATC system in late 2016, there were flight delays caused by repeated failure of the system in just a month's time. While no major incidents have been reported, the cost of the new system amounted to \$1.5 billion. In this connection, will the Government advise this Committee of the following:

- (1) How much resources has the CAD allocated to monitor and conduct fault detection of the new ATC system? What are the results?
- (2) Will the CAD allocate resources to regulate the use of unmanned aircraft systems in view of their growing popularity for the sake of aviation safety? How much resources will be allocated for ensuring aviation safety and what are the details?
- (3) A small aircraft had an accident at Sai Sha Road earlier and fortunately it had not turned out to be a fatal incident. With the growing popularity of small aircraft, will the CAD recognise overseas pilot licences or process more local and overseas flight crew examination papers? If yes, what are the details? If no, what are the reasons?

Asked by: Hon LEUNG Mei-fun, Priscilla (Member Question No. 12)

Reply:

(1)

The whole new air traffic control systems (ATCS) is implemented in 2 phases through 8 major system contracts, including the commissioning of a new air traffic management system (ATMS) which was put into full operation on 14 November 2016. The work of phase 1 mainly involves the implementation and commissioning of the new ATCS (including the new ATMS) while that of phase 2 involves the installation of the new ATCS in the old Air Traffic Control Centre (ATCC) and Control Tower as a back-up ATCC. The

Finance Committee of the Legislative Council approved a funding of \$1,565 million in 2007 to implement the entire new ATCS project.

The Civil Aviation Department (CAD) has conducted comprehensive safety assessment on the new ATMS in accordance with international aviation safety management standards and established Government procedures. All the acceptance test events have been conducted in accordance with the requirements specified in the contract (including the Site Acceptance Tests, Flight Check Acceptance Tests, Reliability Acceptance Tests and System Integration Tests) to ensure that the system operation complies with the contract conditions as well as the stringent aviation safety requirements set by the International Civil Aviation Organization (ICAO) and the CAD. Meanwhile, the CAD has performed an overall safety assessment on the training of air traffic control officers (ATCOs) for the operation of the new ATMS, operational procedures, transition activities of the new ATMS, etc.

In 2007, the CAD established a dedicated Project Team to support implementation of the CAD Headquarters and new ATCS projects. The team is composed of new time-limited staff, internally re-deployed civil servants of the CAD, and staff employed on non-civil service contract terms. With the above projects entering into different phases of development, the Project Team ranged in size from 21 to 49 during the period from 2007-08 to 2015-16. With the completion of the phase 1 of the new ATCS project, the number of Project Team members has been progressively reduced to 6. They are mainly responsible for implementing the phase 2 of the new ATCS project. The manpower expenditure for non-civil service contract terms staff on the phase 1 work was \$3.95 million in 2016-17.

To implement the new ATMS, the CAD appointed PCCW Solutions Limited (PCCW) for the provision of on-site professional consultancy service during the installation, testing and acceptance of the new ATMS in ensuring the smooth and stable operation of the new ATCS. In 2016-17, the expenditure on PCCW's services in the installation, testing and acceptance of the new ATMS was around \$11.25 million.

In addition, the CAD engaged an independent overseas expert (a consultant in the United Kingdom named EC Harris) in 2012 to provide safety assessment of the new ATMS to ensure that the contractor follows international quality standards and complies with the safety requirements of the ICAO in the process of system development. The relevant expenditure was around \$1.75 million.

The new ATMS was fully commissioned on 14 November 2016. Its operation has generally been smooth with only some temporary setbacks, which neither affected aviation safety nor posed an actual or substantial impact on the overall operation of the Hong Kong International Airport.

The CAD has been working closely with the system contractor to keep on optimising the system software and at the same time set up an expert panel comprising local and overseas experts to offer professional and objective advice to the CAD on the various issues encountered during the teething period. The expert panel confirmed that the new ATMS has been providing safe, reliable and generally smooth air traffic services to flights operating in and out of the Hong Kong Flight Information Region (HKFIR) since its full commissioning on 14 November 2016. It has never been necessary to activate the multiple fallback systems of the new ATMS. Based on the experience of the National Air Traffic Services, the independent consultant of the Transport and Housing Bureau (THB), given the

complexity of the new ATMS, even with all reasonable efforts and endeavours, there could still be possibilities of having setbacks during the introduction of the new system.

In fact, since the full commissioning of the new ATMS for 4 months, the total air traffic movements handled by the CAD increased by 4% over the same period last year. During the peak air traffic movement periods in last Christmas and New Year, as well as the Lunar New Year holidays, the CAD handled a record-high number of overflights. It is a sufficient proof of the capacity and reliability of the new ATMS. The expert panel also considered that the safety performance of the new ATMS has so far exceeded international requirements.

The CAD will continue to closely monitor the performance of ATMS, expedite its optimisation and fine-tuning, and report the progress to the expert panel. On receiving a new software fix for site acceptance tests from the system's contractor in February 2017, the CAD completed to test and to conduct safety assessment of the new software fix, and launched it in the end of March 2017 to rectify the problems of not displaying certain flight information on radar screens and intermittent interruptions to certain functions of Tower Electronic Flight Strips System.

Regarding false conflict alerts triggered by false targets temporarily displayed on the radar screens, the CAD has all along been striving to expedite full implementation of the satellite-based "Automatic Dependent Surveillance-Broadcast" (ADS-B) in the new ATMS as a technology breakthrough to the sole reliance on radar surveillance technology. The CAD has been making every efforts to expedite the implementation of the concerned new technology in the HKFIR. With the progressive introduction of ADS-B in Hong Kong, improvements have already been observed in the display issue of aircraft positions on the radar screens (e.g. split tracks and aircraft positions not displayed temporarily). The expert panel appointed by the CAD was satisfied with the progress of the improvements brought by the implementation of ADS-B and advised the CAD to continue monitoring the performance of ADS-B closely and gauging more views from the frontline ATCOs. The CAD will implement the ADS-B progressively with a view to fully integrating it into the new ATMS by end-2017.

The expert panel is expected to publish an interim report on the initial performance of the new ATMS in March or April 2017. The CAD will carefully study the contents and recommendations of the report with a view to further improving the ATMS. The CAD will inform the public of the progress in a timely manner. Since monitoring the performance of the new ATMS and enhancing the system are part of the work of CAD staff, no additional expenditure on manpower has been incurred.

(2)

Unmanned Aircraft Systems (UAS) is a kind of aircraft, and its flight safety is regulated by the civil aviation legislation. The CAD attaches great importance to flight safety, including the operation of UAS, to ensure that such activities are performed in accordance with air safety requirements. With reference to current regulations, UAS operators, regardless of the weight and purpose of the UAS operated, are governed by Article 48 of the Air Navigation (Hong Kong) Order 1995 (Cap. 448C) (the Order), which stipulates that a person shall not recklessly or negligently cause or permit an aircraft to endanger any person or property.

Separately, in accordance with Regulation 22 of the Air Transport (Licensing of Air Services) Regulations (Cap. 448A), regardless of the weight, if a person uses a UAS for hire and reward, he/she must lodge an application with the CAD before operating such aircraft and abide by the conditions stipulated in the permit granted by the CAD in providing the service. Prior to the issuance of a permit, the CAD will take into consideration whether the applicant and his/her UAS can operate safely. The permit issued by the CAD will also stipulate relevant conditions and requirements to ensure safe operation.

Articles 3, 7 and 100 of the Order provide that any person must apply to the CAD for a Certificate of Registration and a Certificate of Airworthiness for any unmanned aircraft weighing more than 7 kilograms (without fuel) before he/she can operate such aircraft. The above regulatory work on aviation safety is carried out by CAD staff as part of their normal duties. There is no breakdown of the expenditure involved.

In order to strengthen the protection of public safety, the CAD is currently reviewing the regulatory policies on UAS and the need of amending relevant legislation by taking into account regulatory requirements of overseas aviation authorities with due regard to the specific circumstances in Hong Kong. The CAD also collaborates with relevant government departments in respect of policy review and enforcement measures, striking an appropriate balance between the use of UAS for recreational and work purposes and the protection of public safety. With the CAD's consultancy study on the regulation of UAS scheduled for completion in 2017-18, the Department will continue to work with the THB in taking forward the review of relevant regulatory work.

At the same time, the CAD will make use of different channels such as the Department's website, other websites and promotional flyers to proactively raise the awareness of relevant organisations and the public about the safe operation of UAS. The CAD also meets with model aircraft flying clubs and UAS manufacturers from time to time to step up collaborative efforts in the promotion of safety. Starting from April 2017, information on the safety of UAS operation will also be broadcast on TV and radio.

Since the public education and review work above are part of the regular work of the relevant divisions of the CAD, the expenditure involved has been included in the estimates for 2017-18.

(3)

The CAD has all along been recognising pilot licences issued by countries and territories which are members of the ICAO. Upon reviewing applicant's overseas pilot licence details and their qualifications, and confirming the applicant's compliance with relevant conditions and procedures, the CAD may exempt the applicant from specific written test subjects required for the issue of a Hong Kong pilot licence in accordance with the established mechanism. The projected number of local and overseas written tests for pilots in 2017 after deduction of the expected number of exempted examination papers is around 5 000, which is similar to the number for 2016.

- End -

CONTROLLING OFFICER'S REPLY**THB(T)005****(Question Serial No. 2720)**Head: (28) Civil Aviation DepartmentSubhead (No. & title): (-) Not SpecifiedProgramme: (5) Air Services and Safety ManagementControlling Officer: Director-General of Civil Aviation (Simon LI)Director of Bureau: Secretary for Transport and HousingQuestion:

Will the Government advise on the respective percentages of delays caused by non-weather reasons out of all departing flights over the past 5 years? (Please list by reason.)

Asked by: Hon OR Chong-shing, Wilson (Member Question No. 41)Reply:

Flight delays are attributable to a number of factors, such as bad weather, airspace restrictions, mechanical failure of aircraft and airlines' ad hoc service changes. The Civil Aviation Department (CAD) does not have a breakdown of the causes of flight delays.

The total numbers of passenger departure flights delayed by more than 15 minutes at the Hong Kong International Airport in the past 5 years are shown in the table below:

Year	Total number of passenger departure flights	Year-on-year percentage change of total number of passenger departure flights	Number of passenger flights delayed by more than 15 minutes on departure ^{Note}	Percentage against the total number of passenger departure flights ^{Note}
2012-13	148 593	+4.8%	40 120	27%
2013-14	155 723	+4.8%	48 274	31%
2014-15	166 441	+6.9%	56 590	34%
2015-16	172 735	+3.8%	65 228	38%
2016-17 (Up to 31 January 2017)	145 335	---	43 838	30%

Note

A departure flight is regarded as delayed when its actual departure time at the parking stand is 15 minutes later than the time of the slot allocated by the CAD.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)006

(Question Serial No. 0043)

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not Specified

Programme: (3) Air Traffic Management, (4) Air Traffic Engineering Services

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

1. With the implementation of the problematic Air Traffic Management System (ATMS), a series of incidents have made people increasingly doubt the safety and reliability of the new system. In this connection, in what ways will Civil Aviation Department (CAD) to rebuild public confidence in the safe provision of air navigation services?
2. What is the maintenance and implementation cost of the ATMS (including the payment to the contractor, the recruitment and training of new staff for the new system, and the commission of the expert panel by CAD, etc) in 2016-17 and 2017-18?
3. Will CAD provide a list of disruptions occurred since the implementation of the ATMS in November 2016 with details of the nature and duration of each of the disruptions and the estimated economic loss for each of the incidents?
4. While the Administration revealed on 20 February 2017 that the expert panel set up by the CAD to oversee the ATMS were of the view that all the disruptions had no impact on aviation safety and CAD's handling procedures on the loss of standard separation incidents of the CAD were on par with international practice, is the CAD of the view that frequent disruptions of the ATMS are tolerable and seeking further improvement in ATMS to minimise the occurrence of system disruption is not value for money?

Asked by: Hon SHEK Lai-him, Abraham (Member Question No. 7)

Reply:

The whole new air traffic control (ATC) system is implemented in 2 phases through 8 major system contracts, including the commissioning of a new air traffic management system (ATMS) which was put into full operation on 14 November 2016. The work of phase 1 mainly involves the implementation and commissioning of the new ATC system (including the new ATMS) while that of phase 2 involves the installation of the new ATC system in the old Air Traffic Control Centre (ATCC) and Control Tower as a back-up ATCC. The

Finance Committee of the Legislative Council approved a funding of \$1,565 million in 2007 to implement the entire new ATC system project.

My reply to the Member's question is as follows:

The Civil Aviation Department (CAD) has all along been explaining to the public about the operation of the new Air Traffic Management System (ATMS) in an open and transparent manner, including the setbacks during the teething period after the full commissioning of the new system through various channels (including press releases and media meetings)¹. In the information papers submitted to the Legislative Council Panel on Economic Development (the Panel) on 28 November and 13 December 2016², the CAD reported the operations of the new ATMS up to 29 November 2016 after its full commissioning. At the Panel meeting on 13 December 2016, the CAD also reported in detail the occurrences of aircraft positions (i.e. aircraft positions not displayed temporarily, split tracks and false targets) displayed on radar screen. Apart from the abovementioned occurrences, the setbacks of the new ATMS occurred temporarily since its full commissioning on 14 November 2016 are as follows:

Date	Incident
15 November 2016	The position of a departing flight was not displayed on the radar screen for 12 seconds.
29 November 2016	Radar screens were unable to display some of the flight information (such as aircraft callsigns and ground speed) for about 26 seconds. To safeguard aviation safety, air traffic controllers have suspended the handling of departure flights for 15 minutes during the incident.
12 December 2016	Radar screens were unable to display some of the flight information for about 75 seconds. The incident was caused by working staff failed to follow the recommended procedures promulgated by the department earlier to avoid retrieving and archiving data from the Main System. This was not a problem of the new ATMS.
26 December 2016	Two planner positions could not process the command to change the operation configuration temporarily in the Air Traffic Control Centre as the command entered did not fully match with the operating configuration. Some 20 departure flights were affected.

In addition, some sub-systems which are independent from the old ATMS have also been enhanced by the new ATMS and incorporated into the new system. The occurrences of temporary setbacks of these sub-systems are as follows:

¹ For details, please refer to the CAD's website: http://www.cad.gov.hk/english/pressrelease_2017.html

² For details, please refer to the papers submitted to the Legislative Council Panel on Economic Development by the CAD:

<http://www.legco.gov.hk/yr16-17/english/panels/e/dev/papers/e/dev20161128cb4-154-4-e.pdf>

<http://www.legco.gov.hk/yr16-17/english/panels/e/dev/papers/e/dev20161213cb4-253-6-e.pdf>

<http://www.legco.gov.hk/yr16-17/english/panels/e/dev/papers/e/dev20161213cb4-320-1-e.pdf>

Date	Incident
<p>18 November 2016</p> <p>2 January 2017</p> <p>12 February 2017</p>	<p>Arrival Manager System (“AMAN”)³:</p> <p>The AMAN temporarily could not show the arrival sequence of the arrival flights for about 2 minutes due to human factors;</p> <p>The AMAN temporarily could not show the arrival sequence of the arrival flights for about 2 minutes due to human factors; and</p> <p>The AMAN temporarily could not show the arrival sequence of some of the arrival flights.</p>
<p>18 December 2016</p>	<p>Tower Electronic Flight Strips (TEFS) System:</p> <p>Some functions of the TEFS System were temporarily and intermittently affected.</p>

Apart from the above incidents, there are also teething issues caused by the limitations of radar surveillance technology occasionally (e.g. aircraft positions temporarily not displayed on the radar screens, split tracks and false targets). Any ATMS, regardless of the brand, would encounter this situation. This phenomenon was not unique to the new ATMS and it was also observed in ATMS elsewhere and in the old ATMS of the CAD.

An expert panel comprising local and overseas experts, set up by the CAD, has evaluated the above issues and confirmed that these issues did not undermine aviation safety. They did not cause any genuine or significant implications to the overall operations of the Hong Kong International Airport, nor any substantial economic losses. In the event of any incidents, safeguarding aviation safety is the top priority of the CAD and it is in line with the international practices and has been recognised by the expert panel and the National Air Traffic Services (NATS), the independent professional consultant of the Transport and Housing Bureau (THB).

The CAD has been working closely with the ATMS contractor to keep on optimising the system software and at the same time set up an expert panel comprising local and overseas experts to offer professional and objective advice to the CAD on the various issues encountered during the teething period. The expert panel confirmed that the new ATMS has been providing safe, reliable and generally smooth air traffic services to flights operating in and out of the Hong Kong Flight Information Region (HKFIR) since its full commissioning on 14 November 2016. It has never been necessary to activate the multiple fallback systems of the new ATMS. Based on the experience of the NATS, the THB’s independent consultant, given the complexity of the new ATMS, even with all reasonable efforts and endeavours, there could still be possibilities of having setbacks during the introduction of the new system.

³ The AMAN is not a tool to safeguard the standard separation between the aircraft, but basically a tool to provide automatically the arrival sequence of arrival flights and to assist the air traffic control officers in arranging the arrival sequence, so as to achieve more efficient use of airspace and optimise the arrival capacity.

The expert panel also met with the chairman/president and representatives of the CAD Electronics Engineers' Branch of Hong Kong Chinese Civil Servants' Association and the Hong Kong Air Traffic Control Association. The electronics engineers' representatives informed the expert panel that the teething issues arising from the initial commissioning period of the new ATMS is unavoidable in the transition of any large-scale and complicated ATMS. The representatives of the air traffic control officers (ATCOs) said that they have gradually adapted to different functionalities of the new system, and have become more competent and confident in operating the new ATMS. The expert panel also met with the management pilots of the major local airlines and the Government Flying Service. The management pilots noted that the transition of the ATMS was seamless and the operations were smooth. This has also been recognised by the Board of Airline Representatives Hong Kong which represents over 70 airlines.

In fact, since the full commissioning of the new ATMS for four months, the total air traffic movements handled by the CAD increased by 4% over the same period last year. During the peak air traffic movement periods in last Christmas and New Year, as well as the Lunar New Year holidays, the CAD handled a record-high number of overflights. It is a sufficient proof of the capacity and reliability of the new ATMS. The expert panel also considered that the safety performance of the new ATMS has so far exceeded international requirements.

Regarding false conflict alerts triggered by false targets temporarily displayed on the radar screens, there are long established guidelines on how to tackle relevant scenarios for all ATCOs to follow. Well-trained and professional ATCOs are fully capable in handling these situations and aviation safety has never been affected. With regard to aircraft display problems on radar screen caused by the limitations of radar surveillance technology, the CAD has all along been striving to expedite full integration of the satellite-based "Automatic Dependent Surveillance-Broadcast" (ADS-B) in the new ATMS as a technology breakthrough to the sole reliance on radar surveillance technology. The CAD informed the relevant stakeholders (including airlines) of this arrangement in 2014 so that they would have sufficient time to make preparation. In the first phase, starting from 14 November 2016, the ADS-B was implemented in the southern tip of the HKFIR, where there was no radar coverage. So far, the results have been satisfactory. Moving on to the second phase on 8 December 2016, the ATCOs have been able to view the information of flights inside the HKFIR with radar coverage through ADS-B, i.e. they can obtain relevant flight information simultaneously through radar and ADS-B screens. Through progressive introduction of ADS-B into the HKFIR, the CAD will be able to observe whether the operations of other areas are smooth, and whether there are rooms for enhancement in terms of technology, hardware and procedures.

With the progressive introduction of ADS-B in Hong Kong, improvements have already been observed in the display issue of aircraft positions on the radar screens (e.g. split tracks and aircraft positions not displayed temporarily). The expert panel appointed by the CAD was satisfied with the progress of the improvements brought by the implementation of ADS-B and advised the CAD to continue monitoring the performance of ADS-B closely and gauging more views from the frontline ATCOs. The CAD will implement the ADS-B progressively with a view to fully integrating it into the new ATMS by 2017.

The CAD will continue to closely monitor the performance of ATMS, expedite its optimisation and fine-tuning, and report the progress to the expert panel. On receiving a new software fix for site acceptance tests from the ATMS contractor in February 2017, the CAD completed to test and to conduct safety assessment of the new software fix, and launched it in end of March 2017 to rectify the problems of not displaying certain flight information on radar screens and intermittent interruptions to certain functions of the TEFS System. The expert panel is expected to publish an interim report on the initial performance of the new ATMS in March or April 2017. The CAD will carefully study the contents and recommendations of the report with a view to further improving the ATMS. The CAD will inform the public of the progress in a timely manner.

The maintenance of the new ATMS and staff training are part of the routine work of the CAD and, as such, do not entail additional civil service staff costs. All the expert panel members, appointed by CAD, work and attend the meetings on a voluntary basis without remuneration. In accordance with the Government's usual practice, the expenses on air tickets and hotel accommodation for two overseas expert members to attend the expert panel meetings held in Hong Kong would be reimbursed by in-house resources of the CAD on an actual cost basis.

Apart from the general staff costs and routine expenses, the total costs for implementation and maintenance of the new ATMS (Phase 1) in 2016-17 is around \$21.89 million while the total maintenance costs for the new ATMS (Phase 1) in 2017-18 is estimated to be around \$15.13 million.

The CAD fully understands the community's concerns over aviation safety. Should there be any issues concerning aviation safety, timely promulgation will be made according to the established mechanism in an open and transparent manner. Given the increasing air traffic, the CAD will also spare no effort to maintain the highest level of aviation safety and uphold the status and reputation of Hong Kong as a regional aviation hub.

- End -

CONTROLLING OFFICER'S REPLY**THB(T)007****(Question Serial No. 2332)**

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not Specified

Programme: (1) Flight Standards

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

It is mentioned in Programme (1) that the Civil Aviation Department (CAD) is responsible for monitoring compliance with the mandatory occurrence reporting scheme. In this connection, will the Government advise this Committee on:

- 1) the numbers of incidents which had been reported under the mandatory occurrence reporting scheme over the past 3 years; whether any delays or economic loss had been caused by these incidents; and
- 2) the manpower of the CAD involved?

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 20)

Reply:

- 1) The numbers of reports received under the mandatory occurrence reporting scheme over the past 3 years are tabulated below:

Year	Number of reports made under the mandatory occurrence reporting scheme
2014	894
2015	842
2016	832

The main purpose of the mandatory occurrence reporting scheme is to monitor the cases and data involving aviation safety so as to improve the level of flight safety. The CAD does not collect the statistics on flight delays or economic loss through the mandatory occurrence reporting scheme.

- 2) The mandatory occurrence reporting scheme are co-ordinated and managed by two designated officers (1 Senior Operations Officer and 1 Operations Officer) of the Flight Standards Office of the CAD. According to the nature of the incident, the report will be referred to the respective division for follow-up.

- End -

CONTROLLING OFFICER'S REPLY**THB(T)008****(Question Serial No. 2333)**Head: (28) Civil Aviation DepartmentSubhead (No. & title): (-) Not specifiedProgramme: (3) Air Traffic ManagementControlling Officer: Director-General of Civil Aviation (Simon LI)Director of Bureau: Secretary for Transport and HousingQuestion:

Under Programme (3), the Civil Aviation Department (CAD) will provide professional and technical training to all air traffic control (ATC) staff. Will the Government inform this Committee of the number of appointments of aviation services providers by the CAD to provide training to ATC staff in the past 3 years? Please list in detail the aviation services providers which have been appointed by the CAD and the number of appointments.

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 21)Reply:

In the past 3 years, ATC staff had enrolled on professional and technical training programmes provided by a total of 10 aviation services providers around the world. The details are as follows:

	Name of aviation services provider	Number of training programmes offered	Scope of training
1	Singapore Aviation Academy	10	Incident investigations; flight procedures design; safety management; ATC resources management
2	CAE (formerly known as "Canadian Aviation Electronics Ltd.")	3	Aircraft operation
3	International Air Transport Association	3	Training needs assessment; flights scheduling
4	Global Aviation Training Services	2	Basic ATC and flying training

	Name of aviation services provider	Number of training programmes offered	Scope of training
5	Institute of Air Navigation Services, EuroControl	2	Air traffic flow management and aeronautical information management
6	Air Navigation Institute, Switzerland	1	Flight procedures design
7	CEB (A technology consultancy with its headquarters in the US, providing recruitment-related training)	1	Psychometric tests and assessment tools for recruitment; analysis of assessment results
8	Ecole Nationale de l'Aviation Civile	1	Flight procedures design; safety management
9	International Civil Aviation Organization	1	Safety oversight audit
10	National Air Traffic Services	1	Basic ATC and flying training

- End -

CONTROLLING OFFICER'S REPLY

THB(T)009

(Question Serial No. 2334)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not specified
Programme: (3) Air Traffic Management
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

The National Air Traffic Services (NATS) conducted an independent consultancy report on the new Air Traffic Management System (ATMS), but the media questioned its independence. Will the Government advise this Committee of the following for the past 3 years:

- (1) How many times did the Civil Aviation Department (CAD) collaborate with NATS? What were the scopes of services covered? What were the contract values?
- (2) How many times did the CAD invite NATS to participate in selective tendering? Did the CAD invite other air navigation services providers to participate in selective tendering?

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 22)

Reply:

(1) and (2)

According to the Government's procurement procedures, departments may award service contracts through open tendering, restricted written quotations or single written quotations, the selection of which depends on the nature and urgency of the projects concerned as well as the services required. Over the past 3 years, NATS was invited to participate in a total of 8 tender/quotation exercises conducted by the CAD in relation to air traffic management or other services. They included 2 open tender exercises, 5 invitations of restricted written quotations and 1 invitation of single written quotation. Except the single written quotation exercise, the remaining 7 tender/quotation exercises were all participated by other aviation services providers and NATS had not offered any bids/quotations. NATS had only submitted a quotation and was awarded a service contract to provide consultancy services on three-runway capacity study for Hong Kong International Airport at a value of \$1.39 million.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)010

(Question Serial No. 2335)

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not Specified

Programme: (3) Air Traffic Management

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

The third runway of the Hong Kong International Airport (HKIA) is targeted for completion in 2023. The Civil Aviation Department (CAD) will recruit and train more air traffic control (ATC) staff for the Three-Runway System (3RS) project and 18 staff will be recruited this year. Will the Government advise this Committee of the following:

- (1) the number of additional staff required for the 3RS in the long run; their respective ranks; the estimated expenditures and details involved;
- (2) the time required to train up a qualified ATC staff;
- (3) whether engagement of outside air navigation services providers is required to provide training to ATC staff.

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 23)

Reply:

- (1) To cope with growing air traffic services demand, 18 new posts will be created in the Air Traffic Management Division in 2017-18. Among these 18 new posts, 16 are in the Air Traffic Control Officer grade, involving an expenditure of \$11 million in terms of notional annual mid-point salary value. The other 2 posts are in the Air Traffic Flight Services Officer grade, which involve an expenditure of about \$530,000 in terms of notional annual mid-point salary value. In view of robust air traffic growth in recent years as well as the need to implement the Three-Runway System (3RS) project, the Civil Aviation Department (CAD) is now reviewing its long-term manpower planning.
- (2) Newly recruited Student Air Traffic Control Officers require on average about 7 years of on-the-job training to complete all the basic and advanced professional training in order to obtain the requisite professional qualifications for providing air traffic control (ATC) services and carry out ATC duties independently.
- (3) To meet increasing air traffic services demand, the CAD plans to arrange for ATC staff specialised training provided by external local and overseas professional institutions on top of its in-house training in 2017-18. The training courses will cover daily ATC operations and various aspects in support of the future 3RS, including

airspace design, flight procedure design, air traffic management, safety investigation and analysis, training in instructional techniques for supervisors of ATC staff and so on.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)011

(Question Serial No. 2336)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not Specified
Programme: (4) Air Traffic Engineering Services
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

It is noted that PCCW has been hired by the Civil Aviation Department to provide consultancy service on the new air traffic control (ATC) system. Will the Government advise this Committee of:

- (1) the scope of consultancy service on the new ATC system provided by PCCW?
- (2) the consultancy fees and details involved?

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 24)

Reply:

PCCW Solutions Limited (PCCW) was the maintenance contractor appointed by the Civil Aviation Department (CAD) through an open tender exercise for the provision of maintenance of air traffic control (ATC) system. PCCW was also responsible for provision of professional service during the installation, testing and acceptance of the new ATC system in ensuring the smooth and stable operation of the new ATC system. Regarding the maintenance for the new ATC system upon its full commissioning, PCCW was also the successful tenderer for the provision of the maintenance service through an open tender exercise.

In 2016-17, the CAD paid around \$23.70 million to PCCW for the professional service in relation to the installation, testing and acceptance of the new ATC system. This amount does not cover the system maintenance service provided separately by PCCW to the CAD.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)012

(Question Serial No. 2337)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not Specified
Programme: (4) Air Traffic Engineering Services
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

In light of the successive occurrence of incidents of the new Air Traffic Management System (ATMS), the Civil Aviation Department (CAD) has set up an expert panel to provide views on the matter. Will the Government advise this Committee on:

- (1) whether the costs of setting up an expert panel are borne by the CAD or Raytheon Company? If they are borne by the CAD, what are the estimated expenditures? When will the term of appointment of the expert panel end?
- (2) as software update will be provided for the new ATMS by Raytheon Company in the long term, whether the CAD is required to pay any fees for software update? If yes, what are the estimated expenditures? If no, will Raytheon Company make compensation for the incidents?

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 25)

Reply:

(1) The Civil Aviation Department (CAD) has set up an expert panel in response to the teething issues arising from commissioning of the new Air Traffic Management System (ATMS). The expert panel's terms of reference are to provide objective expert advice to the Director-General of Civil Aviation on the incidents occurred after the commissioning of the new ATMS and the necessary optimisation work, and to share with the CAD international experience and best practices in relation to the long-term optimisation of the new ATMS. The members have been appointed for a one-year term till 30 November 2017. All non-official members participate in the work and meetings of the expert panel on a voluntary basis without remuneration. In accordance with the Government's established practice, the expenses on air tickets and hotel accommodation for the two overseas members to attend the expert panel meetings held in Hong Kong would be reimbursed by in-house resources of the CAD on an actual cost basis.

(2) Under the procurement contract of the new ATMS, the contractor is required to provide software maintenance services in accordance with the contract requirements. Software updates are included in the services covered by the contract within the software warranty period without additional expenses involved. The CAD is now making every effort with the contractor to optimise the system. On contractual issues, CAD will seek legal advice when appropriate.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)013

(Question Serial No. 2427)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not specified
Programme: (3) Air Traffic Management
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

Will the Government advise this Committee on whether the Civil Aviation Department (CAD) has discussed with the civil aviation authorities of the Mainland on the rationalisation and optimisation of the airspace design of the Pearl River Delta (PRD) region and the airspace issue of the three-runway system (3RS) in the past 3 years? What were the annual number and details of the discussions? What was the staffing provision involved?

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 26)

Reply:

The Civil Aviation Administration of China (CAAC), the CAD and the Civil Aviation Authority of Macao (CAAM) jointly established the Tripartite Working Group (TWG) in 2004 to formulate measures to enhance the air traffic management arrangements in the PRD region in order to rationalise and optimise the PRD airspace management. The TWG drew up the "Pearl River Delta Region Air Traffic Management Planning and Implementation Plan (Version 2.0)" (the Plan) in 2007, setting out various air traffic management enhancement measures to be adopted. The Plan has taken into consideration Hong Kong's need for the 3RS as well as expansion plans of neighbouring airports in the PRD. Through the collaborative efforts of the TWG, a number of airspace enhancement measures in the Plan have been successfully implemented, including the establishment of additional handover points, peripheral flight paths in the PRD region, the adjustment of the Zhuhai airspace structure, etc.

Over the past 3 years, the three sides held a total of 15 meetings at different levels, of which 8 were meetings at administrative level. A breakdown by year is as follows:

2014-15: 2 meetings

2015-16: 9 meetings

2016-17: 4 meetings (as at 28 February 2017)

The Air Traffic Management Bureau of the CAAC, the CAD and the CAAM signed an agreement on a strengthened liaison mechanism to enhance co-operation and exchange in May 2016, thereby establishing a mechanism for the top management of the three sides to meet on a regular basis. Thereafter, the three sides will host administrative-level meetings

in the Mainland, Hong Kong and Macao on a rotational basis twice a year to further strengthen co-operation among the three sides.

The Mainland, Hong Kong and Macao will continue to promote synergy and foster tripartite co-operation through this co-ordination mechanism, in the aim of pushing forward the implementation of all airspace enhancement measures and implementing the Plan progressively in a gradual and orderly manner. This will bring about healthy and orderly development of the airports in the PRD region, and will also enable the 3RS of the Hong Kong International Airport to maximise its potential in achieving the target runway capacity of 102 air traffic movements per hour in the long run.

The three governments have announced from time to time the progress made in the successful phased implementation of short to medium term initiatives set out in the Plan. Press releases issued by the CAD in respect of the discussions and progress of the administrative-level meetings have been uploaded to the CAD website (<http://www.cad.gov.hk/english/home.html>). In April 2016, the Government also briefed the Subcommittee to Follow Up Issues Relating to the Three-runway System at the Hong Kong International Airport of the Legislative Council on this issue and a paper was submitted (http://www.legco.gov.hk/yr14-15/english/hc/sub_com/hs101/papers/hs10120160412cb4-832-1-e.pdf).

The above co-ordination work is undertaken by existing CAD staff as part of their normal duties under Programme (3). No additional expenses are involved.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)014

(Question Serial No. 2428)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not specified
Programme: (4) Air Traffic Engineering Services
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

Radar technology is adopted in both the new and old Air Traffic Management Systems (ATMS). However, as flight signals have disappeared on radar screens on a number of occasions since the commissioning of the new ATMS, the Civil Aviation Department (CAD) has stated that satellite positioning technology will be fully implemented in the Hong Kong Flight Information Region (HKFIR) in the coming year. Will the Government advise this Committee on:

- (1) whether there is a schedule for full implementation of satellite positioning technology? If yes, what are the details?
- (2) the operating expenses, staff establishment and salary expenditure for adopting the satellite positioning technology as compared to those for adopting radar technology?

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 27)

Reply:

- (1) To overcome the limitations of sole dependence on radar surveillance technology, the International Civil Aviation Organization (ICAO) advocates the implementation of the satellite-based "Automatic Dependent Surveillance – Broadcast (ADS-B)" technology in all member states/regions, concurrently with radar surveillance technology. The CAD has all along been striving to expedite full integration of the ADS-B in the new ATMS, and already notified all stakeholders (including airlines) of the relevant arrangements in 2014 to allow them ample time for preparation. The first phase of ADS-B implementation started from 14 November 2016, covering the southern tip of the HKFIR where there was no radar coverage, and the results have been satisfactory so far. The second phase started from 8 December 2016 and since then Air Traffic Control Officers (ATCOs) have been able to monitor the information on flights inside the HKFIR with radar coverage through ADS-B. In other words, ATCOs can now obtain relevant flight information simultaneously through radar and ADS-B screens. Under such arrangements for progressive implementation, the CAD can observe whether the ADS-B is smoothly introduced in other parts of the HKFIR and identify areas for enhancement in respect of technology, hardware support and procedures.

With the progressive implementation of the ADS-B in Hong Kong, we have seen improvements in the display issues of aircraft positions on radar screens (such as aircraft positions temporarily not displayed on radar screens and split tracks). The expert panel appointed by the CAD is satisfied with the progress of the ADS-B implementation and the improvements made. It has also recommended that the CAD should continue to closely monitor the performance of the ADS-B and solicit more views from frontline ATCOs. The CAD will implement the ADS-B progressively with a view to fully integrate it into the new ATMS by end-2017.

- (2) In 2017-18, the total expenditure for the operation and maintenance of air traffic surveillance systems by the CAD is estimated to be around \$32.1 million, of which about \$27.3 million and \$4.8 million will be for radar systems and ADS-B systems respectively. Both ADS-B systems and radar systems are operated by existing CAD staff as part of their normal duties under Programme (4). No additional staff establishment or salary expenditure is involved.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)015

(Question Serial No. 2430)

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not Specified

Programme: (-) Not Specified

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

The Civil Aviation Department (CAD) will create 33 posts in 2017-18. Regarding these 33 newly created posts, please set out their post titles and job natures.

With regard to the personnel related expenses, there is a substantial decrease in the Mandatory Provident Fund contribution but a substantial increase in the Civil Service Provident Fund contribution, representing a drastic change in the proportion of contract staff to civil servants in the CAD. Will the Government inform this Committee of the reasons for the drastic change in the proportion of contract staff to civil servants and the posts held by them?

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 29)

Reply:

The duties, rank and nature of the 33 civil service posts to be created by the Civil Aviation Department (CAD) in 2017-18 are as follows:

Duties	Rank / Nature of Post	Number of Posts
To carry out preparatory work for the three-runway system, including the work to meet the additional air traffic and service demand	Air Traffic Control Officer I / Permanent	4
	Air Traffic Flight Services Officer II / Air Traffic Flight Services Officer III / Permanent	2
	Student Air Traffic Control Officer / Air Traffic Control Officer III / Time-limited (7 years)	12
	Operations Officer / Time-limited (7 years)	1
	Assistant Operations Officer / Time-limited (7 years)	1
	Senior Electronics Engineer / Time-limited (7 years)	1
	Electronics Engineer / Assistant Electronics Engineer / Time-limited (7 years)	1
	Electronics Inspector / Time-limited (7 years)	2
To help carry out and implement new air cargo security controls	Operations Officer / Time-limited (2 years)	1
	Assistant Operations Officer / Time-limited (2 years)	2
To strengthen manpower to meet the existing service demand and additional workload in relation to the regulation of operational safety and airworthiness standards of aircraft and the implementation of air services arrangements and civil aviation safety policy	Senior Operations Officer / Permanent	2
	Operations Officer / Permanent	2
	Assistant Operations Officer / Permanent	2
Total:		33

The subhead mentioned in the question (personnel related expenses) covers expenses related to civil servants of the CAD. Expenses on mandatory provident fund (MPF) contribution and civil service provident fund (CSPF) contribution under the subhead are projected based on the terms of appointment of serving civil servants. Under the existing mechanism, officers appointed on probationary terms but yet to pass the probation bar will make contribution according to the MPF arrangements. After passing the probation bar, they will transfer to permanent terms and make CSPF contribution instead. Therefore, a change in the proportion of MPF contribution to CSPF contribution under the subhead mainly reflects the change in the terms of appointment but not the number of staff employed.

- End -

CONTROLLING OFFICER'S REPLY**THB(T)016****(Question Serial No. 2431)**Head: (28) Civil Aviation DepartmentSubhead (No. & title): (-) Not SpecifiedProgramme: (-) Not SpecifiedControlling Officer: Director-General of Civil Aviation (Simon LI)Director of Bureau: Secretary for Transport and HousingQuestion:

Regarding the expenditures on minor plant, vehicles and equipment in 2017-18, there has been a substantial increase annually as compared with the expenditures in 2015-16 and 2016-17. Please set out the names of, uses of and amount approved for those new minor plant, vehicles and equipment.

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 30)Reply:

Provision under Subhead 661 Minor plant, vehicles and equipment (block vote) is mainly used for replacement of ageing equipment and system in the Civil Aviation Department (CAD). The annual provision required varies with the operating condition, performance and replacement demand, etc. of the equipment and system. The increase in provision in the past 3 years mainly reflects the continuous ageing of some CAD equipment. The CAD is pressing ahead with the replacement of the equipment and system according to the professional assessment and recommendations of the maintenance staff. In the past 2 years, the provision for the relevant work and the details are as follows:

Year	Amount of provision	Details of the project
2015-16	\$3.36 million	Replacement of the Aircraft Noise and Flight Track Monitoring System
2016-17	\$10 million	Commencement of replacement of the aged and defective air-conditioning chiller plant at the old Air Traffic Control (ATC) Centre in support of the conversion of the old ATC Centre into the Backup ATC Centre of the new ATC System

As regards the provision of \$13.5 million in 2017-18, apart from meeting the residual balance of the costs of replacing the air-conditioning chiller plant, it will also be used for the payment for refurbishment of individual surveillance radar equipment and replacement of the central control and monitoring systems of the old ATC Centre and Control Tower as backup facilities. The above-mentioned works is expected to be completed in 2018-19.

- End -

CONTROLLING OFFICER'S REPLY**THB(T)017****(Question Serial No. 2441)**

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not Specified

Programme: (3) Air Traffic Management

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

Regarding the manpower of air traffic control staff, please inform this Committee of:

- (a) the number of staff involved in the work under this Programme in the past 3 years; please set out in tabular form the types of employment, ranks and expenditures involved;
- (b) the statistics on overtime work by these officers by types of employment and ranks in the past 3 years (please set out the total number of hours per year and the average number of hours per week); and the additional expenditures involved.

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. 40)

Reply:

- (a) Regarding the staff under Programme (3) of the Civil Aviation Department (CAD), they are employed on civil service terms. The respective number of staff and the salary costs involved by grade in the past 3 years are tabulated below:

	2014-15		2015-16		2016-17	
	No. of staff	Salary cost (\$m)	No. of staff	Salary cost (\$m)	No. of staff	Salary cost (\$m)
Air Traffic Control Officer Grade	288	205.9	276	214.8	277	223.0
Air Traffic Flight Services Officer Grade	110	43.1	110	45.8	110	47.5
Aeronautical Communications Officer Grade	65	26.1	65	27.7	65	28.7
Operations Officer Grade	8	6.3	8	6.7	8	6.9
Total :	471	281.4	459	295.0	460	306.1

The above table covers the information of staff performing air traffic management duties under Programme (3). Administrative and other staff including those perform supervisory or support functions under Programme (3) are excluded.

- (2) The number of working hours of staff responsible for the provision of air traffic control service varies according to the specific nature of their duties. Since the CAD provides 24-hour air traffic control service, air traffic control staff, regardless of their ranks, are required to work shifts. Their conditioned working hours vary from month to month depending on the air traffic flow and operational needs. Working relatively longer hours at a given month may not necessarily equivalent to overtime work. The CAD will compensate the extra hours of work outside the contractual working hours by time-off in lieu. Therefore, no additional expenses are involved.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)018

(Question Serial No. 1854)

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not Specified

Programme: (2) Airport Standards

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

The Government will continue to monitor aircraft noise and flight tracks, and implement the noise abatement programme in 2017-18, please advise this Council of the following:

- (a) The details and expenditure involved in implementing the above measures in the past and in the future, and the effect of such;
- (b) During the period from January 2015 to January 2017, the data recorded monthly by noise monitoring terminals between 11:00 pm and 07:00 am on aircraft reaching the noise level of 70 to 74 db, 75 to 79 db and 80 db or above;
- (c) What are the specific measures to reduce the long term noise impact caused by aircraft to Ma Wan residents?

Asked by: Hon TIEN Puk-sun, Michael (Member Question No. 16)

Reply:

(a) to (c)

The Civil Aviation Department (CAD) has implemented a number of aircraft noise abatement measures based on the guidelines of the International Civil Aviation Organization (ICAO) to alleviate the noise impact on local communities, including Ma Wan. These measures include:

- (i) aircraft departing to the northeast of the Hong Kong International Airport (HKIA) are required to adopt the noise abatement take-off procedures so as to reduce noise impact on areas in the vicinity of the HKIA. Aircraft adopting the procedures are required to reduce their power upon reaching an altitude of 800 feet or above to abate aircraft noise;
- (ii) the CAD has implemented a set of flight procedures whereby aircraft which could use satellite-based navigation technology in their flights can adhere closely to the nominal centre line of the flight track, when the aircraft depart to the northeast of the HKIA and make south turn to the West Lamma Channel. This keeps the aircraft at a distance away from the areas in the vicinity of the flight paths, in particular Ma Wan, and reduces the impact of aircraft noise on these areas;

- (iii) to reduce aircraft noise at source, only aircraft complying with the noise standards in Chapter 3 of Part II, Volume I, Annex 16 to the Convention on International Civil Aviation (Chapter 3 noise standards) and the Civil Aviation (Aircraft Noise) Ordinance (Cap 312) are allowed to operate in Hong Kong. This measure is comparable to that of other major international airports;
- (iv) starting from late March 2014, the CAD no longer allowed aircraft which are marginally compliant with the Chapter 3 noise standards to land and take off in Hong Kong between 11:00 pm and 07:00 am. With effect from late October 2014, this measure has been extended to cover the whole day, thus further alleviating the aircraft noise impact on the local communities;
- (v) between midnight and 07:00 am, subject to acceptable operational and safety consideration, arriving aircraft are required to land from the southwest. This measure aims at reducing the number of aircraft overflying populated areas such as Shatin, Tsuen Wan, Sham Tseng and Tsing Lung Tau;
- (vi) between 11:00 pm and 07:00 am, subject to acceptable operational and safety consideration, aircraft departing to the northeast of the HKIA are required to use the southbound route via the West Lamma Channel. This measure aims at reducing the number of aircraft overflying populated areas such as the Kowloon Peninsula and Hong Kong Island; and
- (vii) all aircraft approaching the HKIA from the northeast between 11:00 pm and 07:00 am are required to adopt the Continuous Descent Approach (CDA), subject to operational considerations. As aircraft on the CDA fly higher and normally on a low power/low drag configuration, noise experienced in areas such as Sai Kung and Ma On Shan will be lowered.

Apart from the above measures, with the advancement of aviation technology, aircraft engines are quieter than before, and the improved design of airframe has also helped reduce noise significantly. Based on our latest statistics, a number of airlines have introduced quieter passenger and cargo aircraft such as A330, A350, A380, B777-300ER, B747-8F, B747-8I, B777F, B787 etc. The ratios of newer-model aircraft in their fleets are on the rise. It will alleviate the aircraft noise impact in the long run.

The CAD also monitors the noise caused by aircraft operations through a computerized Aircraft Noise and Flight Track Monitoring System (ANFTMS). The ANFTMS comprises 16 outdoor noise monitoring terminals (NMTs) which are located along or close to the flight paths operating into and out of the HKIA, with one at Ma Wan, and a computer to correlate the noise data with the aircraft flight tracks recorded by the CAD's radar system. The noise data collected by the NMTs are consolidated and regularly uploaded onto the CAD's website.

The noise data of CAD indicated that the number of noise events of high decibel level (80 decibels or above) during the night period in 2016 at Ma Wan NMT have reduced by three-fourths compared with 2011, and those of 70 decibels or above during the night period have also been decreasing year-on-year from 2011 to 2016. This showed the effectiveness of the related noise mitigation measures. The monthly noise data recorded by NMTs in 2015 and 2016 (between 11:00 pm and 07:00 am the following day) are tabulated below in detail. The data for January 2017 is pending verification and thus not available yet.

Table 1 : Noise data recorded by the NMTs from January 2015 to December 2015
(between 11:00 pm and 07:00 am the following day)

NMTs	Noise Level (dB)	2015											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1. Mei Lam Estate, Tai Wai	70 - 74	0	0	0	0	3	4	8	1	0	1	0	0
	75 - 79	0	0	0	0	0	0	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
2. On Yam Estate, Kwai Chung	70 - 74	0	0	0	13	56	123	73	81	20	1	0	4
	75 - 79	0	0	0	0	1	3	3	2	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
3. Yiu Tung Estate, Shau Kei Wan	70 - 74	0	0	2	0	4	0	0	0	0	11	0	0
	75 - 79	0	0	0	0	0	0	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
4. Beverley Heights, Cloud View Road, North Point	70 - 74	0	1	0	0	11	1	0	0	2	10	0	0
	75 - 79	0	0	0	0	0	0	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
5. Fairmont Gardens, Conduit Road, Mid-Levels	70 - 74	1	1	0	0	1	2	0	0	0	2	1	0
	75 - 79	0	0	1	0	0	0	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
6. Hong Kong Garden, Tsing Lung Tau	70 - 74	169	118	125	186	893	814	596	627	292	150	125	212
	75 - 79	12	16	3	13	55	34	35	19	8	6	15	25
	≥80	0	0	0	0	2	0	1	0	1	0	0	0
7. Sha Lo Wan, Lantau	70 - 74	522	285	285	500	420	338	220	550	275	529	450	443
	75 - 79	161	43	39	119	60	30	36	73	48	111	71	104
	≥80	7	0	0	7	9	1	5	3	2	4	1	6
8. Caribbean Coast, Tung Chung	70 - 74	195	141	118	102	96	86	108	85	143	147	167	183
	75 - 79	6	4	20	5	8	4	15	1	5	7	8	17
	≥80	0	0	2	0	0	0	0	0	0	0	0	0
9. Ma Wan Marine Traffic Control Station, Ting Kau	70 - 74	9	5	8	139	541	605	444	500	204	11	5	51
	75 - 79	0	1	0	2	12	11	15	16	2	0	0	5
	≥80	0	0	0	0	1	0	0	0	0	0	0	1

NMTs	Noise Level (dB)	2015											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
10. Park Island, Ma Wan	70 - 74	533	476	385	516	513	448	537	451	377	436	425	522
	75 - 79	115	91	91	126	120	83	81	62	63	95	89	84
	≥80	7	7	2	4	10	1	7	3	2	3	3	1
11. Tai Lam Chung Tsuen	70 - 74	8	4	1	3	15	18	2	5	5	6	11	9
	75 - 79	0	0	0	0	2	0	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
12. Yau Kom Tau, Tsuen Wan	70 - 74	0	0	0	19	196	292	263	225	90	1	0	22
	75 - 79	0	0	0	1	8	7	13	5	2	0	0	3
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
13. Cheung Hang Estate, Tsing Yi	70 - 74	0	0	0	46	136	236	171	173	41	6	0	1
	75 - 79	0	0	0	3	3	4	7	3	4	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
14. MTR Siu Ho Wan Depot, Sunny Bay	70 - 74	436	321	235	239	139	92	139	127	195	225	243	270
	75 - 79	15	23	8	11	7	13	12	7	16	13	9	11
	≥80	0	0	0	0	0	0	0	0	0	0	1	0
15. Mount Butler Road, Jardine's Lookout	70 - 74	0	2	0	0	6	1	0	0	0	9	0	1
	75 - 79	0	0	0	0	0	0	0	0	0	2	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
16. Mount Haven, Liu To Road, Tsing Yi	70 - 74	0	0	1	1	12	20	10	13	6	2	0	0
	75 - 79	0	0	0	0	0	1	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0

Table 2 : Noise data recorded by the NMTs from January 2016 to December 2016 (between 11:00 pm and 07:00 am the following day)

NMTs	Noise Level (dB)	2016											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1. Mei Lam Estate, Tai Wai	70 - 74	0	0	0	2	2	6	4	0	5	0	0	0
	75 - 79	0	0	0	0	0	0	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0

NMTs	Noise Level (dB)	2016											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2. On Yam Estate, Kwai Chung	70 - 74	1	0	0	23	25	36	83	8	46	0	0	0
	75 - 79	0	0	0	1	0	1	1	0	1	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
3. Yiu Tung Estate, Shau Kei Wan	70 - 74	0	0	2	0	0	0	0	2	1	0	0	2
	75 - 79	0	1	0	0	0	0	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
4. Beverley Heights, Cloud View Road, North Point	70 - 74	0	1	7	1	0	2	0	4	0	0	0	4
	75 - 79	0	0	0	0	0	0	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
5. Fairmont Gardens, Conduit Road, Mid-Levels	70 - 74	0	0	3	0	0	0	0	1	2	2	0	1
	75 - 79	0	0	0	0	0	0	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
6. Hong Kong Garden, Tsing Lung Tau	70 - 74	204	182	194	108	333	695	904	206	349	207	160	169
	75 - 79	25	22	11	6	32	64	47	6	22	12	11	6
	≥80	0	0	0	0	1	1	0	0	0	0	0	0
7. Sha Lo Wan, Lantau	70 - 74	445	134	441	351	388	382	356	652	760	591	594	745
	75 - 79	98	43	94	44	73	53	64	154	147	197	168	272
	≥80	2	5	4	2	3	2	7	6	3	12	14	12
8. Caribbean Coast, Tung Chung	70 - 74	174	170	151	57	40	30	18	60	31	73	138	122
	75 - 79	8	12	4	3	0	2	0	3	0	1	3	4
	≥80	0	0	0	0	0	0	0	1	0	0	0	0
9. Ma Wan Marine Traffic Control Station, Ting Kau	70 - 74	27	30	1	145	194	268	554	92	160	37	3	6
	75 - 79	1	0	0	2	3	3	11	4	3	1	1	0
	≥80	0	0	0	0	0	0	1	0	0	0	0	0
10. Park Island, Ma Wan	70 - 74	360	477	557	395	327	358	392	322	440	342	432	449
	75 - 79	101	90	123	91	75	121	75	61	132	75	92	80
	≥80	13	5	7	3	2	3	5	0	7	1	4	4
11. Tai Lam Chung Tsuen	70 - 74	24	9	13	5	11	9	2	3	10	3	22	13
	75 - 79	0	0	0	0	1	2	0	0	0	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0

NMTs	Noise Level (dB)	2016											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
12. Yau Kom Tau, Tsuen Wan (Note)	70 - 74	2	7	0	65	204	240	496	108	118	0	0	0
	75 - 79	0	0	0	1	17	5	12	1	11	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
13. Cheung Hang Estate, Tsing Yi	70 - 74	3	3	0	77	45	141	207	20	129	4	0	0
	75 - 79	0	0	0	3	2	18	9	3	19	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
14. MTR Siu Ho Wan Depot, Sunny Bay	70 - 74	225	237	222	113	123	109	56	135	116	184	271	317
	75 - 79	15	6	6	6	4	6	3	6	3	6	18	7
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
15. Mount Butler Road, Jardine's Lookout	70 - 74	0	1	4	1	0	0	0	7	1	0	0	0
	75 - 79	0	0	0	0	0	0	0	3	0	0	0	1
	≥80	0	0	0	0	0	0	0	0	0	0	0	0
16. Mount Haven, Liu To Road, Tsing Yi	70 - 74	5	0	0	7	7	16	24	2	64	3	3	0
	75 - 79	1	0	0	0	0	0	2	0	5	0	0	0
	≥80	0	0	0	0	0	0	0	0	0	0	0	0

Note: The NMT at Yau Kom Tau, Tsuen Wan has been relocated from Greenview Court to Yau Kom Tau Water Treatment Works with effect from 2 February, 2016.

In 2017-18, the estimated expenditure for the maintenance of the ANFTMS is \$2.5 million. The monitoring and implementation of the above noise abatement measures is undertaken by the CAD's existing staff as part of their normal duties under Programme (2). No additional expenses are involved.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)019

(Question Serial No. 1857)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not Specified
Programme: (4) Air Traffic Engineering Services
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

Regarding the new air traffic control systems (ATC systems), would the Government advise this Committee of the following:

- (a) Please list out in detail all the incidents that had occurred since the commissioning of the new ATC systems in November 2016, the follow-up measures taken by the Government and the expenditures involved.
- (b) Does the Government have any plan to enhance its notification mechanism to ensure that the public has the right to know?
- (c) In the face of increasing air traffic in the future, what would the Government do to maintain the highest standard of aviation safety under the new ATC systems?

Asked by: Hon TIEN Puk-sun, Michael (Member Question No. 17)

Reply:

The whole new air traffic control systems (ATCS) is implemented in 2 phases through 8 major system contracts, including the commissioning of a new air traffic management system (ATMS) which was put into full operation on 14 November 2016. The work of phase 1 mainly involves the implementation and commissioning of the new ATCS (including the new ATMS) while that of phase 2 involves the installation of the new ATCS in the old Air Traffic Control Centre (ATCC) and Control Tower as a back-up ATCC. The Finance Committee of the Legislative Council approved a funding of \$1,565 million in 2007 to implement the entire new ATCS project.

My reply to the Member's question is as follows:

(1) to (2)

The Civil Aviation Department (CAD) has all along been explaining to the public about the operation of the new ATMS in an open and transparent manner, including the setbacks

during the teething period after the full commissioning of the new system through various channels (including press releases and media meetings)¹. In the information papers submitted to the Legislative Council Panel on Economic Development (the Panel) on 28 November and 13 December 2016², the CAD reported the operations of the new ATMS up to 29 November 2016 after its full commissioning. At the Panel meeting on 13 December 2016, the CAD also reported in detail the occurrences of aircraft positions (i.e. aircraft positions not displayed temporarily, split tracks and false targets) displayed on radar screen. Apart from the abovementioned occurrences, the setbacks of the new ATMS occurred temporarily since its full commissioning on 14 November 2016 are as follows:

Date	Incident
15 November 2016	The position of a departing flight was not displayed on the radar screen for 12 seconds.
29 November 2016	Radar screens were unable to display some of the flight information (such as flight callsigns and flight speed) for about 26 seconds. To safeguard aviation safety, air traffic controllers have suspended the handling of departure flights for 15 minutes during the incident.
12 December 2016	Radar screens were unable to display some of the flight information for about 75 seconds. The incident was caused by working staff failed to follow the recommended procedures promulgated by the department earlier to avoid retrieving and archiving data from the Main System. This was not a problem of the new ATMS.
26 December 2016	Two planner positions could not process the command to change the operation configuration temporarily in the ATCC as the command entered did not fully match with the operating configuration. Some 20 departure flights were affected.

In addition, some sub-systems which are independent from the old ATMS have also been enhanced by the new ATMS and incorporated into the new system. The occurrences of temporary setbacks of these sub-systems are as follows:

1 For details, please refer to the CAD's website: http://www.cad.gov.hk/english/pressrelease_2017.html

2 For details, please refer to the papers submitted to the Legislative Council Panel on Economic Development by the CAD:

<http://www.legco.gov.hk/yr16-17/english/panels/e/dev/papers/e/dev20161128cb4-154-4-e.pdf>

<http://www.legco.gov.hk/yr16-17/english/panels/e/dev/papers/e/dev20161213cb4-253-6-e.pdf>

<http://www.legco.gov.hk/yr16-17/english/panels/e/dev/papers/e/dev20161213cb4-320-1-e.pdf>

Date	Incident
<p>18 November 2016</p> <p>2 January 2017</p> <p>12 February 2017</p>	<p>Arrival Manager System (“AMAN”)³:</p> <p>The AMAN temporarily could not show the arrival sequence of the arrival flights for about 2 minutes due to human factors;</p> <p>The AMAN temporarily could not show the arrival sequence of the arrival flights for about 2 minutes due to human factors; and</p> <p>The AMAN temporarily could not show the arrival sequence of some of the arrival flights.</p>
<p>18 December 2016</p>	<p>The Tower Electronic Flight Strips (TEFS) System:</p> <p>Some functions of the TEFS System was temporarily and intermittently affected.</p>

Apart from the above incidents, there are also teething issues caused by the limitations of radar surveillance technology occasionally (e.g. aircraft positions temporarily not displayed on the radar screens, split tracks through different channels and false targets). Any ATMS, regardless of the brand, would encounter this situation. This phenomenon was not unique to the new ATMS and it was also observed in ATMS elsewhere and in the old ATMS of the CAD.

An expert panel comprising local and overseas experts, set up by the CAD, has evaluated the above issues and confirmed that these issues did not undermine aviation safety. They did not cause any real or significant implications to the overall operations of the Hong Kong International Airport, nor any substantial economic losses. In the event of any incidents, safeguarding aviation safety is the top priority of the CAD and it is in line with the international practices and has been acknowledged by the expert panel and the National Air Traffic Services (NATS), the independent professional consultant of the Transport and Housing Bureau (THB).

The CAD has been working closely with the ATMS contractor to keep on optimising the system software and at the same time set up an expert panel comprising local and overseas experts to offer professional and objective advice to the CAD on the various issues encountered during the teething period. The expert panel confirmed that the new ATMS has been providing safe, reliable and generally smooth air traffic services to flights operating in and out of the Hong Kong Flight Information Region (HKFIR) since its full commissioning on 14 November 2016. It has never been necessary to activate the multiple fallback systems of the new ATMS. Based on the experience of the NATS, the THB’s independent consultant, given the complexity of the new ATMS, even with all reasonable efforts and endeavours, there could still be possibilities of having setbacks during the introduction of the new system.

³ The AMAN is not a tool to safeguard the standard separation between the aircraft, but basically a tool to provide automatically the arrival sequence of arrival flights and to assist the air traffic control officers in arranging the arrival sequence, so as to achieve more efficient use of airspace and optimise the arrival capacity.

The expert panel also met with the chairman/president and representatives of the CAD Electronics Engineers' Branch of Hong Kong Chinese Civil Servants' Association and the Hong Kong Air Traffic Control Association. The electronics engineers' representatives informed the expert panel that the teething issues arising from the initial commissioning period of the new ATMS is unavoidable in the transition of any large-scale and complicated ATMS. The representatives of the air traffic control officers (ATCOs) said that they have gradually adapted to different functionalities of the new system, and have become more competent and confident in operating the new ATMS. The expert panel also met with the management pilots of the major local airlines and the Government Flying Service. The management pilots noted that the transition of the ATMS was seamless and the operations were smooth. This has also been recognised by the Board of Airline Representatives Hong Kong which represents over 70 airlines.

In fact, since the full commissioning of the new ATMS for 4 months, the total air traffic movements handled by the CAD increased by 4% over the same period last year. During the peak air traffic movement periods in last Christmas and New Year, as well as the Lunar New Year holidays, the CAD handled a record-high number of overflights. It is a sufficient proof of the capacity and reliability of the new ATMS. The expert panel also considered that the safety performance of the new ATMS has so far exceeded international requirements.

Regarding false crash alarms triggered by false targets temporarily displayed on the radar screens, there are long established guidelines on how to tackle relevant scenarios for all ATCOs to follow. Well-trained and professional ATCOs are fully capable in handling these situations and aviation safety has never been affected by that. With regard to radar screen display problems caused by the limitations of radar technology, the CAD has all along been striving to expedite full implementation of the satellite-based "Automatic Dependent Surveillance-Broadcast" (ADS-B) in the HKFIR as a technology breakthrough to the sole reliance on radar technology. The CAD informed the relevant stakeholders (including airlines) of this arrangement in 2014 so that they would have sufficient time to make preparation. In the first phase, starting from 14 November 2016, the ADS-B was implemented in the southern tip of the HKFIR, where there was no radar coverage. So far, the results have been satisfactory. Moving on to the second phase on 8 December 2016, the ATCOs have been able to view the information of flights inside the HKFIR with radar coverage through ADS-B screens, i.e. they can obtain relevant flight information simultaneously through radar screens and ADS-B screens. Through progressive introduction of ADS-B into the HKFIR, the CAD will be able to observe whether the operations of other areas are smooth, and whether there are rooms for enhancement in terms of technology, hardware and procedures.

With the progressive introduction of ADS-B in Hong Kong, improvements have already been seen in the display issue of aircraft positions on the radar screens (e.g. split tracks and aircraft positions not displayed temporarily). The expert panel appointed by the CAD was satisfied with the progress of the improvements brought by the implementation of ADS-B and advised the CAD to continue monitoring the performance of ADS-B closely and gauging more views from the frontline ATCOs. The CAD will implement the ADS-B progressively with a view to fully incorporating it into the new ATMS by end-2017.

The CAD will continue to closely monitor the performance of ATMS, expedite its optimisation and fine-tuning, and report the progress to the expert panel. On receiving a

new software fix for site acceptance tests from the system's contractor in February 2017, the CAD proceeded to test and conduct safety assessment of the new software fix, and launched it in the end of March 2017 to rectify the problems of not displaying certain flight information on radar screens and intermittent interruptions to certain functions of TEFS System. The expert panel is expected to publish an interim report on the initial performance of the new ATMS in March or April 2017. The CAD will carefully study the contents and recommendations of the report with a view to further improving the ATMS. The CAD will inform the public of the progress in a timely manner.

The maintenance of the new ATMS and staff training are part of the regular work of the CAD and, as such, do not entail additional civil service staff costs. All the expert panel members, appointed by CAD, work and attend the meetings on a voluntary basis without remuneration. In accordance with the Government's usual practice, the expenses on air tickets and hotel accommodation for 2 overseas expert members to attend the expert panel meeting held in Hong Kong would be reimbursed by in-house resources of the CAD on an actual cost basis.

Upon the full commissioning of the new ATMS in November 2016, apart from the general staff costs and routine expenses, the total maintenance costs for the new ATMS (Phase 1) in 2016-17 is around \$6.69 million while the total maintenance costs for the new ATMS costs (Phase 1) in 2017-18 is estimated to be around \$15.13 million.

The CAD fully understands the community's concerns over aviation safety. Should there be any issues concerning aviation safety, the CAD will continue to take the initiative to make timely promulgation in an open and transparent manner.

(3)

The new ATMS adopts the latest information technologies, including enhanced flight information and data processing, advanced automatic safety net features and more precise flight trajectory calculation functions. Moreover, the new ATMS consists of multiple layers of fallback systems – an enhanced feature compared with the old system – which can meet the increasingly stringent aviation safety requirements. The new ATMS will greatly enhance the competitiveness of the Hong Kong International Airport in the region. In the face of increasing air traffic in the future, the CAD will spare no effort to maintain the highest level of aviation safety and uphold the status and reputation of Hong Kong as a regional aviation hub.

- End -

CONTROLLING OFFICER'S REPLY**THB(T)020****(Question Serial No. 1000)**

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not Specified
Programme: (5) Air Services and Safety Management
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

Regarding the provision of support for the negotiation and implementation of Hong Kong's air services agreements under this Programme, please advise this Committee of the following:

- (1) What were the ports added or suspended in each of the past 3 years by type of traffic right?
- (2) What are the number of ongoing negotiations on air services agreements and their details as of December 2016?

Asked by: Hon WU Chi-wai (Member Question No. 71)

Reply:

- (1) Every year, ports are being added or suspended subject to an airline's network planning and market strategy. In the past 3 years, the number of new and suspended ports is tabulated as follows:

New Ports

Type of traffic right	2014	2015	2016
Third/Forth freedom ¹	1. Calgary 2. Huangshan 3. Indianapolis 4. Kagoshima 5. Mexico City 6. Minneapolis 7. Udon Thani 8. Washington 9. Xishuangbanna 10. Yekaterinburg	1. Boston 2. Changzhou 3. Cheongju 4. Davao 5. Detroit 6. Dusseldorf 7. Hiroshima 8. Kalibo 9. Krabi 10. Kumamoto 11. Lanzhou City 12. Luoyang 13. Miyazaki 14. Nha Trang 15. Stockholm 16. Xining	1. Chiang Rai 2. Taegu 3. Gold Coast 4. Ishigaki 5. London (Gatwick) 6. Madrid 7. Manado 8. Mandalay 9. New York (La Guardia) 10. Okayama 11. Portland 12. Takamatsu 13. Yonago

		17. Yiwu	
Fifth freedom ²		1. Ashgabat 2. Beirut 3. Frankfurt (Hahn) 4. Maastricht 5. Turkmenbashi	1. Ahmedabad
Total:	10	22	14

Suspended Ports

	2014	2015	2016
Third/Forth freedom ¹	1. Charleston 2. Hulunbeier 3. Islamabad 4. Kalibo 5. Luoyang 6. Moscow Vnukovo 7. Stockholm	1. Karachi 2. Krasnoyarsk 3. London Stansted 4. Minneapolis 5. Yichang	1. Cheongju 2. Huangshan 3. Mahe Island 4. Yekaterinburg
Fifth freedom ²	1. Beirut 2. Kabul 3. Komatsu 4. Kozhikode 5. Tbilisi 6. Thiruvananthapuram 7. Yerevan	1. Ciudad del Este 2. Lagos 3. Milan Bergamo	1. Ashgabat 2. Chittagong 3. Frankfurt (Hahn) 4. Lahore
Total:	14	8	8

The ports added or suspended above mainly reflect the commercial decisions of the airlines, which may not cover all the air services arrangements signed between Hong Kong and its aviation partners in a particular year and they may not be related to the availability of traffic rights.

- (2) The Government has been progressively liberalising our air services regime with a view to expanding Hong Kong's aviation network and strengthening our status as an international hub and the primary gateway to the Mainland. As of December 2016, Hong Kong has signed Air Services Agreements with 66 aviation partners. We shall seek to further liberalise existing air services agreements/arrangements and to negotiate new air services agreements/arrangements with other aviation partners as opportunities arise.

¹ In respect of scheduled international air services, third/fourth freedom right refers to the right or privilege granted by one Party to another Party to put down and to take on, in the territory of the first Party, traffic coming from or destined to the home state/region of the carrier.

² In respect of scheduled international air services, fifth freedom rights refer to the right or privilege granted by one Party to another Party to put down and to take on, in the territory of the first State, traffic coming from or destined to a third Party.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)021

(Question Serial No. 1004)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not Specified
Programme: (4) Air Traffic Engineering Services
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

Please advise this Committee of the following:

- 1) since the commissioning of the new generation of air traffic control (ATC) system, namely the Autotrac 3 system developed by Raytheon Company in the USA, the total number of ATC system failure cases (whether they involved the Autotrac 3 system or not) and their details, including the time, handling and causes of each of the incidents;
- 2) in the past 12 months, the number of reported cases of ATC system abnormalities, including those known as Ghost Target, Target Drop/Label Drop, Split Tracks, and false alarm in such systems with the time and details of each occurrence provided; and
- 3) in each of the past 12 months, the percentages of flight delays caused by non-weather factors in the total number of departure and arrival flights.

Asked by: Hon WU Chi-wai (Member Question No. 70)

Reply:

The whole new air traffic control systems (ATCS) is implemented in 2 phases through 8 major system contracts, including the commissioning of a new air traffic management system (ATMS) which was put into full operation on 14 November 2016. The work of phase 1 mainly involves the implementation and commissioning of the new ATCS (including the new ATMS) while that of phase 2 involves the installation of the new ATCS in the old Air Traffic Control Centre (ATCC) and Control Tower as a back-up ATCC. The Finance Committee of the Legislative Council approved a funding of \$1,565 million in 2007 to implement the entire new ATCS project.

My reply to the Member's question is as follows:

(1) to (2)

The Civil Aviation Department (CAD) has all along been explaining to the public about the operation of the new ATMS in an open and transparent manner, including the setbacks during the teething period after the full commissioning of the new system through various channels (including press releases and media meetings)¹. In the information papers submitted to the Legislative Council Panel on Economic Development (the Panel) on 28 November and 13 December 2016², the CAD reported the operations of the new ATMS up to 29 November 2016 after its full commissioning. At the Panel meeting on 13 December 2016, the CAD also reported in detail the occurrences of aircraft positions (i.e. aircraft positions not displayed temporarily, split tracks and false targets) displayed on radar screen. Apart from the abovementioned occurrences, the setbacks of the new ATMS occurred temporarily since its full commissioning on 14 November 2016 are as follows:

Date	Incident
15 November 2016	The position of a departing flight was not displayed on the radar screen for 12 seconds.
29 November 2016	Radar screens were unable to display some of the flight information (such as flight callsigns and flight speed) for about 26 seconds. To safeguard aviation safety, air traffic controllers have suspended the handling of departure flights for 15 minutes during the incident.
12 December 2016	Radar screens were unable to display some of the flight information for about 75 seconds. The incident was caused by working staff failed to follow the recommended procedures promulgated by the department earlier to avoid retrieving and archiving data from the Main System. This was not a problem of the new ATMS.
26 December 2016	Two planner positions could not process the command to change the operation configuration temporarily in the Air Traffic Control Centre as the command entered did not fully match with the operating configuration. Some 20 departure flights were affected.

In addition, some sub-systems which are independent from the old ATMS have also been enhanced by the new ATMS and incorporated into the new system. The occurrences of temporary setbacks of these sub-systems are as follows:

1 For details, please refer to the CAD's website: http://www.cad.gov.hk/english/pressrelease_2017.html

2 For details, please refer to the papers submitted to the Legislative Council Panel on Economic Development by the CAD:

<http://www.legco.gov.hk/yr16-17/english/panels/e/dev/papers/e/dev20161128cb4-154-4-e.pdf>

<http://www.legco.gov.hk/yr16-17/english/panels/e/dev/papers/e/dev20161213cb4-253-6-e.pdf>

<http://www.legco.gov.hk/yr16-17/english/panels/e/dev/papers/e/dev20161213cb4-320-1-e.pdf>

Date	Incident
<p>18 November 2016</p> <p>2 January 2017</p> <p>12 February 2017</p>	<p>Arrival Manager System (“AMAN”)³:</p> <p>The AMAN temporarily could not show the arrival sequence of the arrival flights for about 2 minutes due to human factors;</p> <p>The AMAN temporarily could not show the arrival sequence of the arrival flights for about 2 minutes due to human factors; and</p> <p>The AMAN temporarily could not show the arrival sequence of some of the arrival flights.</p>
<p>18 December 2016</p>	<p>The Tower Electronic Flight Strips (TEFS) System:</p> <p>Some functions of the TEFS System was temporarily and intermittently affected.</p>

Apart from the above incidents, there are also teething issues caused by the limitations of radar surveillance technology occasionally (e.g. aircraft positions temporarily not displayed on the radar screens, split tracks and false targets). Any ATMS, regardless of the brand, would encounter this situation. This phenomenon was not unique to the new ATMS and it was also observed in ATMS elsewhere and in the old ATMS of the CAD.

An expert panel comprising local and overseas experts, set up by the CAD, has evaluated the above issues and confirmed that these issues did not undermine aviation safety. They did not cause any real or significant implications to the overall operations of the Hong Kong International Airport, nor any substantial economic losses. In the event of any incidents, safeguarding aviation safety is the top priority of the CAD and it is in line with the international practices and has been acknowledged by the expert panel and the National Air Traffic Services (NATS), the independent professional consultant of the Transport and Housing Bureau (THB).

The CAD has been working closely with the ATMS contractor to keep on optimising the system software and at the same time set up an expert panel comprising local and overseas experts to offer professional and objective advice to the CAD on the various issues encountered during the teething period. The expert panel confirmed that the new ATMS has been providing safe, reliable and generally smooth air traffic services to flights operating in and out of the Hong Kong Flight Information Region (HKFIR) since its full commissioning on 14 November 2016. It has never been necessary to activate the multiple fallback systems of the new ATMS. Based on the experience of the NATS, the THB’s independent consultant, given the complexity of the new ATMS, even with all reasonable efforts and endeavours, there could still be possibilities of having setbacks during the introduction of the new system.

³ The AMAN is not a tool to safeguard the standard separation between the aircraft, but basically a tool to provide automatically the arrival sequence of arrival flights and to assist the air traffic control officers in arranging the arrival sequence, so as to achieve more efficient use of airspace and optimise the arrival capacity.

The expert panel also met with the chairman/president and representatives of the CAD Electronics Engineers' Branch of Hong Kong Chinese Civil Servants' Association and the Hong Kong Air Traffic Control Association. The electronics engineers' representatives informed the expert panel that the teething issues arising from the initial commissioning period of the new ATMS is unavoidable in the transition of any large-scale and complicated ATMS. The representatives of the air traffic control officers (ATCOs) said that they have gradually adapted to different functionalities of the new system, and have become more competent and confident in operating the new ATMS. The expert panel also met with the management pilots of the major local airlines and the Government Flying Service. The management pilots noted that the transition of the ATMS was seamless and the operations were smooth. This has also been recognised by the Board of Airline Representatives Hong Kong which represents over 70 airlines.

In fact, since the full commissioning of the new ATMS for 4 months, the total air traffic movements handled by the CAD increased by 4% over the same period last year. During the peak air traffic movement periods in last Christmas and New Year, as well as the Lunar New Year holidays, the CAD handled a record-high number of overflights. It is a sufficient proof of the capacity and reliability of the new ATMS. The expert panel also considered that the safety performance of the new ATMS has so far exceeded international requirements.

Regarding false crash alarms triggered by false targets temporarily displayed on the radar screens, there are long established guidelines on how to tackle relevant scenarios for all ATCOs to follow. Well-trained and professional ATCOs are fully capable in handling these situations and aviation safety has never been affected. With regard to aircraft display problems on radar screen caused by the limitations of radar surveillance technology, the CAD has all along been striving to expedite full integration of the satellite-based "Automatic Dependent Surveillance-Broadcast" (ADS-B) in the new ATMS as a technology breakthrough to the sole reliance on radar surveillance technology. The CAD informed the relevant stakeholders (including airlines) of this arrangement in 2014 so that they would have sufficient time to make preparation. In the first phase, starting from 14 November 2016, the ADS-B was implemented in the southern tip of the HKFIR, where there was no radar coverage. So far, the results have been satisfactory. Moving on to the second phase on 8 December 2016, the ATCOs have been able to view the information of flights inside the HKFIR with radar coverage through ADS-B, i.e. they can obtain relevant flight information simultaneously through radar and ADS-B screens. Through progressive introduction of ADS-B into the HKFIR, the CAD will be able to observe whether the operations of other areas are smooth, and whether there are rooms for enhancement in terms of technology, hardware and procedures.

With the progressive introduction of ADS-B in Hong Kong, improvements have already been seen in the display issue of aircraft positions on the radar screens (e.g. split tracks and aircraft positions not displayed temporarily). The expert panel appointed by the CAD was satisfied with the progress of the improvements brought by the implementation of ADS-B and advised the CAD to continue monitoring the performance of ADS-B closely and gauging more views from the frontline ATCOs. The CAD will implement the ADS-B progressively with a view to fully integrating it into the new ATMS by end-2017.

The CAD will continue to closely monitor the performance of ATMS, expedite its optimisation and fine-tuning, and report the progress to the expert panel. On receiving a

new software fix for site acceptance tests from the system's contractor in February 2017, the CAD completed to test and to conduct safety assessment of the new software fix, and launched it in the end of March 2017 to rectify the problems of not displaying certain flight information on radar screens and intermittent interruptions to certain functions of TEFS System. The expert panel is expected to publish an interim report on the initial performance of the new ATMS in March or April 2017. The CAD will carefully study the contents and recommendations of the report with a view to further improving the ATMS. The CAD will inform the public of the progress in a timely manner.

The CAD fully understands the community's concerns over aviation safety. Should there be any issues concerning aviation safety, timely promulgation will be made according to the established mechanism in an open and transparent manner. Given the increasing air traffic, the CAD will also spare no effort to maintain the highest level of aviation safety and uphold the status and reputation of Hong Kong as a regional aviation hub.

(3)

Flight delays are attributable to a number of factors, such as bad weather, airspace restrictions, aircraft unserviceability and airlines' ad hoc service changes. The CAD does not have a breakdown of the number of flight delays caused by individual factors.

In the past 12 months, the average percentages of departure and arrival passenger flights delayed by more than 15 minutes at the Hong Kong International Airport were 30% and 29% respectively.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)022

(Question Serial No. 1006)

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not Specified

Programme: (3) Air Traffic Management

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

Regarding the recruitment and training of air traffic control staff, please advise this Committee of:

- (1) the number of air traffic control staff estimated to be recruited this year (including the respective numbers of these recruits for filling the vacancies from officers leaving the service and for new posts created to cope with the increasing workload) and the expenditure involved;
- (2) the attrition rate of the Student Air Traffic Control Officers (SATCO) recruited in each of the past three years (2014-15, 2015-16 and 2016-17) (please provide a breakdown by the number of recruits and year); and
- (3) the differences between the conditions of service for the Air Traffic Control Officer II (ATCO II) recruited from overseas and promoted locally in the past two years (2015-16 and 2016-17), and the ratio of local and overseas staff at the rank of ATCO II and higher ranks.

Asked by: Hon WU Chi-wai (Member Question No. 72)

Reply:

(1) The Civil Aviation Department (CAD) plans to recruit 21 ATCOs III/SATCOs in 2017-18. The total expenditure involved for the posts concerned in terms of notional annual mid-point salary value is \$9.7 million. In addition, the CAD will also create 2 posts for the Air Traffic Flight Services Officer grade, for which no further recruitment exercise will be required as eligible candidates will be selected from those who applied for the same posts in 2016-17. The salary expenditure involved for these 2 posts in terms of notional annual mid-point salary value is about \$0.53 million. The above staff are recruited to cope with the increasing demand for air traffic service and to fill anticipated vacancies of the Air Traffic Control Officer grade.

(2) In the past 3 years, the CAD has not recruited any SATCOs. The last recruitment was conducted in 2013-14. 2 SATCOs resigned in 2014-15 and 2015-16 respectively, representing an attrition rate of 6.9%.

(3) The CAD has not recruited any ATCO II from overseas in the past 2 years. The salary scale for the ATCO II is the same regardless of whether they are local or expatriate officers while fringe benefits are paid in accordance with the relevant terms of appointment of the local or expatriate officers, as well as the relevant regulations and guidelines. As at 31 January 2017, the CAD has 7 officers on overseas agreement terms and 161 local officers at ATCO II and above ranks. The ratio of overseas to local officers ranked at ATCO II is 1:23.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)023

(Question Serial No. 1099)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not Specified
Programme: (5) Air Services and Safety Management
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

Please provide a breakdown by year of the numbers of applications for runway slots made for passenger flights and charter flights which were turned down in the past 3 years.

Asked by: Hon YIU Si-wing (Member Question No. 43)

Reply:

Regarding the applications for runway slots made for scheduled passenger flights and charter flights via the Civil Aviation Department (CAD) by airlines biannually during the application periods for the respective seasons in the past 3 years, the numbers of applications which were turned down are listed below:

<u>Year</u>	<u>Daily Average</u>
2014-15	100 flights
2015-16	114 flights
2016-17	150 flights

The significant increase in the number of applications turned down in 2016-17 was mainly due to the fact that the Hong Kong International Airport had nearly reached its full capacity in terms of runway slots.

Apart from the biannual application periods for runway slots, the CAD has from time to time received from airlines ad hoc applications for one-off runway slots and/or additional/revised runway slots. For some of the ad hoc applications turned down, runway slots might eventually be allocated due to last minute cancellation of other flights. No figures are kept for the number of ad hoc applications turned down by the CAD.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)220

(Question Serial No. 4162)

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not specified

Programme: (-) Not specified

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

Will the Government inform this Committee of the respective estimated full-year expenditure on the salaries of the Director-General of Civil Aviation, Deputy Director-General of Civil Aviation (1), Deputy Director-General of Civil Aviation (2), Assistant Director-General of Civil Aviation (Air Traffic Management) and Assistant Director-General of Civil Aviation (Air Traffic Engineering Services) in 2017-18?

Asked by: Hon CHAN Chi-chuen (Member Question No. 121)

Reply:

For 2017-18, the notional annual salary cost at mid-point of the Director-General of Civil Aviation is \$2,950,200. The notional annual salary cost at mid-point of each of the two Deputy Directors-General of Civil Aviation is \$2,386,800. The notional annual salary cost at mid-point of the Assistant Director-General of Civil Aviation (Air Traffic Management) and that of the Assistant Director-General of Civil Aviation (Air Traffic Engineering Services) are both \$2,056,200.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)221

(Question Serial No. 6687)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not Specified
Programme: (4) Air Traffic Engineering Services
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

Safety incidents caused by the new air traffic control (ATC) system have raised concerns over the reliability of the system. This undoubtedly is partly due to the lack of manpower and training of the staff which is having difficulties with the transition from the old to the new ATC system. Permanent staff should be employed and trained properly in order to ensure that the ATC system operates properly and does not jeopardize the safety of flight passengers in Hong Kong. For that reason, please give a detailed breakdown of the amount of expenses involved in the new ATC system, including but not limited to the number of staff employed to operate the ATC system and their salaries.

Asked by: Hon KWOK Wing-hang, Dennis (Member Question No. 12)

Reply:

The whole new air traffic control (ATC) system is implemented in 2 phases through 8 major system contracts, including the commissioning of a new air traffic management system (ATMS) which was put into full operation on 14 November 2016. The work of phase 1 mainly involves the implementation and commissioning of the new ATC system (including the new ATMS) while that of phase 2 involves the installation of the new ATC system in the old Air Traffic Control Centre (ATCC) and Control Tower as a back-up ATCC. The Finance Committee of the Legislative Council approved a funding of \$1,565 million in 2007 to implement the entire new ATC system project. The cumulative cost of the project was about \$967 million as at March 2017 while the total cost of the project will be \$1,452 million according to current estimates.

In 2007, the Civil Aviation Department (CAD) established a dedicated Project Team to support implementation of the CAD Headquarters and new ATC system projects. The team is composed of new time-limited staff, internally re-deployed civil servants of the CAD, and staff employed on non-civil service contract terms. With the above projects entering different phases of development, the Project Team ranged in size from 21 to 49 during the period from 2007-08 to 2015-16. With the completion of the phase 1 of the new ATC system project, the number of Project Team members has been progressively reduced

to six. They are mainly responsible for implementing the phase 2 of the new ATC system project. The manpower expenditure for non-civil service contract terms staff on the phase 1 work was \$3.95 million in 2016-17.

Upon the full commissioning of the new ATC system on 14 November 2016, the operation of the new system by the Air Traffic Control Officers (ATCOs) and the maintenance of the new system by the Electronic Engineers of the CAD are part of their normal duties and no additional manpower expenses will be incurred. The estimated expenses for the contractors to maintain the new ATC system (phase 1) will be about \$67.6 million in 2017-18, including \$15.13 million for maintenance of new ATMS (phase 1) in 2017-18. Currently, the establishment of Programme (3) Air Traffic Management of the CAD includes a total of 277 ATCOs at different ranks.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)222

(Question Serial No. 6688)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not Specified
Programme: (3) Air Traffic Management
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

Allegedly, 30 staff have been employed for 6 years as a 'temporary measure' by the government to operate the ATC system. Not only does this show a lack of permanent training by the government to their staff, this is unfair to those staff which have a 'contract-out' staff-like status, falling within the purview of CAD but does not have government staff status. Please give a breakdown of the expenses expended on this group of temporary staff for the past 6 years, and advise whether the CAD will make proper employment arrangements for them, for the benefit of the staff as well as the new ATC system.

Asked by: Hon KWOK Wing-hang, Dennis (Member Question No. 13)

Reply:

The staff mentioned in the question are believed to be the Aerodrome Control Trainees (ADCTs) seconded to the Air Traffic Management Division of the Civil Aviation Department (CAD) from the Airport Authority Hong Kong (AAHK). This arrangement has commenced since 2010, under which the ADCTs are recruited by the AAHK and work under the management of the CAD to assist in the provision of air traffic control services in the Control Tower. It aims to help CAD expedite the filling of vacancies of air traffic control officers (ATCOs) in a more flexible manner in a bid to cope with the continuous rapid growth in flight movements in the Hong Kong International Airport and the Hong Kong Flight Information Region. The ADCTs, who can be promoted to Aerodrome Control Officers (ADCOs) upon acquisition of relevant experience and licence, are staff of the AAHK. Their salaries are paid by the AAHK, and are similar to those of the ATCOs with relevant experience and of comparable rank. They will also receive professional training on tower operations. In-house training programme is conducted by the CAD staff as part of their normal duties. Hence, no additional expenses will be incurred. Regarding the costs of ADCTs' overseas training and related expenses, they will be paid in full by the AAHK and no government expenditure will be incurred.

There is an established mechanism between the CAD and the AAHK in employing qualified ADCOs as ATCOs under the CAD's establishment. A first batch of ADCOs has already been employed by the CAD. Meanwhile, the CAD will recruit more ATCO grade officers, including ATCOs III with relevant experience, according to the mechanism and the

operational needs. All interested ADCOs of the AAHK meeting the recruitment requirement may apply for these posts and join the civil service.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)223

(Question Serial No. 3368)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not Specified
Programme: (-) Not Specified
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

Regarding outsourcing of service in your department, please inform this Committee of the following in respect of the past 3 years:

- (1) the total number of outsourced service staff employed by your department and the percentage of outsourced service staff against the total number of staff with the same types of duties in your department;
- (2) the total expenditure on staff of your department; the total amount paid to outsourced service providers; and the percentage of amount paid to outsourced service providers against the total expenditure on staff of your department; and
- (3) the nature of your department's outsourced services and the duration of the relevant contracts.

In addition, according to the Government's guidelines for tendering of outsourced services revised last year, if the procured service relies heavily on the deployment of non-skilled workers, and a marking scheme for assessing the tenders is adopted, the procuring department, when assessing the tenders, should include in the assessment criteria the evaluation of tenderers' proposed wage rates and working hours for non-skilled workers. In this regard, please inform this Committee of the following:

- (4) the current number of outsourced service contracts involving a large number of non-skilled workers awarded by your department since implementation of the guidelines;
- (5) the departments which have adjusted their assessment criteria in respect of wage rates and working hours for the outsourced service contracts involving a large number of non-skilled workers in the light of the new guidelines since their implementation; how your department has made adjustment; and if no relevant information is available, the reasons for it;
- (6) whether there have been any rises in the average wage rates for workers in the contracts of outsourced services that rely heavily on deployment of non-skilled workers since the implementation of the guidelines; if yes, the number of contracts with rises in wage rates; if no relevant information is available, the reasons for it;

- (7) your department's measures to evaluate the effectiveness of the new tendering guidelines;
- (8) whether your department is required to adopt the existing mechanism of two-envelope assessment of the technical and price aspects when evaluating tenders for contracts of outsourced service; if no, the number of contracts awarded without adopting the existing mechanism of two-envelope assessment of the technical and price aspects in the past 3 years;
- (9) the annual numbers of cases of government service providers breaching the service contracts, the Employment Ordinance or the Occupational Safety and Health Ordinance as revealed by the inspections conducted by your department, and the annual numbers of complaints lodged by the outsourced service staff;
- (10) the details of follow-up actions on the aforementioned non-compliance and complaint cases; and
- (11) the number and details of cases involving providers being punished for non-compliance or sustained complaints.

Asked by: Hon LEUNG Yiu-chung (Member Question No. 140)

Reply:

(1) In the past 3 years (i.e. 2014-15, 2015-16 and 2016-17), the Civil Aviation Department (CAD) had engaged service providers to provide property management related services (including security and cleansing services), and the total numbers of outsourced service staff employed were 89, 89 and 101 respectively. These figures cannot be compared directly with those of CAD staff as no in-house staff were involved in the same type of duties as the outsourced service staff.

(2) In the past 3 years (i.e. 2014-15, 2015-16 and 2016-17), the total expenditures on CAD staff were \$482 million, \$506 million and \$534 million (estimate) respectively while the expenditures on service providers' contracts for property management related services were \$14.64 million, \$18.04 million and \$20.92 million (estimate) respectively. As the amount paid by the CAD to service providers included non-staff costs, the figure cannot be compared directly with the total expenditure on CAD staff.

(3) In the past 3 years (i.e. 2014-15, 2015-16 and 2016-17), the CAD engaged service providers to provide property management related services, including general building management, security and cleansing services. The duration of contracts for outsourced service provider ranged from 1 to 3 years.

(4) to (8) The CAD has only awarded 1 outsourced service contract which involved 12 staff since the implementation of the revised guidelines. No outsourced service contract involving a large number of non-skilled workers has been awarded so far. In outsourcing services, the CAD has all along adopted an appropriate assessment mechanism in accordance with the Stores and Procurement Regulations and relevant government guidelines.

(9) to (11) In the past 3 years (i.e. 2014-15, 2015-16 and 2016-17), the CAD had not identified any cases of government service providers breaching the service contracts, the Employment Ordinance or the Occupational Safety and Health Ordinance. Neither had the CAD received any complaints lodged by the outsourced service staff on such matters. Upon receipt of any complaints, we will handle the cases in a timely manner according to the relevant guidelines.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)224

(Question Serial No. 4889)

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not specified

Programme: (3) Air Traffic Management

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Transport and Housing

Question:

Did the Civil Aviation Department (CAD) conduct any Search and Rescue Exercise (SAREX) in the previous financial year? If yes, what were the details? If no, what were the reasons? When will the exercise be conducted again to strengthen the CAD's co-operation and co-ordination with other government departments as well as the relevant Mainland and overseas agencies?

Asked by: Hon MA Fung-kwok (Member Question No. 88)

Reply:

In accordance with the Standards and Recommended Practices (SARP) published by the International Civil Aviation Organization, the CAD conducts the SAREX from time to time with a view to strengthening co-operation and co-ordination in search and rescue operations between the CAD and other search and rescue organisations. The exercise also provides qualified air traffic control officers, aircrew and other search and rescue units likely to be involved in such operations with continued training and familiarisation with search and rescue techniques.

The CAD has participated in the State's maritime SAREX which was organised by the Guangdong Provincial Maritime Search and Rescue Centre and held at the Pearl River estuary from 17 to 19 May 2016. The participating units include Guangdong Maritime Rescue Coordination Centre, Guangzhou Salvage Bureau, Nanhai Rescue Bureau, the Marine and Water Bureau of Macao, Hong Kong Government Flying Service and Hong Kong Maritime Rescue Coordination Centre. The exercise simulated a collision between a high speed passenger vessel and a chemical carrier in the waters between Lantau Island and Macao, resulting in numerous injuries and spillage of chemical. The CAD was responsible for providing air traffic control services to participating air search and rescue units.

The CAD will keep in view the schedule of the next SAREX, taking into account the training needs of the department and other relevant organisations.

- End -

CONTROLLING OFFICER'S REPLY

THB(T)225

(Question Serial No. 7126)

Head: (28) Civil Aviation Department
Subhead (No. & title): (-) Not Specified
Programme: (3) Air Traffic Management
Controlling Officer: Director-General of Civil Aviation (Simon LI)
Director of Bureau: Secretary for Transport and Housing

Question:

- (1) Please provide the annual number and details of the measures to rationalise and optimise the airspace design of the Pearl River Delta (PRD) region from 2009 to 2017.
- (2) Please provide the annual number and details of the reviews and evaluations of air traffic control and flight procedures for airports in the PRD region from 2009 to 2017.
- (3) Please provide details of arrival flights on missed approaches in recent years, including the number of flights, flight number, aircraft type, time and date of occurrence, Standard Instrument Arrival (STAR) procedures or other arrival procedures, missed approach procedures and reasons.
- (4) Please provide details of the flights using Route M503 since the commissioning of it, including the number of flights, flight number, aircraft type and date.

Asked by: Hon WU Chi-wai (Member Question No. 69)

Reply:

(1) and (2)

The Civil Aviation Administration of China (CAAC), the CAD and the Civil Aviation Authority of Macao (CAAM) jointly established the Tripartite Working Group (TWG) in 2004 to formulate measures to enhance the air traffic management arrangements in the PRD region in order to rationalise and optimise the PRD airspace management. The TWG drew up the "Pearl River Delta Region Air Traffic Management Planning and Implementation Plan (Version 2.0)" (the Plan) in 2007, setting out various air traffic management enhancement measures to be adopted. The Plan has taken into consideration Hong Kong's need for the three-runway system (3RS) as well as expansion plans of neighbouring airports in the PRD. Through the collaborative efforts of the TWG, a number of airspace enhancement measures in the Plan have been successfully implemented, including the establishment of additional handover points, peripheral flight paths in the PRD region, the adjustment of the Zhuhai airspace structure, etc.

Over the past 5 years, the three sides held a total of 23 meetings at different levels, of which 10 were meetings at administrative level. A breakdown by year is as follows:

2012-13: 5 meetings
 2013-14: 3 meetings
 2014-15: 2 meetings
 2015-16: 9 meetings
 2016-17: 4 meetings (as at 28 February 2017)

The Air Traffic Management Bureau of the CAAC, the CAD and the CAAM signed an agreement on a strengthened liaison mechanism to enhance co-operation and exchange in May 2016, thereby establishing a mechanism for the top management of the three sides to meet on a regular basis. Thereafter, the three sides will host administrative-level meetings in the Mainland, Hong Kong and Macao on a rotational basis twice a year to further strengthen co-operation among the three sides.

The Mainland, Hong Kong and Macao will continue to promote synergy and foster tripartite co-operation through this co-ordination mechanism, in the aim of pushing forward the implementation of all airspace enhancement measures and implementing the Plan progressively in a gradual and orderly manner. This will bring about healthy and orderly development of the airports in the PRD region, and will also enable the 3RS of the Hong Kong International Airport to maximise its potential in achieving the target runway capacity of 102 air traffic movements per hour in the long run.

The three governments have announced from time to time the progress made in the successful phased implementation of short to medium term initiatives set out in the Plan. Press releases issued by the CAD in respect of the discussions and progress of the administrative-level meetings have been uploaded to the CAD website (<http://www.cad.gov.hk/english/home.html>). In April 2016, the Government also briefed the Subcommittee to Follow Up Issues Relating to the Three-runway System at the Hong Kong International Airport of the Legislative Council on this issue and a paper was submitted (http://www.legco.gov.hk/yr14-15/english/hc/sub_com/hs101/papers/hs10120160412cb4-832-1-e.pdf).

(3)

The statistics of missed approaches for the past 5 years are tabulated below:

Year	Due to weather reasons (Note 1)	Due to operational reasons (Note 2)	Total
2012	145	92	237
2013	238	114	352
2014	233	102	335
2015	235	121	356
2016	218	127	345

Note 1: Weather reasons include unfavourable wind conditions, heavy rain, low visibility, significant windshear, etc.

Note 2: Operational reasons include runway not available (e.g. due to other traffic or suspected foreign objects), and other flight operations considerations as reported by pilots, etc.

The CAD does not have a breakdown of missed approaches in respect of flight number, type of aircraft, occurrence time or type of approach. Typically, standard missed approaches could take place on all four runways, i.e. 07L, 07R, 25L and 25R, irrespective of types of approach and aircraft types.

(4)

Flights are operating on air route M503 on a daily basis since its implementation on 7 January 2016. As at 31 December 2016, a daily average of 34 flights had operated on this route. Aircraft types include A320, A330, A340, B737, B747, B777 and business aircraft. The CAD does not maintain information on the flight number of aircraft operated on this route.

- End -

CONTROLLING OFFICER'S REPLY**FSTB(Tsy)010****(Question Serial No. 0566)**Head: (28) Civil Aviation DepartmentSubhead (No. & title): (-) Not SpecifiedProgramme: (6) Air Passenger Departure Tax AdministrationControlling Officer: Director-General of Civil Aviation (Simon LI)Director of Bureau: Secretary for Financial Services and the TreasuryQuestion:

Regarding the duty of the Civil Aviation Department (CAD) in “ensuring effective administration of the Air Passenger Departure Tax (APDT) collection pursuant to the Air Passenger Departure Tax Ordinance (Cap. 140)”, will the Government inform this Committee of:

- (a) the total amount of APDT refunded by the Government and airlines in the past 3 years (set out in a table by years);
- (b) the specific measures taken by the CAD with regard to the matter of “continuing to monitor the collection and refund of the APDT” as mentioned in the Programme; and whether any measure is included to prevent airlines from imposing handling charges on passengers for such refund; and
- (c) whether the CAD has taken any measures to enhance the publicity on the APDT refund arrangement for passengers; if yes, of the details; if not, the reasons for that.

Asked by: Hon WONG Kwok-kin (Member Question No. 31)Reply:

- (a) The categories of passengers exempted from paying APDT¹ are set out in the Air Passenger Departure Tax Ordinance (the Ordinance). Applications for exemption/refund of APDT are handled by the Civil Aviation Department (CAD). In the past 3 years, the amounts of APDT refunded by the CAD are set out as follows:

Year	Amounts of APDT refunded (\$'000)
2014	2,107
2015	2,215
2016	2,684

¹ The categories of passengers exempted from paying APDT set out in Schedule 2 of the Ordinance include transit and transfer passengers, officials of international organizations, consuls, consular staff and members of their families forming part of their households, passengers under 12 years of age, as well as passengers departing from Hong Kong by aircraft being used for diplomatic or ceremonial, etc. purposes of the government of any country.

Regarding passengers who have paid APDT when purchasing the air tickets, some of them may not have departed by air from Hong Kong for various reasons. Under the Ordinance, the APDT so paid shall be refunded by the operator. The CAD has all along been reminding airlines that they are required to make a full refund of APDT to such passengers under the above circumstances, and that no handling charge shall be imposed.

In 2016, the CAD asked 24 airlines with operations in Hong Kong to furnish information on their APDT refund arrangements. With the exception of one airline with flights from Hong Kong suspended, all the other 23 have already replied to the CAD. Among them, 21 have confirmed that they have been making APDT refunds and have not imposed any handling charge for such refunds. As regards the other two airlines, they have indicated to CAD that they have stopped imposing handling charge, and will refund the passengers any such charge already paid. The CAD does not maintain any statistics on the number of cases of APDT refunds made by the airlines and the amounts involved.

- (b) To protect government revenue and ensure that APDT is collected from each departing passenger, the CAD has put in place an established mechanism to request airlines to report on the number of departing passengers carried on their flights and the amounts of APDT collected by the airlines and should be made payable to the Government, for auditing purpose. The CAD will verify whether the amounts of APDT revenue deposited by the airlines in the designated bank account tally with the amounts as reported in the APDT returns. To ensure reliability of the APDT returns filed by airlines, CAD would conduct random checks on the number of departing passengers on flights to see whether they are consistent with the information reported in the APDT returns. In the past 3 years, no non-compliance has been detected in the random checks.

As mentioned in part (a) above, the CAD has all along been reminding airlines that they are required to make a full refund of APDT to a passenger who does not depart by air from Hong Kong on the occasion in respect of which he has paid the tax, and that no handling charge shall be imposed. The CAD will continue to issue letters to the Board of Airline Representatives in Hong Kong (the Board) and individual airlines who are not members of the Board, reminding them of the requirements. Upon receipt of any enquiries from air passengers about APDT refunds, the CAD will definitely urge the airlines concerned to handle the refunds expeditiously. Based on the CAD's experience in handling past cases, the airlines will always make a full refund of the APDT to the passengers concerned and the arrangement is generally smooth. The CAD will continue to monitor the situation and liaise with airlines to draw up guidelines for airlines' reference.

- (c) The CAD has enhanced publicity by publishing information (as tips for travellers) on its website on the entitlement to APDT refund for passengers who do not depart by air from Hong Kong, and the relevant application and complaint channels. A number of airlines have clearly explained the procedures in applying for APDT refunds and other relevant information on their websites to improve the transparency of processing APDT refunds. Besides, the CAD will maintain communication with the tourism industry to explore the needs for publicity enhancement.

- End -

CONTROLLING OFFICER'S REPLY

FSTB(Tsy)011

(Question Serial No. 1101)

Head: (28) Civil Aviation Department

Subhead (No. & title): (-) Not specified

Programme: (6) Air Passenger Departure Tax Administration

Controlling Officer: Director-General of Civil Aviation (Simon LI)

Director of Bureau: Secretary for Financial Services and the Treasury

Question:

Please provide the number of applications for refund of the Air Passenger Departure Tax arising from failure to board the flight in the past 3 years.

Asked by: Hon YIU Si-wing (Member Question No. 44)

Reply:

Passengers will have paid the Air Passenger Departure Tax (APDT) when purchasing the air tickets, some of them may not have departed by air from Hong Kong for various reasons. Under the Air Passenger Departure Tax Ordinance, the APDT so paid shall be refunded by the operator. The Civil Aviation Department (CAD) has all along been reminding airlines that they are required to make a full refund of the APDT under the above circumstances, and that with no handling charge shall be imposed.

In 2016, the CAD asked 24 airlines with operations in Hong Kong to furnish information on their APDT refund arrangements. With the exception of one airline with flights from Hong Kong suspended, all the other 23 have already replied to the CAD. Among them, 21 have confirmed that they have been making APDT refunds to the passengers concerned, and have not imposed any handling charge for such refunds. As regards the other two airlines, they have indicated to the CAD that they have stopped imposing handling charge, and will refund the passengers any such charge already paid. The CAD does not maintain any statistics on the number of cases of APDT refunds made by airlines and the amounts involved.

- End -