Examination of Estimates of Expenditure 2018-19 Reply Serial No.

THB(T)001

CONTROLLING OFFICER'S REPLY

(Question Serial No. 3273)

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:

Under this programme, the provision for 2018-19 is $50.7 million (11.7%) higher than the revised estimate for 2017-18. This is mainly due to the increased provision for the creation of 48 posts in 2018-19, filling of vacancies and other operating expenses. Will the Government inform this Committee of the number of wastage under this Programme in 2017-18, and the post titles and annual salary expenditure of the 48 posts to be created in 2018-19?

Asked by: Hon CHAN Chi-chuen (Member Question No. (LegCo use): 55)

Reply:

In 2017-18, the number of wastage of departmental staff (including retirees and resignees) under Programme (3) Air Traffic Management is 23, which amounted to 4.8% of the total establishment of the departmental grades concerned.

In 2018-19, 48 civil service posts will be created under Programme (3) with details of rank and annual salary cost (in terms of notional annual mid-point salary) as follows:

Rank	Nature	Number of Posts	Total Annual Salary Cost ($ million)
Chief Air Traffic Control Officer	Time-limited (7 years)	1	1.765
Chief Air Traffic Control Officer	Permanent	1	1.765
Air Traffic Control Officer I	Permanent	2	2.779

Air Traffic Control Officer II	Permanent	1	1.076
Air Traffic Control Officer III/Student Air Traffic Control Officer	Permanent	10	4.756
Air Traffic Control Officer III/Student Air Traffic Control Officer	Time-limited (8 years)	10	4.756
Air Traffic Flight Services Officer I	Permanent	10	5.836
Air Traffic Flight Services Officer II/Air Traffic Flight Services Officer III	Permanent	2	0.549
Senior Operations Officer	Permanent	1	1.390
Operations Officer	Permanent	2	1.808
Assistant Operations Officer	Permanent	1	0.421
Principal Information Officer	Permanent	1	1.122
Senior Executive Officer	Permanent	1	0.989
Executive Officer I	Permanent	3	2.202
Clerical Officer	Permanent	1	0.421
Assistant Clerical Officer	Permanent	1	0.263
Total:		48	31.898

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 0566)

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:

In the estimates for Programme (1) Flight Standards, after the flight cancellation incident of Hong Kong Express Airways, has the Civil Aviation Department (CAD) allocated more resources to enhance the monitoring and inspecting of Hong Kong air operators in respect of flight operations policy and standards, flight crew training and aircraft maintenance standards, etc.?

Asked by: Hon CHAN Chun-ying (Member Question No. (LegCo use): 12)

Reply:

Aviation safety is the top priority of the CAD. The CAD has all along been complying with the standards and requirements established by the International Civil Aviation Organization (ICAO). The safety management system of aviation activities in Hong Kong has been developed in strict compliance with ICAO's standards, and implemented in the local context by means of relevant legislation and CAD's guidance documents. All Hong Kong air operators must operate their flight in accordance with the requirement of Air Navigation (Hong Kong) Order 1995 and Air Operator's Certificates Requirements Document.

To monitor Hong Kong air operators, the CAD has been conducting routine inspections. These inspections include flight inspections, inspections on maintenance, documents inspections, training inspections, inspection visits at out-stations, inspections on examiners etc. The routine inspection programme on operators focuses on aviation activities identified to be at a higher risk level, which is determined on the basis of previous inspection findings and data on operational safety. If required, the CAD may step up their oversight on the operators with unscheduled inspections. In addition, to ensure that expected safety standard can be achieved, the CAD conducts annual review to ensure that the operational capability of an operator continues to meet the expected safety standards in terms of its management structure and organisation, facilities and equipment, training, maintenance and other operational support arrangements, etc. The CAD also conducts

inspections on the air operators' associated maintenance activities as well as maintenance organisations in general.

Over the past five years, the respective numbers of holders of Air Operator's Certificate, Hong Kong registered aircraft and flight crew and aircraft maintenance licences processed, among others, have increased by 10%, 12% and 56% respectively. To cope with the increasing workload and strengthen CAD's monitoring work, the Department will create five new posts of Operations Officer grade (i.e. two Senior Operations Officers, two Operations Officers and one Assistant Operations Officer) in the Flight Standards and Airworthiness Division in 2018-19. The annual salary cost (in terms of notional annual mid-point salary) of the five posts is around $5 million.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 0567)

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:

The Civil Aviation Department (CAD) mentioned in Programme (5) that during 2018-19, the Government would review the regulation of unmanned aircraft systems (UAS) in Hong Kong and launch a public consultation on the issue. In this connection, will the Government advise this Committee on the following:

(1) the estimated expenditure and manpower resources involved for launching the pubic consultation; and

(2) whether resources will be allocated by the CAD for education and publicity on the correct use of UAS?

Asked by: Hon CHAN Chun-ying (Member Question No. (LegCo use): 11)

Reply:

The CAD engaged a consultant in March 2017 to conduct a study on the regulation of UAS. The aim of the study was to assist the Government in reviewing the appropriateness and effectiveness of the existing statutory requirements and in exploring ways to refine the prevailing regulatory regime with a view to accommodating the technological development and diversified uses of UAS while safeguarding public safety.

In early April 2018, the CAD published the consultancy report (https://www.cad.gov.hk/english/uas_view.html) and launched a 3-month public consultation on six key proposals regarding the UAS regulatory regime, including the establishment of a UAS registration system, risk-based classification of UAS operations, training and assessment requirements, drone maps for UAS operators, insurance requirements for UAS, and indoor operations of UAS. The CAD will study the public's views in consultation with relevant government bureaux/departments, with the aim of striking an appropriate balance between facilitating usage and development of UAS on the one hand and protecting public safety on the other. Subject to the outcome of the public consultation, the CAD will formulate a detailed proposal on the way forward.

At the same time, the CAD will continue the promotion of safe UAS operations through various channels, including CAD's website, social media platform, etc. Since October 2016, the CAD has distributed over 33 800 safety leaflets to UAS operators as well as general public through major distributors, manufacturers, flying clubs/associations, Home Affairs Enquiry Centres of all 18 Districts. To reach out to a wider audience, the CAD launched a campaign to broadcast UAS safety messages through television and radio programmes in May 2017.

To strengthen our work on UAS, the CAD will establish a dedicated office in 2018-19 under the Air Services and Safety Management Division to handle tasks and duties related to UAS including, inter alia, the public consultation on regulation of UAS and publicity on the safe operation of UAS. The newly established office will comprise two Senior Operations Officers, two Operations Officers and one Assistant Operations Officer. Two of the posts (i.e. one Operations Officer and one Assistant Operations Officer) are new posts to be created in 2018-19 involving an annual salary cost (in terms of notional annual mid-point salary) of $1.325 million while the remaining three posts are from internal redeployment using existing resource. The other expenses, including those for launching the public consultation and publicity on the safe operation of UAS, will also be absorbed under departmental expenditure.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 2609)

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:

Under Programme (3) of this Head, it is stated that the Government will provide professional and technical training to all Air Traffic Control (ATC) staff. In this connection, will the Government inform this Committee:

1. of the specific work and expenditure involved in the training in the past three years;

2. whether the Government will consider introducing any supporting measures in addition to training courses to ensure that competence of the ATC staff is maintained up to the highest possible professional and technical standard?

Asked by: Hon CHOW Ho-ding, Holden (Member Question No. (LegCo use): 51)

Reply:

The Civil Aviation Department (CAD) has been arranging various professional and technical training to its ATC staff, including newly recruited ones, through in-house training unit or other local and overseas professional institutions. These trainings range from elementary ATC courses to various aspects of daily ATC operation, including Airspace Design, Flight Procedure Design, Air Traffic Management, Safety Investigation and Analysis, and Instructional Techniques for officers in charge of ATC staff, etc.

The CAD has also organised in-house regular refresher training and revalidation examinations to reinforce the skills of ATC staff and ensure that they are maintained at the highest possible level. In addition, special briefing sessions are organised every year before the onset of bad weather seasons to heighten the awareness of ATC staff on the special handling under such situation. As well, sharing of operational information and experience is regularly conducted during team briefing sessions.

As the provision of in-house training form part of the normal duties of CAD staff, no additional staffing expenses are incurred. With regard to the external courses, such as Airspace Strategy Course provided by the Institute of Air Navigation Services of

Eurocontrol, Safety Oversight Inspectors (Air Navigation Services) Course provided by the Singapore Aviation Academy, Aeronautical Information Management Course provided by the International Air Transport Association's training centre in Singapore, etc., the expenditure involved from 2015-16 to 2017-18 and estimated expenditure for 2018-19 is as follows: -

2015-16 Note	2016-17	2017-18	2018-19 Note (Estimated)
$8.32 million	$0.67 million	$1.47 million	$6.08 million

Note: Elementary ATC training will be arranged in batches for newly recruited Student ATC Officers depending on recruitment intake and training schedules. The relatively larger expenditure on training in years 2015-16 and 2018-19 was mainly due to a relatively large number of new recruits and the provision of elementary ATC training, part of which was conducted overseas.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 2820)

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:

Since the commissioning of the new Air Traffic Control (ATC) system of the Civil Aviation Department (CAD) in November last year, there have been repeated incidents relating to the system. A media report even mentioned that according to frontline staff of the Airport Authority, the problem of "system crash" was getting more serious. Additional rebooting of the system was required for more than 20 times since April last year. The situation had aroused concern. Although there has not been a major incident yet, as a system costing $1.5 billion, the efficiency target of the new ATC system has definitely not been met. 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? If so, what are the results?

2. Can the Government undertake that after completing all fault detection, the efficiency of the new ATC system can be enhanced to raise public confidence towards the new ATC system?

3. What are the details on the maintenance and implementation cost of the new ATC system (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 the CAD, etc.)?

Asked by: Hon HO Kwan-yiu, Junius (Member Question No. (LegCo use): 18)

Reply:

(1) – (3)

The new ATC system is implemented in two phases through eight 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 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.

Since the full commissioning of the new ATC system, despite the fact that the ATMS encountered several teething issues which neither affected aviation safety nor posed any substantial impact on the overall operation of the Hong Kong International Airport (HKIA), it has been operating smoothly in general. The ATMS had successfully handled the increased traffic during the traditional busy travel periods of Christmas, New Year, Lunar New Year, Easter, and summer holidays. Weather-wise, there had been an unusually high number of occurrences of significant weather (including five severe tropical storms and severe/super typhoons) in the past year in Hong Kong. Notwithstanding, a record high figure of 2 341 total movements was recorded over a 24-hour period on 24 August 2017 as the HKIA recovered from the impact of Super Typhoon HATO. The ATMS had successfully handled the peak air traffic flow and overcome the challenges brought by adverse weather. In 2017, the total number of aircraft movements handled by the ATMS increased by 7.6% as compared with 2016, affirming the performance of the ATMS and front-line air traffic controllers.

It needs to be clarified that the ATMS has not experienced any "system crash" (neither a frozen radar screen nor suspension of operation) since its commissioning in November 2016. Regular housekeeping procedures are carried out, including the close monitoring of the real-time performance and the functionality of all the sub-systems, and the carrying out of checks and maintenance work at all the workstations in the new ATCC and the Control Tower at appropriate intervals, which includes regular rebooting of individual workstations to maintain smooth system operation. The CAD's current established procedure for rebooting workstations is in line with the recommendations of the system contractor as well as the experience gained from actual operation.

An expert panel comprising local and overseas experts, set up by the CAD, has examined the teething issues encountered by the ATMS and confirmed that these issues, which were properly handled by CAD's staff members with professional expertise and experience as per established procedures, did not undermine aviation safety. The expert panel remarked that the overall performance of the ATMS was satisfactory and smooth after a run-in period. The expert panel also considered that the performance of the ATMS has exceeded international requirements. For details, please refer to the expert panel's final report (www.cad.gov.hk/english/reports.html).

In recognition of the significant contribution made by the CAD in upgrading the reliability of the CAD's air traffic management services as a result of the implementation of the ATMS, the Civil Air Navigation Services Organisation presented the CAD with the 2017 Global Safety Achievement Award.

The CAD will continue to closely monitor the performance of the ATMS and optimise the system to enhance its functions in order to cope with increasing air traffic in the future. During the process, 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.

The maintenance of the 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 the CAD, attended the expert panel 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 panel members to attend the expert panel meetings held in Hong Kong were reimbursed by in-house resources of the CAD on an actual cost basis.

Apart from the general staff costs and routine expenses, the total implementation costs for the ATMS (Phase 2) in 2017-18 and 2018-19 are $4.15 million (actual) and $3.4 million (projected) respectively. The total maintenance costs for the ATMS (Phase 1) in 2017-18 and 2018-19 are $16.94 million (actual) and $18 million (projected) respectively.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 0909)

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 (ATC) staff will also increase. Does the Civil Aviation Department (CAD) have any training plan for these staff in the 2018-19 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. (LegCo use): 1)

Reply:

To cope with the increasing demand for air traffic services, the CAD has been arranging various professional and technical training to its ATC staff, including newly recruited ones, through in-house training unit or other local and overseas professional institutions. These trainings range from elementary ATC courses to various aspects of daily ATC operation, including Airspace Design, Flight Procedure Design, Air Traffic Management, Safety Investigation and Analysis, and Instructional Techniques for officers in charge of ATC staff, etc.

In 2018-19, the CAD plans to arrange elementary as well as specialised training courses organised by other local and overseas professional institutions for the various ranks of its ATC staff. As the provision of in-house training forms part of the normal duties of CAD staff, no additional staffing expenses are incurred. With regard to the external courses, such as Airspace Strategy Course provided by the Institute of Air Navigation Services of Eurocontrol, Safety Oversight Inspectors (Air Navigation Services) Course provided by the Singapore Aviation Academy, Aeronautical Information Management Course provided by the International Air Transport Association's training centre in Singapore, etc., the estimated expenditure involved for 2018-19 is around $6 million.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 3185)

Head: (28) Civil Aviation Department

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

Programme: (3) Airport Standards

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

Director of Bureau: Secretary for Transport and Housing

Question:

Regarding the work to provide professional and technical training to Air Traffic Control (ATC) staff in 2018-19, what are the specific work plan, expenditure involved and number of staff received training?

Asked by: Hon LEUNG Kenneth (Member Question No. (LegCo use): 2.17)

Reply:

The Civil Aviation Department (CAD) has been arranging various professional and technical training to its ATC staff, including newly recruited ones, through in-house training unit or other local and overseas professional institutions. These trainings range from elementary ATC courses to various aspects of daily ATC operation, including Airspace Design, Flight Procedure Design, Air Traffic Management, Safety Investigation and Analysis, and Instructional Techniques for officers in charge of ATC staff, etc.

In addition, the CAD plans to arrange elementary as well as specialised training courses organised by other local and overseas professional institutions for the various ranks of its ATC staff in 2018-19. As the provision of in-house training forms part of the normal duties of CAD staff, no additional staffing expenses are incurred. With regard to the external courses, such as Airspace Strategy Course provided by the Institute of Air Navigation Services of Eurocontrol, Safety Oversight Inspectors (Air Navigation Services) Course provided by the Singapore Aviation Academy, Aeronautical Information Management Course provided by the International Air Transport Association's training centre in Singapore, etc. The estimated expenditure for 2018-19 is around $6 million involving 260 training places.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 2223)

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. (LegCo use): 89)

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 the 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.

To enhance CAD's capabilities in coordinating search and rescue operations in the event of aircraft accidents, the CAD successfully conducted a long range SAREX (i.e. conducted within the area of the Hong Kong Flight Information Region) on 12 December 2017, with the participation of six search and rescue organisations, including the Hong Kong Garrison of the Chinese People's Liberation Army and the Rescue and Salvage Bureau of the Ministry of Transport of the Central People's Government; and the CAD, the Government Flying Service, the Hong Kong Observatory and the Marine Department of the Hong Kong Special Administrative Region Government. The exercise simulated an aircraft which, having departed from the Hong Kong International Airport, came under distress and ditched into the sea at about 50 nautical miles east of Hong Kong. The CAD initiated the established search and rescue procedures and co-ordinated with the relevant units to carry out search and rescue operation in search of the aircraft.

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

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 0066)

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:

Regarding "Airport Standards", will the Government advise on the following:

1. whether the demand for helicopter services has increased this year; if so, the details; if not, the reasons for that;

2. whether new measures will be introduced to enhance the monitoring of aircraft noise; if so, the details; if not, the reasons for that;

3. whether regular reviews are conducted to monitor the safety procedures and practices in respect of the operation of the airport; if so, the details; if not, the reasons for that?

Asked by: Hon SHEK Lai-him, Abraham (Member Question No. (LegCo use): 5)

Reply:

(1) In 2017, a total of 15 292 helicopter movements by commercial helicopter operators carrying a total of 66 232 passengers were recorded on operations to, from and within Hong Kong. These represent an increase of 9.5% and 16.7% respectively when compared with 2016.

(2) The Civil Aviation Department (CAD) 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 Hong Kong International Airport (HKIA), and a computer to correlate the noise data collected through these NMTs with the actual aircraft flight tracks detected by the CAD's radar system. The consolidated noise data are uploaded onto the CAD's website regularly (https://www.cad.gov.hk/english/ac_noise.html).

The CAD has also 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. These measures include:

(i) aircraft departing to the northeast of the 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 Volume I, Part II of 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) since 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 pm and 7 am. With effect from 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 7 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 pm and 7 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 pm and 7 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.

The CAD regularly reviews the effectiveness of these noise mitigation measures. Taking the noise data of the CAD recorded at Ma Wan NMT as an example, the number of noise events of high decibel level (80 decibels or above) during the night period in 2017 have reduced by 80% compared with 2012, and those of 70 decibels or above during the night period have also reduced by 33% during the same period. This showed the effectiveness of the related noise mitigation measures.

To further strengthen the above measures, the CAD is also planning to impose more stringent requirements with additional operating restrictions on aircraft which do not comply with the noise standards in Chapter 4 of Volume I, Part II of Annex 16 to the Convention on International Civil Aviation (Chapter 4 noise standards (See *Note* below)), or equivalent, to operate at the HKIA from 10 pm to 7 am on the following day starting from the Summer Season of 2019. This measure, when implemented, will further alleviate the aircraft noise impact on the local communities.

Apart from the above measures, with the advancement of aviation technology, aircraft engines are quieter than before. The improved design of airframe has also helped reduce noise significantly. The CAD has been working with the Airport Authority (AA) to implement a pilot noise quota count scheme which encourages airlines to use newer-model and quieter aircraft. Based on our latest statistics, a number of airlines have introduced quieter passenger and cargo aircraft such as A350, A380, B777-300ER/200LR, B747-8, B787, etc. As the number of newer-model aircraft in their fleets further increases, the aircraft noise impact will be further alleviated in the long run.

(Note: Volume I, Part II of Annex 16 to the Convention on International Civil Aviation sets out the aircraft noise standards formulated by the ICAO at different times. The aircraft noise standards of Chapter 4, which are applicable to aircraft for which the application for a Type Certificate was submitted in or after 2006, were more stringent than those of Chapter 3. Generally speaking, the noise levels of Chapter 4-compliant aircraft were lower than those of Chapter 3-compliant aircraft.)

(3) To operate the HKIA, the AA is required to obtain an Aerodrome Licence issued by the CAD. The Aerodrome Licence is subject to renewal on a yearly basis and the CAD reviews the safety standards and the operational performance of the HKIA through document reviews and trend analysis, on-site inspections and audits, assessment on implementation of improvement plans, and various review meetings during the year, to ensure its continued compliance with the aerodrome licensing requirements. The CAD also regularly reviews the aerodrome licensing requirements based on the latest ICAO standards and the best industry practices to ensure the continued relevance of the licensing requirements.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 0067)

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 work to "review the regulation of unmanned aircraft systems (UAS) in Hong Kong", will the Government advise on the following:

1. in view of the wide use of UAS in recent years and inadequate awareness of its impact on aviation safety by members of the public, whether publicity will be stepped up by the Department to enhance the aviation awareness of the public; if so, the measures; if not, the reasons for that;
2. in respect of the requirement that applications have to be made for operating UAS for non-recreational purpose, the number of applications received per year and the main industries/organisations from which the applications were made; whether assessment has been made on the implementation of the system; if so, the details; if not, the reasons for that;
3. whether there is a schedule for the review and whether the review report will be made public; if so, the details; if not, the reasons for that?

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

Reply:

The Civil Aviation Department (CAD) promotes UAS safety through various channels, including:

(a) CAD's Website – Safety information and guidelines (e.g. DOs and DON'Ts, etc.) are published on CAD's website to proactively enhance the safety awareness of the public and industry;

(b) Leaflet – Since October 2016, the CAD has distributed over 33 800 leaflets on UAS safety to UAS operators as well as general public through major distributors, manufacturers, flying clubs/associations, Home Affairs Enquiry Centres of all 18 Districts, etc;

(c) Social Media – Noting that Facebook pages dedicated for UAS discussions have become a popular channel for users to gather or exchange information on UAS, in early January 2017 the CAD started to post messages about UAS safety on social

media platforms to further promote safety awareness and safety concepts amongst target audience;

(d) Television and Radio – To reach out to a wider audience, the CAD launched a new campaign to broadcast UAS safety messages through television and radio stations since May 2017; and

(e) Meetings with Industry – the CAD meets and maintains regular dialogues with major UAS / model aircraft associations and manufacturers to enhance cooperation on safety promotion.

The CAD will continue to promote and enhance the safety awareness of the public and industry.

From 2015 to 2017, the CAD received 359 applications for non-recreational use of UAS with breakdowns as follows:

Year of application	2015	2016	2017
Total no. of applications	84	96	179

The majority of the applications were from private companies for surveying and aerial photography/filming purposes. The CAD regularly reviews and streamlines the procedures and relevant arrangements, to ensure that they are able to cope with the increasing number of applications while upholding aviation safety.

In March 2017, the CAD engaged a consultant to conduct a study on the regulation of UAS in order to assist the Government in reviewing the appropriateness and effectiveness of the existing statutory requirements and in exploring ways to refine the prevailing regulatory regime with a view to accommodating the technological development and diversified uses of UAS while further safeguarding public safety. In early April 2018, the CAD published the consultancy report (https://www.cad.gov.hk/english/uas_view.html) and launched a 3-month public consultation on six key proposals regarding the UAS regulatory regime, including the establishment of a UAS registration system, risk-based classification of UAS operations, training and assessment requirements, drone maps for UAS operators, insurance requirements for UAS, and indoor operations of UAS. The Government will consider the way forward for the regulation of UAS after assessing the views/comments collected.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 0068)

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 Department is expected to have an increase of 82 posts in 2018-19. The rate of increase is comparatively higher than previous years. Please inform this Committee:

(1) whether the increase of posts is due to business growth or other reasons; please illustrate in details; and

(2) of the positions and salaries of these new posts in detail.

Asked by: Hon SHEK Lai-him, Abraham (Member Question No. (LegCo use): 10)

Reply:

(1) The creation of 82 civil service posts by the Civil Aviation Department aims to (i) cope with continuous growth in air traffic and provide support to the Three-runway System (3RS) Project which is being implemented by the Airport Authority; (ii) cope with increasing workload and ad hoc projects in relation to the rapid development of the aviation industry arising from, specifically, increase in inspections of flights and aircraft airworthiness and air services and safety management; and (iii) enhance support to the International Civil Aviation Organization (ICAO) initiatives such as implementing aviation safety initiatives and providing technical assistance to other ICAO Member States in aspects of personnel training, regulatory approvals and safety oversight system, etc., with a view to raising Hong Kong's profile at ICAO and the international arena.

(2) The duties, rank, nature, number of posts and annual salary cost (in terms of notional annual mid-point salary) of the 82 civil service posts are as follows:

Duties	Rank	Nature	Number of Posts	Total Annual Salary Cost ($million)
To cope with growth in air traffic and provide support to the 3RS Project	Chief Air Traffic Control Officer	Time-limited (7 years)	1	1.765

	Chief Air Traffic Control Officer	Permanent	1	1.765
	Air Traffic Control Officer I	Permanent	2	2.779
	Air Traffic Control Officer II	Permanent	1	1.076
	Air Traffic Control Officer III/Student Air Traffic Control Officer	Permanent	10	4.756
	Air Traffic Control Officer III/Student Air Traffic Control Officer	Time-limited (8 years)	10	4.756
	Air Traffic Flight Services Officer I	Permanent	10	5.836
	Air Traffic Flight Services Officer II/Air Traffic Flight Services Officer III	Permanent	2	0.549
	Senior Operations Officer	Permanent	1	1.390
	Operations Officer	Permanent	4	3.615
	Assistant Operations Officer	Permanent	6	2.526
	Senior Electronics Engineer	Permanent	2	2.779
	Electronics Engineer/Assistant Electronics Engineer	Permanent	6	4.494
	Electronics Engineer/Assistant Electronics Engineer	Time-limited (7 years)	2	1.498
	Senior Electrical and Mechanical Engineer	Time-limited (7 years)	1	1.390

	Building Services Inspector	Time-limited (7 years)	1	0.670
	Senior Executive Officer	Permanent	1	0.989
	Executive Officer I	Permanent	2	1.468
	Executive Officer II	Permanent	1	0.486
	Principal Information Officer	Permanent	1	1.122
To cope with increasing workload and ad hoc projects in relation to the expansion of aviation industry	Senior Operations Officer	Permanent	2	2.779
	Operations Officer	Permanent	4	3.615
	Assistant Operations Officer	Permanent	3	1.263
	Executive Officer I	Permanent	1	0.734
	Clerical Officer	Permanent	2	0.842
	Assistant Clerical Officer	Permanent	1	0.263
To enhance support to ICAO initiatives with a view to raising Hong Kong's profile at ICAO	Senior Operations Officer	Permanent	1	1.390
	Electronics Engineer/Assistant Electronics Engineer	Permanent	1	0.749
	Operations Officer	Permanent	1	0.904
	Air Traffic Control Officer II	Permanent	1	1.076
		Total:	82	59.324

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 0070)

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 Hong Kong International Aviation Academy (Academy), will the Department advise on the following:

(1) whether the courses organised by the Academy are on a self-financing basis; if yes, the details; if not, the reasons for that;

(2) whether the Government has at present allocated any financial resources to the Academy for organising courses and development; if yes, the details; if not, the reasons for that; and

(3) whether allocation of more resources will be requested to facilitate talent training for the development of aviation industry; if yes, the details; if not, the reasons for that?

Asked by: Hon SHEK Lai-him, Abraham (Member Question No. (LegCo use): 15)

Reply:

The Academy is established, managed and operated by the Airport Authority (AA). It is wholly funded and owned by the AA and operated on a cost-recovery basis. In support of the Academy, the Transport and Housing Bureau and the Civil Aviation Department sit on the Steering Committee of the Academy to provide policy and professional advice on the development strategy, syllabus, training materials and trainer qualifications of relevant courses to the Academy. The Government will continue to provide support to the Academy with a view to facilitating talent training for future development of the aviation industry.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 1099)

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 (ATC) system, please list out in detail all the incidents that had occurred since the commissioning of the new ATC system in November 2016, the follow-up measures taken by the Government and the expenditures involved.

Asked by: Hon TIEN Puk-sun, Michael (Member Question No. (LegCo use): 18)

Reply:

The new ATC system is implemented in two phases through eight 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 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.

Since the full commissioning of the new ATC system, despite the fact that the ATMS encountered several teething issues which neither affected aviation safety nor posed any substantial impact on the overall operation of the Hong Kong International Airport (HKIA), it has been operating smoothly in general. The ATMS had successfully handled the increased traffic during the traditional busy travel periods of Christmas, New Year, Lunar New Year, Easter, and summer holidays. Weather-wise, there had been an unusually high number of occurrences of significant weather (including five severe tropical storms and severe/super typhoons) in the past year in Hong Kong. Notwithstanding, a record high figure of 2 341 total movements was recorded over a 24-hour period on 24 August 2017 as the HKIA recovered from the impact of Super Typhoon HATO. The ATMS had successfully handled the peak air traffic flow and overcome the challenges brought by adverse weather. In 2017, the total number of aircraft movements handled by the ATMS increased by 7.6% as compared with 2016, affirming the performance of the ATMS and front-line air traffic controllers.

The Civil Aviation Department (CAD) has all along been keeping the public informed of the operation of the ATMS in an open and transparent manner, including the occasional teething problems during the initial period after the full commissioning of the new system through various channels (including press releases and media meetings)[1]. The teething problems occurred since the full commissioning on 14 November 2016 are summarised as follows:

Date	Incident
15 November 2016	The position of a departing flight was not displayed on the radar screen for 12 seconds. It should be noted that radar signals may be affected by different external factors (for instance aircraft transponder is busy or has radio communication problems, the reception of radar signals is interfered by external factors, terrain or obstacles etc.).
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. The issue was primarily caused by the number one Flight Data Processor of the Main system which encountered a file access anomaly when it tried to access certain archived playback data triggering automatic switchover to its number two hot-standby server. During the restoration process of number one server, the screen refreshed with momentary flight plan dis-association affecting those targets that were already associated with flight plans at the time at all logged-on workstations. 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 not following 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 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.
8 April 2017	The Flight Data Processors of the Main System experienced a momentary hitch which was caused by an accumulation of users' preferences settings exceeding the preset system limit. Once the Fallback System took up the role of Main System, the operation of the ATMS resumed normal. All flight targets were continuously displayed on the radar screens throughout the occurrence. As a precaution, air traffic controllers deferred

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

	giving clearance to departure flights for about 15 minutes. Arrivals and flights flying through the Hong Kong Flight Information Region were not affected. Aviation safety was not affected.

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

Date	Incident
	Arrival Manager System (AMAN)[2]:
18 November 2016	The AMAN temporarily could not show the arrival sequence of the arrival flights for about two minutes due to human factors;
2 January 2017	The AMAN temporarily could not show the arrival sequence of the arrival flights for about two minutes due to human factors;
12 February 2017	The AMAN temporarily could not show the arrival sequence of some of the arrival flights due to a glitch in the interface between the ATMS and AMAN;
3 April 2017	The AMAN temporarily could not show the arrival sequence of some of the arrival flights due to a glitch in the interface between the ATMS and AMAN; and
10 June 2017	The AMAN temporarily could not show the arrival sequence of some of the arrival flights due to a glitch in the interface between the ATMS and AMAN.
	Tower Electronic Flight Strips (TEFS) System:
18 December 2016	Some functions of the TEFS System were temporarily and intermittently affected due to a software glitch relating to memory management; and
2 May 2017	Some functions of the TEFS System were temporarily and intermittently affected due to a software glitch in the TEFS System when cleaning up old flight information.

[2] 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 controllers in arranging the arrival sequence, so as to achieve more efficient use of airspace and optimise the arrival capacity.

All the above incidents involving the main system and sub-systems of the ATMS did not affect aviation safety. They were later addressed through the deployment of software fixes, briefings provided to staff and updates of relevant procedures.

Apart from the above incidents, there were seven cases of individual screen/keyboard/mouse not being responsive to commands. During the occurrences, all flight targets and data were shown on the screen. Similarly, aviation safety was not affected in all these incidents. Without affecting the operation of the air traffic control, the maintenance staff rebooted individual workstation concerned during period with relatively low air traffic flow. The individual workstation concerned resumed smooth operation after rebooting. The CAD continues to carry out regular housekeeping procedures of the ATMS and its sub-systems in accordance with the requirements of aviation safety management, the recommendations of the system contractor as well as the experience gained from actual operation.

There were also occasional teething issues caused by the limitations of radar surveillance technology (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 is not unique to the ATMS and is also observed in ATMS elsewhere and in the old ATMS of the CAD. Well-trained and professional air traffic controllers are fully capable in handling these situations and aviation safety has never been affected. With the progressive implementation of satellite-based Automatic Dependent Surveillance – Broadcast (ADS-B) technology and its full integration into the ATMS, the average number of split tracks, false targets and aircraft positions temporarily not being displayed decreased from 3.4, 8.6 and 1.9 times per week during the initial operation of the ATMS from November 2016 to March 2017 to 0, 1.6 and 0.2 times per week respectively between December 2017 and February 2018. The CAD plans to further extend the application of ADS-B to cover the entire Hong Kong Flight Information Region in 2018-19. The CAD will continue its efforts to closely monitor the overall ADS-B performance.

An expert panel comprising local and overseas experts, set up by the CAD, has evaluated the above issues and confirmed that these issues, which were properly handled by CAD's staff members with professional expertise and experience as per established procedures, did not undermine aviation safety. The expert panel remarked that the overall performance of the ATMS was satisfactory and smooth after a run-in period. The expert panel also considered that the performance of the ATMS has exceeded international requirements. For details, please refer to the expert panel's final report (www.cad.gov.hk/english/reports.html).

In recognition of the significant contribution made by the CAD in upgrading the reliability of the CAD's air traffic management services as a result of the implementation of the ATMS, the Civil Air Navigation Services Organisation presented the CAD with the 2017 Global Safety Achievement Award.

The CAD will continue to closely monitor the performance of the ATMS and optimise the system to enhance its functions in order to cope with increasing air traffic in the future. During the process, 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.

The maintenance of the ATMS is part of the regular work of the CAD and, as such, do not entail additional civil service staff costs. Apart from the general staff costs and routine expenses, the total maintenance costs for the ATMS (Phase 1) in 2017-18 and 2018-19 are

$16.94 million (actual) and $18 million (projected) respectively. Software updates relating to faults/deficiencies identification and rectification are included in the services covered by the contract within the software warranty period without additional expenses involved.

All the expert panel members, appointed by the CAD, attended the expert panel 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 panel members to attend the expert panel meetings held in Hong Kong were reimbursed by in-house resources of the CAD on an actual cost basis.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 0845)

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 work to "review the regulation of unmanned aircraft systems (UAS) in Hong Kong",

1. How many complaints in relation to UAS were received by government departments or organisations such as the Civil Aviation Department (CAD), the Hong Kong Police Force and the Office of the Privacy Commissioner for Personal Data, etc. in each of the past three years? How many cases were investigated by the relevant departments? How many cases were dealt with by prosecution? How many cases were successfully prosecuted?
2. As regards the existing regulation work, when will the short-term and medium-term measures (e.g. making drone maps and setting up a registration system, etc.) mentioned by the Government earlier be implemented? Please provide the time schedule by item.
3. As regards no-fly zones, what are the details of the existing no-fly zones for UAS? What are the expected changes to no-fly zones after stepping up the regulation?
4. What are the views of the Government towards the opinion that separate regulatory standards or relaxation of some of the standards should be imposed for racing drones which are a kind of UAS of lower risk?
5. What are the current staff establishment, ranks and expenditure involved for such work?

Asked by: Hon TO Kun-sun, James (Member Question No. (LegCo use): 31)

Reply:

In Hong Kong, UAS are classified as aircraft and are governed, as far as aviation safety is concerned, by the civil aviation legislation. The CAD is committed to ensuring aviation safety, including UAS operations, such that these operations are performed in compliance with flight safety rules. According to the prevailing laws, any operator of UAS, regardless of the weight of aircraft, must observe Article 48 of the Air Navigation (Hong Kong) Order (Cap. 448C). Under this provision, a person shall not recklessly or negligently cause or permit an aircraft to endanger any person or property. Articles 3, 7 and 100 of Cap. 448C

also provide that an aircraft weighing above seven kilograms (without fuel) can only fly if it has a Certificate of Registration and a Certificate of Airworthiness issued by the CAD. Furthermore, Regulation 22 of the Air Transport (Licensing of Air Services) Regulations (Cap. 448A) requires that any person using an UAS of any weight for hire or reward must lodge an application with the CAD before operations, and he/she must abide by the conditions of issue of the permit granted by the CAD. Apart from operating in a safe manner in accordance with the applicable civil aviation legislation, operators must also observe other relevant laws of Hong Kong, such as the Telecommunications Ordinance (Cap. 106).

On no-fly zone, at present, the CAD publishes textual information in its website (https://www.cad.gov.hk/english/Unmanned_Aircraft_Systems.html) on areas where UAS should not be flown. Such guidance serves to protect aircraft as well as other people and properties (e.g. UAS should not be flown in congested areas, UAS should be operated 50 metres away from other person or structure, etc). In addition to the above, there may be other restrictions imposed by other government bureaux/departments, authorities or venue managers which may be applicable to UAS operations.

On the specific questions asked, our reply is as follows:

1. The numbers of complaints of UAS operations received and followed up by the CAD and the Office of the Privacy Commissioner for Personal Data in the past there years are as follows:

Name of Department / Organisation	Year / No. of complaint cases		
	2015	2016	2017
Civil Aviation Department	27	47	60
Office of the Privacy Commissioner for Personal Data	0	2	0

According to the Hong Kong Police Force, they do not keep record on the number of complaints on UAS operations. As regards prosecution, in the past three years, the Hong Kong Police Force has initiated prosecution on two cases. One case (which took place in 2017) was convicted and one case (which took place in 2016) was under trial by the court.

2-4. To assist the Government to review the appropriateness and effectiveness of the existing statutory requirements and in exploring ways to refine the prevailing regulatory regime with a view to accommodating the technological development and diversified uses of UAS while safeguarding public safety, the CAD engaged a consultant in March 2017 to conduct a study on the regulation of UAS. In early April 2018, the CAD published the consultancy report (https://www.cad.gov.hk/english/uas_view.html) and launched a 3-month public consultation on six key proposals regarding the UAS regulatory regime, including the establishment of a UAS registration system, risk-based classification of UAS operations, training and assessment requirements, drone maps for UAS operators, insurance requirements for UAS, and indoor operations of UAS. Views on regulation of drone racing will also be solicited in the consultation.

The CAD will study the public's views in consultation with relevant government bureaux/departments, with the aim of striking an appropriate balance between facilitating usage and development of UAS on the one hand and protecting public safety on the other. Subject to the outcome of the public consultation, the CAD will formulate a detailed proposal on the way forward.

5. To strengthen our work on UAS, the CAD will establish a dedicated office in 2018-19 under the Air Services and Safety Management Division to handle tasks and duties related to UAS including, inter alia, the public consultation on regulation of UAS and publicity on the safe operation of UAS. The newly established office will comprise two Senior Operations Officers, two Operations Officers and one Assistant Operations Officer. Two of the posts (i.e. one Operations Officer and one Assistant Operations Officer) are new posts to be created in 2018-19 involving an annual salary cost (in terms of notional annual mid-point salary) of $1.325 million while the remaining three posts will be covered by internal redeployment using existing resource. The other expenses including those for launching the public consultation and publicity on the safe operation of UAS will also be absorbed under departmental expenditure.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 3540)

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 three years by type of traffic right?

(2) What are the number of ongoing negotiations on air services agreements and their details as of December 2017?

Asked by: Hon WU Chi-wai (Member Question No. (LegCo use): 78)

Reply:

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

New Ports

Type of traffic right	2015	2016	2017
Third/Forth freedom[1]	1. Boston 2. Changzhou 3. Cheongju 4. Davao 5. Detroit 6. Dusseldorf 7. Hiroshima 8. Kalibo 9. Krabi 10. Kumamoto 11. Lanzhou City	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	1. Christchurch 2. Huangshan 3. Indianapolis 4. Komatsu 5. London (Stansted) 6. Prague 7. Sihanoukville 8. Toowoomba 9. Yekaterinburg 10. Zhangjiajie

	12. Luoyang 13. Miyazaki 14. Nha Trang 15. Stockholm 16. Xining 17. Yiwu	11. Portland 12. Takamatsu 13. Yonago	
Fifth freedom[2]	1. Ashgabat 2. Beirut 3. Frankfurt (Hahn) 4. Maastricht 5. Turkmenbashi	1. Ahmedabad	1. Frankfurt (Hahn) 2. Warsaw
Total:	22	14	12

Suspended Ports

	2015	2016	2017
Third/Forth freedom[1]	1. Karachi 2. Krasnoyarsk 3. London Stansted 4. Minneapolis 5. Yichang	1. Cheongju 2. Huangshan 3. Mahe Island 4. Yekaterinburg	1. Changzhou 2. Detroit 3. Davao 4. Hefei 5. Hohhot 6. Langkawi 7. Lijiang 8. Luoyang 9. Manado 10. Xishuangbanna 11. Yancheng 12. Yinchuan
Fifth freedom[2]	1. Ciudad del Este 2. Lagos 3. Milan Bergamo	1. Ashgabat 2. Chittagong 3. Frankfurt (Hahn) 4. Lahore	1. Maastricht
Total:	8	8	13

[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.

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 2017, Hong Kong has signed Air Services Agreements with 67 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.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 3541)

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. (LegCo use): 79)

Reply:

(1) to (2)

The new ATC system is implemented in two phases through eight 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 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.

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it has been operating smoothly in general. The ATMS had successfully handled the increased traffic during the traditional busy travel periods of Christmas, New Year, Lunar New Year, Easter, and summer holidays. Weather-wise, there had been an unusually high number of occurrences of significant weather (including five severe tropical storms and severe/super typhoons) in the past year in Hong Kong. Notwithstanding, a record high figure of 2 341 total movements was recorded over a 24-hour period on 24 August 2017 as the HKIA recovered from the impact of Super Typhoon HATO. The ATMS had successfully handled the peak air traffic flow and overcome the challenges brought by adverse weather. In 2017, the total number of aircraft movements handled by the ATMS increased by 7.6% as compared with 2016, affirming the performance of the ATMS and front-line air traffic controllers.

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

Date	Incident
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There were also occasional teething issues caused by the limitations of radar surveillance technology (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 is not unique to the ATMS and is also observed in ATMS elsewhere and in the old ATMS of the CAD. Well-trained and professional air traffic controllers are fully capable in handling these situations and aviation safety has never been affected. With the progressive implementation of satellite-based Automatic Dependent Surveillance – Broadcast (ADS-B) technology and its full integration into the ATMS, the average number of split tracks, false targets and aircraft positions temporarily not being displayed decreased from 3.4, 8.6 and 1.9 times per week during the initial operation of the ATMS from November 2016 to March 2017 to 0, 1.6 and 0.2 times per week respectively between December 2017 and February 2018. The CAD plans to further extend the application of ADS-B to cover the entire Hong Kong Flight Information Region in 2018-19. The CAD will continue its efforts to closely monitor the overall ADS-B performance.

An expert panel comprising local and overseas experts, set up by the CAD, has evaluated the above issues and confirmed that these issues, which were properly handled by CAD's staff members with professional expertise and experience as per established procedures, did not undermine aviation safety. The expert panel remarked that the overall performance of the ATMS was satisfactory and smooth after a run-in period. The expert panel also considered that the performance of the ATMS has exceeded international requirements. For details, please refer to the expert panel's final report (www.cad.gov.hk/english/reports.html).

In recognition of the significant contribution made by the CAD in upgrading the reliability of the CAD's air traffic management services as a result of the implementation of the

ATMS, the Civil Air Navigation Services Organisation presented the CAD with the 2017 Global Safety Achievement Award.
The CAD will continue to closely monitor the performance of the ATMS and optimise the system to enhance its functions in order to cope with increasing air traffic in the future. During the process, 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.

(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.

We do not have breakdown of flight delays caused by non-weather factors. In the past 12 months, the average percentages of departure and arrival passenger flights delayed by more than 15 minutes at the HKIA were 34% and 32% respectively.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 3542)

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 (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, 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. (LegCo use): 80)

Reply:

(1) The Civil Aviation Department (CAD) plans to recruit 42 ATCOs III/SATCOs in 2018-19, of whom 20 are for new posts created in 2018-19. The remaining 22 are for filling vacancies arising from the anticipated promotion of ATCO III to ATCO II. The total salary expenditure involved for these posts in terms of notional annual mid-point salary value is $20 million. In addition, the CAD will create 12 posts for the Air Traffic Flight Services Officer (ATFSO) grade in 2018-19. The salary expenditure involved for these 12 posts in terms of notional annual mid-point salary value is $6.4 million. The above staff are recruited to cope with the increasing demand for air traffic services and to fill anticipated vacancies of the ATCO and ATFSO grades.

(2) The CAD conducted a SATCO recruitment exercise in 2017-18 and identified 26 suitable candidates. There was no SATCO recruitment exercise in 2015-16 and 2016-17. In the past three years, one SATCO resigned in 2015-16, representing an attrition rate of 3.6%.

(3) The CAD has not recruited any ATCO II from overseas in the past two 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 28 February 2018, the CAD has three officers on overseas agreement terms and 156 local officers at ATCO II and above ranks. The ratio of overseas to local officers ranked at ATCO II is 1:52.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 3543)

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 review of the regulation of unmanned aircraft systems (UAS) in Hong Kong under this Programme, will the Government inform this Committee of the details, manpower involved and estimated expenditure on the work of the Civil Aviation Department (CAD) in 2018-19?

Asked by: Hon WU Chi-wai (Member Question No. (LegCo use): 81)

Reply:

The CAD engaged a consultant in March 2017 to conduct a study on the regulation of UAS. The aim of the study was to assist the Government in reviewing the appropriateness and effectiveness of the existing statutory requirements and in exploring ways to refine the prevailing regulatory regime with a view to accommodating the technological development and diversified uses of UAS while safeguarding public safety.

In early April 2018, the CAD published the consultancy report (https://www.cad.gov.hk/english/uas_view.html) and launched a 3-month public consultation on six key proposals regarding the UAS regulatory regime, including the establishment of a UAS registration system, risk-based classification of UAS operations, training and assessment requirements, drone maps for UAS operators, insurance requirements for UAS, and indoor operations of UAS. The CAD will study the public's views in consultation with relevant government bureaux/departments, with the aim of striking an appropriate balance between facilitating usage and development of UAS on the one hand and protecting public safety on the other. Subject to the outcome of the public consultation, the CAD will formulate a detailed proposal on the way forward.

To strengthen our work on UAS, the CAD will establish a dedicated office in 2018-19 under the Air Services and Safety Management Division to handle tasks and duties related to UAS including, inter alia, the public consultation on regulation of UAS and publicity on the safe operation of UAS. The newly established office will comprise two Senior Operations Officers, two Operations Officers and one Assistant Operations Officer. Two of the posts

(i.e. one Operations Officer and one Assistant Operations Officer) are new posts to be created in 2018-19 involving an annual salary cost (in terms of notional annual mid-point salary) of $1.325 million while the remaining three posts are from internal redeployment using existing resource. The other expenses, including those for launching the public consultation and publicity on the safe operation of UAS, will also be absorbed under departmental expenditure.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 2772)

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 work to review the regulation of unmanned aircraft systems (UAS) in Hong Kong,

1. What are the manpower and expenditure deployed by the Civil Aviation Department (CAD) for conducting the review in 2018-19?
2. What direction will the CAD take in conducting the review; what content is expected to be involved; what is the schedule for the review; and what are the earliest anticipated commencement and completion dates?
3. What will be the follow-up work after the completion of the review, including whether the review findings will be made public; and if regulation by legislation is considered necessary, what is the earliest time to conduct such work?

Asked by: Hon YUNG Hoi-yan (Member Question No. (LegCo use): 68)

Reply:

The CAD engaged a consultant in March 2017 to conduct a study on the regulation of UAS. The aim of the study was to assist the Government in reviewing the appropriateness and effectiveness of the existing statutory requirements and in exploring ways to refine the prevailing regulatory regime with a view to accommodating the technological development and diversified uses of UAS while safeguarding public safety.

In early April 2018, the CAD published the consultancy report (https://www.cad.gov.hk/english/uas_view.html) and launched a 3-month public consultation on six key proposals regarding the UAS regulatory regime, including the establishment of a UAS registration system, risk-based classification of UAS operations, training and assessment requirements, drone maps for UAS operators, insurance requirements for UAS, and indoor operations of UAS. The CAD will study the public's views in consultation with relevant government bureaux/departments, with the aim of striking an appropriate balance between facilitating usage and development of UAS on the one hand and protecting public safety on the other. Subject to the outcome of the public consultation, the CAD will formulate a detailed proposal on the way forward.

To strengthen our work on UAS, the CAD will establish a dedicated office in 2018-19 under the Air Services and Safety Management Division to handle tasks and duties related to UAS including, inter alia, the public consultation on regulation of UAS and publicity on the safe operation of UAS. The newly established office will comprise two Senior Operations Officers, two Operations Officers and one Assistant Operations Officer. Two of the posts (i.e. one Operations Officer and one Assistant Operations Officer) are new posts to be created in 2018-19 involving an annual salary cost (in terms of notional annual mid-point salary) of $1.325 million while the remaining three posts are from internal redeployment under existing resource. The other expenses, including those for launching the public consultation and publicity on the safe operation of UAS, will also be absorbed under departmental expenditure.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 5893)

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 specific co-ordination and co-operation work plans on air traffic control and flight procedures for airports in the Pearl River Delta (PRD) region in 2018-19? Has the Government estimated what benefits the relevant co-ordination work will bring to the air traffic movements of the Hong Kong International Airport (HKIA)? If so, what are the details? If not, what are the reasons?

Asked by: Hon LEUNG Kenneth (Member Question No. (LegCo use): 2.18)

Reply:

The Civil Aviation Administration of China (CAAC), the Civil Aviation Department of Hong Kong (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 region. 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, the establishment of peripheral flight paths in the PRD region, the adjustment of the Zhuhai airspace structure, etc.

In May 2016, the Air Traffic Management Bureau (ATMB) of the CAAC, the CAD and the CAAM signed an agreement on establishing a strengthened liaison mechanism to enhance co-operation and exchange. Under the mechanism, senior management of the Mainland, Hong Kong and Macao meet regularly at the biannual high-level meetings which are hosted by the three sides on a rotational basis to further strengthen tripartite co-operation.

Through this tripartite co-ordination mechanism, the Mainland, Hong Kong and Macao will

continue to promote synergy and foster co-operation, take forward the airspace enhancement measures and implement the Plan progressively in a gradual and orderly manner, so as to achieve the healthy and orderly development of the airports in the PRD region, and enable the 3RS of the HKIA to maximise its potential to progressively achieve the target runway capacity of 102 air traffic movements per hour in the long run.

As a further step in setting objectives for the future development of air navigation services and airspace in the region, the Director-General of Civil Aviation and the Director-General of the ATMB of CAAC signed a joint statement on supporting the sustainable development of air navigation services and airspace in the PRD region in May 2017. In the statement, it is stated that in accordance with the National 13th Five-Year Plan's goal to construct a cluster of world-class airports in the PRD, both sides will make the utmost effort to help take forward the expansion plans for the five major airports in the region and to enable the 3RS at the HKIA to progressively achieve the target runway capacity of 102 air traffic movements per hour in the long term; and that seizing the opportunities of the development plan for a city cluster in the Guangdong-Hong Kong-Macao Bay Area, both sides will define the respective functions and positioning of each airport in the region in accordance with their unique nature and strength, thereby enhancing the transport competitiveness for the whole PRD region.

Furthermore, the CAD, the ATMB of CAAC and the CAAM entered into a Memorandum of Co-operation in July 2017 to further enhance the efficiency of air traffic management in the PRD region. Under the Memorandum of Co-operation, it is agreed to jointly (a) enhance the regular and emergency exchange and co-ordination mechanism on air traffic flow management to enhance operational efficiency of flights; (b) promote automated work processes on flight co-ordination; and (c) initiate modelling and simulation of the airspace and air traffic in the Guangdong-Hong Kong-Macao Bay Area by using advanced technology to provide reliable, precise and detailed analysis for planning and formulating air traffic management procedures and measures. The CAAC also agreed to accord priority to flights to and from the airports in Hong Kong and Macao in terms of air traffic flow management.

During 2018-19, the CAD will continue to follow up the above work plan with ATMB and CAAM in respect of PRD airspace optimisation, airspace capacity enhancement and improvement in air traffic flow management in accordance with the framework of the Memorandum of Co-operation. These initiatives would help achieve the ultimate target runway capacity of 102 air traffic movements per hour under the 3RS operation at the HKIA, and achieve greater synergy in the Bay Area airspace and create an airport economic belt with international influence.

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 high-level meetings have been uploaded to the CAD website (http://www.cad.gov.hk/english/home.html). The CAD will continue to keep the public informed of the progress made on optimising airspace management of the PRD region.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 6092)

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:

In view of the global development trend of major airports, an increasing number of commercial flights will change to satellite-based accurate navigation in the approach/departure procedures. However, the Civil Aviation Department (CAD) has yet to take proactive actions to apply this technology and develop more flight paths for aircraft approach or departure in limited airspace. Will the Government inform this Committee of the following:

(1) For the work to refine air traffic operating procedures and improve air traffic control and air navigation facilities, what will be the provision earmarked in the Budget this year?

(2) Though the Airport Authority has plans to include controllers responsible for "surface control" in its establishment, there has been a great shortage of air traffic control officers. Will the Government inform this Committee whether the CAD will improve the pay package of air traffic control officers or expand the training schemes for local air traffic control officers so as to retain talents; and of the average remuneration of local air traffic control officers in the past three years?

(3) The time-keeping performance of airlines and other aircraft operators is affected by limitations posed by the existing aircraft stands. Will the Government inform this Committee of the provision in the Budget this year earmarked for the CAD to monitor the time-keeping performance; and whether the existing air traffic control system has been able to automatically perform the monitoring and statistical work so that no additional provision has to be earmarked in the Budget?

Asked by: Hon MO Claudia (Member Question No. (LegCo use): 110)
Reply:

(1) The CAD utilised satellite-based navigation technology and implemented the first set of satellite-based flight procedures at the Hong Kong International Airport (HKIA) in 2006, in line with the roadmap promulgated by the International Civil Aviation Organization with regard to the use of new air navigation technologies. Since then,

the CAD has taken heed of the latest satellite-based navigation capability and progressively optimised the design of flight paths and flight procedures, which resulted in enhancement to flight safety and operational efficiency. Currently, satellite-based flight procedures, including approach and departure procedures, are implemented at the HKIA, which is the world's busiest cargo airport and the third busiest international passenger airport.

In 2018-19, the CAD will continue to implement a number of enhancement measures to improve air traffic management efficiency, including the refinement of air traffic operating procedures to enhance flight safety and air-route capacity of the Hong Kong Flight Information Region (HKFIR).

The above work is undertaken by existing staff of the CAD as part of their normal duties under Programme (3), and there are no additional expenses involved.

Regarding improvement of air navigation facilities, the CAD continues to implement the latest satellite-based technology in enhancing flight tracking capabilities and flight safety. An estimated expenditure of $0.35 million will be incurred in 2018-19. The CAD will continue its effort to bring in the latest technology gradually through a replacement plan for the existing air navigation facilities, including off-airport communications, navigation and surveillance system.

(2) The CAD regularly reviews the manpower of air traffic controllers in order to cope with the growth in air traffic at the HKIA as well as within the HKFIR. There are currently 90 Air Traffic Control Officers III (ATCOs III) and Student Air Traffic Control Officers (SATCOs) [training ranks in the Air Traffic Control Officer (ATCO) grade] in the CAD establishment. The majority of ATCO IIIs and SATCOs are undergoing various stages of specialised training for taking up air traffic control duties. To fill anticipated vacancies as a result of retirement in the ATCO grade and to cope with the anticipated growth in air traffic, the CAD plans to recruit 42 ATCO IIIs/SATCOs in 2018-19.

The annual salaries in term of notional annual mid-point salary for the ATCO grade at different ranks in the past three years are:

Rank	2015-16 ($)	2016-17 ($)	2017-18 ($)
ATCO I	1,309,080	1,363,920	1,389,540
ATCO II	1,013,760	1,056,240	1,076,100
ATCO III/SATCO	441,300	461,970	475,560

The remuneration of the ATCO grade officers is subject to the review arrangement of the civil service mechanism.

(3) The on-time-performance of airline operations is subject to a number of factors, such as weather, serviceability of aircraft and airlines' ad hoc service changes.

The existing software of the CAD is capable of producing the on-time-performance statistical data of airline operations.

Monitoring of the time-keeping performance of airlines and other aircraft operators is undertaken by the existing CAD staff as part of their normal duties under Programme (5). There is no separate breakdown of expenditure for such work.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 5863)

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:

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

Asked by: Hon OR Chong-shing, Wilson (Member Question No. (LegCo use): 55)

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 on 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 five 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
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	173 816	+0.6%	50 649	29%
2017-18 (Up to 31 January 2018)	149 475	---	53 720	36%

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

(Question Serial No. 6061)

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:

The Civil Aviation Department (CAD) is responsible for monitoring the performance and operations of the new Air Traffic Control (ATC) system. In this connection, will the Government inform this Committee of the following:

(1) The CAD will enhance the performance of the new ATC system in 2018-19. What are the details of the enhancement work? Why is it necessary to carry out enhancement? What are the objectives to be achieved? What is the expected completion time of the work? How much money has been earmarked for carrying out such work?

(2) There were media reports earlier that the technical issues of the new ATC system were deteriorating, including slow system operation, frozen screens, software applications not responding to mouse and keyboard commands, and failures in immediate flight data updating, etc. Will the Government provide details on various technical incidents experienced by the new ATC system since it commenced operation, including the type and number of incidents, using the table below?

Technical incident	Number of occurrences per year					
	2013	2014	2015	2016	2017	2018
Workstations not responding to mouse or keyboard commands						
Displays of target flights frozen on screens						
Slow screen responses						
Slow operation at workstations						
Slow flight data updating						

Mouse operation failed in some screen areas						
Workstations responded to mouse commands very slowly						

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. (LegCo use): 419)

Reply:

The new ATC system is implemented in two phases through eight 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 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.

Since the full commissioning of the new ATC system, despite the fact that the ATMS encountered several teething issues which neither affected aviation safety nor posed any substantial impact on the overall operation of the Hong Kong International Airport (HKIA), it has been operating smoothly in general. The ATMS had successfully handled the increased traffic during the traditional busy travel periods of Christmas, New Year, Lunar New Year, Easter, and summer holidays. Weather-wise, there had been an unusually high number of occurrences of significant weather (including five tropical severe storms and severe/super typhoons) in the past year in Hong Kong. Notwithstanding, a record high figure of 2 341 total movements was recorded over a 24-hour period on 24 August 2017 as the HKIA recovered from the impact of Super Typhoon HATO. The ATMS had successfully handled the peak air traffic flow and overcome the challenges brought by adverse weather. In 2017, the total number of aircraft movements handled by the ATMS increased by 7.6% as compared with 2016, affirming the performance of the ATMS and front-line air traffic controllers.

The CAD has all along been keeping the public informed of the operation of the ATMS in an open and transparent manner, including the occasional teething problems during the initial period after the full commissioning of the new system through various channels (including press releases and media meetings)[1]. Since the full commissioning of the ATMS on 14 November 2016, there were seven cases of individual screen/keyboard/mouse not being responsive to commands. During the occurrences, all flight targets and data were shown on the screen. Aviation safety was not affected in all these incidents. Without affecting the operation of the air traffic control, the maintenance staff rebooted individual workstation concerned during period with relatively low air traffic flow. The individual workstation concerned resumed smooth operation after rebooting. The CAD continues to carry out regular housekeeping procedures of the ATMS and its sub-systems in accordance with the requirements of aviation safety management, the recommendations

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

of the system contractor as well as the experience gained from actual operation. The CAD does not have a complete statistic of individual screen/keyboard/mouse not being responsive to commands from 2013-2016.

An expert panel comprising local and overseas experts, set up by the CAD, has evaluated the above cases of individual screen/keyboard/mouse not being responsive to commands and confirmed that these cases did not undermine aviation safety. The expert panel noted that with the proactive measures, the number of reports of individual screen/keyboard/mouse not being responsive to commands had been kept to a relatively low level considering CAD's sizeable ATC operation. The expert panel remarked that the overall performance of the ATMS was satisfactory and smooth after a run-in period. The expert panel also considered that the performance of the ATMS has exceeded international requirements. For details, please refer to the expert panel's final report (www.cad.gov.hk/english/reports.html).

The CAD will continue to closely monitor the performance of the ATMS and optimise the system to enhance its functions in order to cope with increasing air traffic in the future. During the process, 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.

In the light of the challenges brought about by fast growing air traffic, particularly with the expansion of the HKIA, the ATC system has to be optimised and enhanced when circumstances warrant – for instance, to meet the latest requirements of the International Civil Aviation Organization, to enhance efficiency by introducing new features progressively according to operational necessity, and to support the long-term air traffic control manpower plan. The expert panel recommended the CAD to closely monitor developments and fine-tune and/or upgrade the ATMS on an on-going basis in maintaining the capability and resilience of the ATMS on a sustained basis. The CAD will keep reviewing the situation and seek the required funding in accordance with established mechanism for the optimisation and enhancement work as and when necessary.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 6062)

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:

Under Programme (3) of the estimates, the Civil Aviation Department (CAD) pointed out that the Government would co-ordinate with neighbouring Area Control Centres to optimise the airspace of the Pearl River Delta (PRD) region in 2018-19. In this connection, will the Government advise this Committee on:

1. whether the CAD has discussed with the civil aviation authorities of the Mainland on the rationalisation and optimisation of the airspace design of the PRD region and the airspace issue of the Three-runway System (3RS) in the past three years; the annual number and actual achievements of the discussions; and the staffing provision involved;
2. the actual details of the Government's plan on optimising the airspace in the coming year; and the objectives to be achieved?

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. (LegCo use): 420)

Reply:

(1) 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 region. 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, the establishment of peripheral flight paths in the PRD region, the adjustment of the Zhuhai airspace structure, etc.

In May 2016, the Air Traffic Management Bureau (ATMB) of the CAAC, the CAD and the CAAM signed an agreement on establishing a strengthened liaison mechanism

to enhance co-operation and exchange. Under the mechanism, senior management of the Mainland, Hong Kong and Macao meet regularly at the biannual high-level meetings which are hosted by the three sides on a rotational basis to further strengthen tripartite co-operation.

Through this tripartite co-ordination mechanism, the Mainland, Hong Kong and Macao will continue to promote synergy and foster co-operation, take forward the airspace enhancement measures and implement the Plan progressively in a gradual and orderly manner, so as to achieve the healthy and orderly development of the airports in the PRD region, and enable the 3RS of the Hong Kong International Airport (HKIA) to maximise its potential to progressively achieve the target runway capacity of 102 air traffic movements per hour in the long run.

Over the past three years, the three sides held a total of 23 meetings at different levels. A breakdown by year is as follows:
2015-16: Nine meetings
2016-17: Six meetings
2017-18: Eight meetings (as at 15 March 2018)

As a further step in setting objectives for the future development of air navigation services and airspace in the region, the Director-General of Civil Aviation and the Director-General of the ATMB of CAAC signed a joint statement on supporting the sustainable development of air navigation services and airspace in the PRD region in May 2017. In the statement, it is stated that in accordance with the National 13th Five-Year Plan's goal to construct a cluster of world-class airports in the PRD, both sides will make the utmost effort to help take forward the expansion plans for the five major airports in the region and to enable the 3RS at the HKIA to progressively achieve the target runway capacity of 102 air traffic movements per hour in the long term; and that seizing the opportunities of the development plan for a city cluster in the Guangdong-Hong Kong-Macao Bay Area, both sides will define the respective functions and positioning of each airport in the region in accordance with their unique nature and strength, thereby enhancing the transport competitiveness for the whole PRD region.

Furthermore, the CAD, the ATMB of CAAC and the CAAM entered into a Memorandum of Co-operation in July 2017 to further enhance the efficiency of air traffic management in the PRD region. Under the Memorandum of Co-operation, it is agreed to jointly (a) enhance the regular and emergency exchange and co-ordination mechanism on air traffic flow management to enhance operational efficiency of flights; (b) promote automated work processes on flight co-ordination; and (c) initiate modelling and simulation of the airspace and air traffic in the Guangdong-Hong Kong-Macao Bay Area by using advanced technology to provide reliable, precise and detailed analysis for planning and formulating air traffic management procedures and measures. The CAAC also agreed to accord priority to flights to and from the airports in Hong Kong and Macao in terms of air traffic flow management.

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.

(2) During 2018-19, the CAD will continue to follow up the above work plan with ATMB and CAAM in respect of PRD airspace optimisation, airspace capacity enhancement and improvement in air traffic flow management in accordance with the framework of the Memorandum of Co-operation. These initiatives would help achieve the ultimate target runway capacity of 102 air traffic movements per hour under the 3RS operation at the HKIA, achieve greater synergy in the Bay Area airspace and create an airport economic belt with international influence.

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 high-level meetings have been uploaded to the CAD website (http://www.cad.gov.hk/english/home.html). The CAD will continue to keep the public informed of the progress made on optimising airspace management of the PRD region.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. 6064)

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 three 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. (LegCo use): 422)

Reply:

1. The numbers of reports received under the mandatory occurrence reporting scheme over the past three years are tabulated below:

Year	Number of reports
2015	842
2016	810^
2017	779*

^ The figure of 2016 has been revised as the grading of several incidents was adjusted based on the seriousness and nature of the incidents further to investigation by the CAD.

* The figure of 2017 is subject to change upon completion of investigation of all incidents reported under the mandatory occurrence reporting scheme by the CAD.

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 is coordinated and managed by two designated officers (one Senior Operations Officer and one Operations Officer) of the Flight Standards Office of the CAD. Depending on the nature of the incident, the report will be referred to the respective division for follow-up.

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CONTROLLING OFFICER'S REPLY

(Question Serial No. 6065)

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) stated that the satellite-based "Automatic Dependent Surveillance-Broadcast" (ADS-B) would be fully implemented in the new ATMS in late 2017. Will the Government advise this Committee on:

(1) whether the satellite-based ADS-B has been fully implemented in the new ATMS. If yes, what are the details? If no, what are the reasons?

(2) the operating expenses, staff establishment and salary expenditure for adopting the satellite-based ADS-B as compared to those for adopting radar technology?

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. (LegCo use): 423)

Reply:

The new ATMS, which was put into full operation on 14 November 2016, had successfully handled the increased traffic during the traditional busy travel periods of Christmas, New Year, Lunar New Year, Easter, and summer holidays. Weather-wise, there had been an unusually high number of occurrences of significant weather (including five severe tropical storms and severe/super typhoons) in the past year in Hong Kong. Notwithstanding, a record high figure of 2 341 total movements was recorded over a 24-hour period on 24 August 2017 as the Hong Kong International Airport recovered from the impact of Super Typhoon HATO. The new ATMS had successfully handled the peak air traffic flow and overcome the challenges brought by adverse weather. In 2017, the total number of aircraft movements handled by the new ATMS increased by 7.6% as compared with 2016, affirming the performance of the new ATMS and front-line air traffic controllers.

It should be noted that some teething issues encountered by the new ATMS occasionally were caused by the limitations of radar surveillance technology (e.g. aircraft positions temporarily not displayed on the radar screens, split tracks and false targets). Specifically, the limitations of radar technology refer to radar signal interference by external factors and/or moving obstacles or terrain, occasional problems of aircraft transponders, etc, affecting the

display of aircraft positions on the radar screens. Any ATMS, regardless of the brand, would encounter this situation. This phenomenon is not unique to the new ATMS and is also observed in ATMS elsewhere and in the old ATMS of the CAD. To overcome the limitations of sole dependence on radar surveillance technology, the International Civil Aviation Organization advocates the implementation of the satellite-based ADS-B technology in all member states/regions, concurrently with radar surveillance technology. The CAD had successfully fully integrated ADS-B technology into the new ATMS, which enhances the surveillance of the aircraft. As a result, the average number of split tracks, false targets and aircraft positions temporarily not being displayed decreased from 3.4, 8.6 and 1.9 times per week during the initial operation of the new ATMS from November 2016 to March 2017 to 0, 1.6 and 0.2 times per week respectively between December 2017 and February 2018. The CAD plans to further extend the application of ADS-B to cover the entire Hong Kong Flight Information Region in 2018-19. The CAD will continue its efforts to closely monitor the overall ADS-B performance.

In 2018-19, 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 $27.5 million and $4.6 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.

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CONTROLLING OFFICER'S REPLY

(Question Serial No. 6067)

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 for air traffic control, please inform this Committee of:

(a) the number of staff involved in the work under this Programme in the past three years; please set out in tabular form the types of employment, ranks and expenditure involved;

(b) the statistics on overtime work of these officers by types of employment and ranks in the past three 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. (LegCo use): 425)

Reply:

(1) 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 three years are tabulated below:

	2015-16		**2016-17**		**2017-18**	
	No. of Staff	**Salary cost ($million)**	**No. of Staff**	**Salary cost ($million)**	**No. of Staff**	**Salary cost ($million)**
Air Traffic Control Officer Grade	276	214.8	277	223.0	293	227.1
Air Traffic Flight Services Officer Grade	110	45.8	110	47.5	112	48.1

Aeronautical Communications Officer Grade	65	27.7	65	28.7	65	28.9
Operations Officer Grade	8	6.7	8	6.9	8	7.0
Total:	**459**	**295.0**	**460**	**306.1**	**478**	**311.1**

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

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

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CONTROLLING OFFICER'S REPLY

(Question Serial No. 6068)

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 80 non-directorate posts and 2 directorate posts in 2018-19. Please set out the post titles and job nature of these newly created posts.

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. (LegCo use): 426)

Reply:

The creation of 82 civil service posts by the CAD aims to (i) cope with continuous growth in air traffic and provide support to the Three-runway System (3RS) Project which is being implemented by the Airport Authority; (ii) cope with increasing workload and ad hoc projects in relation to the rapid development of the aviation industry arising from, specifically, increase in inspections of flights and aircraft airworthiness and air services and safety management; and (iii) enhance support to the International Civil Aviation Organization (ICAO) initiatives such as implementing aviation safety initiatives and providing technical assistance to other ICAO Member States in aspects of personnel training, regulatory approvals and safety oversight system, etc., with a view to raising Hong Kong's profile at ICAO and the international arena.

The duties, rank, nature and number of civil service directorate and non-directorate posts are as follows:

Duties	Rank	Nature	Number of Posts
To cope with growth in air traffic and provide support to the 3RS Project	Chief Air Traffic Control Officer (directorate post)	Time-limited (7 years)	1
	Chief Air Traffic Control Officer (directorate post)	Permanent	1
Total number of directorate posts:			2

Duties	Rank	Nature	Number of Posts
To cope with growth in air traffic and provide support to the 3RS Project	Air Traffic Control Officer I	Permanent	2
	Air Traffic Control Officer II	Permanent	1
	Air Traffic Control Officer III/Student Air Traffic Control Officer	Permanent	10
	Air Traffic Control Officer III/Student Air Traffic Control Officer	Time-limited (8 years)	10
	Air Traffic Flight Services Officer I	Permanent	10
	Air Traffic Flight Services Officer II/Air Traffic Flight Services Officer III	Permanent	2
	Senior Operations Officer	Permanent	1
	Operations Officer	Permanent	4
	Assistant Operations Officer	Permanent	6
	Senior Electronics Engineer	Permanent	2
	Electronics Engineer/Assistant Electronics Engineer	Permanent	6
	Electronics Engineer/Assistant Electronics Engineer	Time-limited (7 years)	2
	Senior Electrical and Mechanical Engineer	Time-limited (7 years)	1

Duties	Rank	Nature	Number of Posts
	Building Services Inspector	Time-limited (7 years)	1
	Senior Executive Officer	Permanent	1
	Executive Officer I	Permanent	2
	Executive Officer II	Permanent	1
	Principal Information Officer	Permanent	1
To cope with increasing workload and ad hoc projects in relation to the expansion of aviation industry	Senior Operations Officer	Permanent	2
	Operations Officer	Permanent	4
	Assistant Operations Officer	Permanent	3
	Executive Officer I	Permanent	1
	Clerical Officer	Permanent	2
	Assistant Clerical Officer	Permanent	1
To enhance support to ICAO initiatives with a view to raising Hong Kong's profile at ICAO	Senior Operations Officer	Permanent	1
	Electronics Engineer/Assistant Electronics Engineer	Permanent	1
	Operations Officer	Permanent	1
	Air Traffic Control Officer II	Permanent	1
Total number of non-directorate posts:			80

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CONTROLLING OFFICER'S REPLY

(Question Serial No. 6141)

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:

The Civil Aviation Department (CAD) is responsible for "overseeing the enhancement and maintenance of Air Traffic Control (ATC) facilities". Regarding the maintenance of the new Air Traffic Management System (ATMS),

- If contractor services are required for system maintenance, debugging or updating (including hardware and software), etc., what are the contract conditions and the formulae for calculating the required payments?
- Further to the first question, do the contracts contain any conditions on calculating the payments based on the number of services provided? If yes, what are the details? Do the conditions specify the number of services covered and the payments for subsequent services, and what are the details?
- Further to the second question, what are the respective figures on used and unused services?
- Did the Government procure additional services in the past? If yes, what were the time of procurement, types of services procured, number of services available and expenditure involved?
- What were the respective numbers of services provided by the contractors and the relevant expenditure since the full commissioning of the ATC system?

Asked by: Hon TAM Man-ho, Jeremy (Member Question No. (LegCo use): 322)

Reply:

The new ATC system is implemented in two phases through eight major system contracts, including the commissioning of a new 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 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.

Since the full commissioning of the new ATC system, despite the fact that the ATMS encountered several teething issues which neither affected aviation safety nor posed any substantial impact on the overall operation of the Hong Kong International Airport (HKIA), it has been operating smoothly in general. The ATMS had successfully handled the increased traffic during the traditional busy travel periods of Christmas, New Year, Lunar New Year, Easter, and summer holidays. Weather-wise, there had been an unusually high number of occurrences of significant weather (including five severe tropical storms and severe/super typhoons) in the past year in Hong Kong. Notwithstanding, a record high figure of 2 341 total movements was recorded over a 24-hour period on 24 August 2017 as the HKIA recovered from the impact of Super Typhoon HATO. The ATMS had successfully handled the peak air traffic flow and overcome the challenges brought by adverse weather. In 2017, the total number of aircraft movements handled by the ATMS increased by 7.6% as compared with 2016, affirming the performance of the ATMS and front-line air traffic controllers.

The hardware and software maintenance of the ATMS consists of two levels, i.e. day-to-day/frontline maintenance, and faults/deficiencies identification and rectification. The scope of contracts and the provision of hardware and software maintenance services are specified in the relevant contracts. These services are time-based and cover all the follow-up work needed on a continuous basis.

The maintenance of the ATMS is part of the regular work of the CAD and, as such, do not entail additional civil service staff costs. The total maintenance costs for the ATMS (Phase 1) in 2017-18 and 2018-19 are $16.94 million (actual) and $18 million (projected) respectively. Software updates relating to faults/deficiencies identification and rectification are included in the services covered by the contract within the software warranty period without additional expenses involved.

- End -

CONTROLLING OFFICER'S REPLY

(Question Serial No. SV015)

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:

Follow-up question to Reply Serial No. THB(T)002:

What is the percentage of the five posts to be created in the Flight Standards and Airworthiness Division of the Civil Aviation Department (CAD) in 2018-19 in the relevant establishment?

Asked by: Hon CHAN Chun-ying

Reply:

The CAD will create five new posts in the Operations Officer grade (i.e. two Senior Operations Officers, two Operations Officers and one Assistant Operations Officer) under the Flight Standards and Airworthiness Division in 2018-19. Based on the establishment as at 31 March 2018, these five new posts account for 11% of the establishment of the ranks concerned in the Division.

- End -