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Legislative Council

LC Paper No. CB(1)1311/06-07
(These minutes have been seen by the Administration)

Ref : CB1/PL/ES/1

Panel on Economic Services

Minutes of meeting
held on Monday, 26 February 2007, at 10:45 am
in the Chamber of the Legislative Council Building

Members present	**:**	Hon Jeffrey LAM Kin-fung, SBS, JP (Chairman) Hon Abraham SHEK Lai-him, JP (Deputy Chairman) Hon James TIEN Pei-chun, GBS, JP Ir Dr Hon Raymond HO Chung-tai, SBS, S.B.St.J., JP Dr Hon David LI Kwok-po, GBS, JP Hon Fred LI Wah-ming, JP Dr Hon LUI Ming-wah, SBS, JP Hon SIN Chung-kai, JP Hon Howard YOUNG, SBS, JP Hon LAU Chin-shek, JP Hon Miriam LAU Kin-yee, GBS, JP Hon Vincent FANG Kang, JP Hon Andrew LEUNG Kwan-yuen, SBS, JP Hon WONG Ting-kwong, BBS Hon Ronny TONG Ka-wah, SC Hon CHIM Pui-chung Hon KWONG Chi-kin Hon TAM Heung-man
Member absent	**:**	Hon CHAN Kam-lam, SBS, JP
Public officers attending	**:**	Agenda Item IV Ms Eva CHENG Permanent Secretary for Economic Development and Labour (Economic Development)

Mr Howard LEE
Deputy Secretary for Economic Development and Labour (Economic Development)

Mr LAM Chiu-ying
Director
Hong Kong Observatory

Dr WONG Ming-chung
Assistant Director (Forecasting and Warning Services)
Hong Kong Observatory

Agenda Item V

Ms Eva CHENG
Permanent Secretary for Economic Development and Labour (Economic Development)

Mr Michael WONG
Deputy Secretary for Economic Development and Labour (Economic Development)

Mr Francis CHENG
Principal Assistant Secretary for Economic Development and Labour (Economic Development)

Mr Norman LO
Director-General of Civil Aviation

Mr Anthony TAM
Assistant Director-General of Civil Aviation (Airport Standards)

Clerk in attendance : Ms Connie SZETO
Chief Council Secretary (1)6

Staff in attendance : Ms Debbie YAU
Senior Council Secretary (1)1

Ms Michelle NIEN
Legislative Assistant (1)9

Action

I Confirmation of minutes and matters arising

(LC Paper No. CB(1)992/06-07 - Minutes of meeting held on 21 December 2006)

The minutes of the meeting held on 21 December 2006 were confirmed

II Information papers issued since last meeting

(LC Paper No. CB(1)875/06-07(01) *(issued via e-mail)* - Tables and graphs showing the import and retail prices of major oil products from January 2005 to December 2006 furnished by the Census and Statistics Department)

2. Members noted the above information paper issued since last meeting.

III Items for discussion at the next meeting

(LC Paper No. CB(1)966/06-07(01) - List of outstanding items for discussion

LC Paper No. CB(1)966/06-07(02) - List of follow-up actions)

3. Members agreed to discuss the following items proposed by the Administration at the next meeting to be held on Monday, 26 March 2007, at 10:45 am:

(a) Auto-fuel prices and fuel surcharges on air passengers; and

(b) Report on the public consultation exercise on the way forward for competition

4. On 3(a), Mr Andrew LEUNG enquired whether oil companies and airlines would be invited to join the discussion of the item. Mr WONG Ting-kwong said that the Panel should invite representatives of major oil companies to attend the meeting although they might not disclose sensitive information relating to their operation, such as import oil prices. Mr Howard YOUNG suggested that instead of inviting individual airlines, the Panel should consider inviting representatives of the Board of Airline Representatives Hong Kong (BARHK) to join the discussion. Members agreed that major oil companies in Hong Kong and BARHK be invited to attend the meeting for this item.

IV Modifications to the Tropical Cyclone Warning System
(LC Paper No. CB(1)966/06-07(03) - Information paper provided by the Administration)

Briefing by the Administration

5. At the invitation of the Chairman, the Director of the Hong Kong Observatory (D/HKO) briefed members on the changes to the Tropical Cyclone Warning System (TCWS) the HKO planned to implement from the coming tropical cyclone season. The background and implementation details were as follows:

(a) Since 1970s, wind speeds in the Victoria Harbour had been used as the reference for the issue of both No. 3 and No. 8 signals. However, after the passage of Typhoon Prapiroon in early August 2006, the HKO had received a lot of comments that the existing criterion for the issue of No. 8 signal should be updated to reflect the much dispersed population nowadays and to alert the public to potential significant disruptions to air traffic due to tropical cyclones;

(b) Against the background in (a), the HKO had conducted a comprehensive review of the existing TCWS. The HKO had formed an Academic Advisory Committee comprising scholars and experts for seeking advice from the perspectives of physical and social sciences disciplines. It had also held many seminars and focus group meetings with relevant sectors to consult their views and commissioned a public opinion survey to gauge the needs and expectations with respect to the TCWS;

(c) With reference to the views collected, the HKO had concluded the following key public expectations about the review of the TCWS:

(i) The TCWS should reflect the general wind condition of the whole territory and continue to be based on data and science;

(ii) Safety was the key concern and the public should be provided with information required to formulate appropriate response;

(iii) The TCWS should not result in excessive over-warning so as to avoid diminishing its value as an alert and causing unnecessary disruptions to society; and

(iv) The TCWS should be as simple as possible and changes should require minimal adjustment by the public; and

(d) On modifications to the existing TCWS, the HKO planned to:

(i) expand the reference for the issue of No. 3 and No. 8 signals from the Victoria Harbour to a network of eight near-sea level reference anemometers covering the whole of Hong Kong;

(ii) issue No. 3 or No. 8 signals if half or more of the anemometers in the reference network met or were expected to meet the respective wind speed threshold values and the wind condition was forecast to persist;

(iii) enhance dissemination of regional wind information; and

(iv) add an advisory to its tropical cyclone bulletin that the travelling public check with airlines before departing for the airport when weather conditions likely to cause significant disruptions to air traffic were expected.

6. D/HKO further advised that the planned changes to the existing set of tropical cyclone signals involved only revising the technical reference the HKO used in deciding on the issue of No. 3 and No. 8 signals. To the general public, the same set of signals would continue to be used. It was expected that there was no need for changes to tropical cyclone-related response plans or guidelines by both the Government and the private sector. The HKO would carefully assess the effectiveness of the above changes in the light of practical experiences and comments received after the coming tropical cyclone season. Where necessary, further adjustment and improvements would be made.

Discussion

New advisory for air passengers

7. Noting that under the same weather condition, individual airlines might come to different decisions on whether to cancel or divert flights, Mr Howard YOUNG enquired whether the airlines would collect weather information by their own for reference in making decisions on flight operations in addition to the information provided by the HKO. Mr YOUNG was also concerned how the HKO could avoid giving out confusing messages to air passengers.

8. In response, D/HKO advised that the HKO operated a dedicated system to provide detailed meteorological information and forecast at the Hong Kong International Airport (HKIA), including wind direction, wind speed and wind conditions like crosswind, turbulence or wind shear. He stressed that decisions on flight cancellation or diversion in case of poor weather condition rested with individual airlines whereby such decisions were usually made taking into account the types of aircrafts involved. The HKO had reviewed the operational arrangements at HKIA with the Airport Authority Hong Kong (AAHK) and airlines. In essence, agreement had been reached under which if the crosswind over the

airport runways had reached a certain threshold, the HKO would add an advisory to its tropical cyclone bulletin that the travelling public should check with their airlines on the flight arrangements before departing for the airport. The HKO would not announce on behalf of the airlines on flight cancellation. In reply to the Chairman on the adequacy of weather information provided by the HKO to airlines, D/HKO stressed that all along, HKO had maintained on-going communication with its customers, including the airlines, and provided them with adequate and accurate information for flight operations.

Reference for the issue of No. 3 and No. 8 signals

9. Members noted that applying the revised indicators to the 46 tropical cyclones that had affected Hong Kong and necessitated the issue of No. 1 signal or above during the period from 1998 to 2006, the changes would have resulted in an estimated increase of four days with No. 8 signal over the nine-year timeframe. Mr SIN Chung-kai expressed concern that adoption of the revised indicators for the issue of No. 8 signal might increase the frequency and duration for issuing No. 8 signal. In this connection, he enquired whether the duration of those No. 8 signals issued in the nine-year period concerned would be lengthened using the revised indicators.

10. D/HKO clarified that the increase of four days with No. 8 signal upon the application of the revised indicators was an estimation and the duration of the signal in each of the four days might vary, depending on the actual circumstances. At members' request, D/HKO agreed to provide information on the impact of applying the revised indicators in respect of the frequency and duration of those tropical cyclones which had affected Hong Kong during the nine-year period. D/HKO further explained that the estimation had in fact involved the forecast made by HKO staff based on objective technical data as well as other factors such as safety considerations in deciding the issue of No. 8 signal.

(*Post-meeting note*: The information provided by the HKO was circulated to members vide LC Paper No. CB(1)1132/06-07(01) on 13 March 2007.)

11. Mr WONG Ting-kwong expressed the support of the Democratic Alliance for the Betterment and Progress of Hong Kong for the proposal to modify the TCWS as it had taken account of the dispersed population in Hong Kong and acknowledged the fact that economic and social activities were not only confined to both sides of the Victoria Harbour. As the decision to issue No. 3 or No. 8 signal would still involve personal judgment under the modified system, Mr WONG was concerned how HKO could minimize subjective assessment in making weather forecasts.

12. D/HKO highlighted the capability of Numerical Weather Prediction (NWP) model to simulate the future movement of tropical cyclones. Furthermore, unlike in the past where ship observations were the primary source of information on the location and strength of tropical cyclones, the direction and speed of the winds around a tropical cyclone could now be measured by satellite. The NWP model,

together with daily satellite data, enabled HKO's forecasters to predict as objectively as possible the movement, speed and wind distribution of the tropical cyclones.

13. As many local economic activities, including the stock market, would suspend operation once the No. 8 signal was issued, Mr WONG Ting-kwong emphasized the importance to strike a balance between ensuring public safety and avoiding causing unnecessary disruptions to economic and social activities.

14. D/HKO recapped that consultation with the public and relevant sectors on the review of the TCWS had revealed that safety was the primary concern while the system should also avoid causing unnecessary disruptions to society. To strike the balance, the HKO would endeavour to enhance its capability in weather forecasting, in particular in making predictions in wind speed and wind distribution. He elaborated that all along, the HKO had allowed some "leeway" to cater for uncertain circumstances in making weather forecast with a view to ensuring public safety. Such "leeway" had been progressively narrowed over the past years as a result of advancement in HKO's scientific and technological capabilities.

15. Ms Miriam LAU supported the proposed changes to the existing TCWS as it could better reflect the wind condition of different localities of the territory. She however shared members' concern about the possibility of increasing the frequency for issuing No. 8 signal under the modified TCWS, and the resulting disruptions to local economic activities. She stressed that while ensuring public safety, it was also important to ensure that the modified TCWS would not result in excessive over-warning.

16. In response, D/HKO pointed out that if applying the revised indicators, the criterion of No. 8 signal would have been met for four occasions during the period from 1998 to 2006 vis-à-vis three using the existing indicators. However, he anticipated that as technology continued to advance, the HKO would be able to issue warnings of tropical cyclones to reflect more precisely the actual wind condition.

17. Highlighting that the "leeway" in the HKO's forecast had become smaller, D/HKO nevertheless undertook to provide information showing the improvements made in enhancing the accuracy in deciding the issuance of No. 3 and No. 8 signals over the past years.

(*Post-meeting note*: The information provided by the HKO was circulated to members vide LC Paper No. CB(1)1132/06-07(01) on 13 March 2007.)

18. In reply to Ms Miriam LAU's further enquiry, D/HKO confirmed that the pre-notification arrangements of the TCWS remained unchanged and the public would continue to be notified about the issue of No. 8 signal two hours beforehand.

19. As the wind speed collected by the same anemometer might vary significantly within the same hour, the Chairman enquired whether the highest/lowest speed or the average speed recorded would be taken as the reading for an anemometer. To avoid technical error in making weather forecast, he was concerned whether HKO would take other factors into consideration in making forecasts instead of relying on the wind speed threshold alone.

20. D/HKO explained that sustained wind speed was measured as 10-minute averages. If the 10-minute wind speed values measured in the same hour at four or more of the anemometers stations met or were expected to meet the respective wind speed threshold values, the HKO would consider issuing No. 3 or No. 8 signal having regard to other factors such as the persistence of the wind condition. D/HKO elaborated that there were occasions where the tropical cyclones, though far from Hong Kong, had brought rainbands with transient wind speeds meeting the specified thresholds. If the HKO had predicted that such wind speeds would not persist, it would not issue the No. 3 or No. 8 signal. D/HKO remarked that the modified TCWS had already taken into account such circumstances.

21. In reply to the Chairman's further enquiry on whether there were any international standards for TCWS, D/HKO advised that each place had devised its own TCWS having regard to local considerations and factors such as building landscape and building height etc.

22. Mr Howard YOUNG enquired about the mechanism in determining the cancellation of a tropical cyclone signal. D/HKO advised that similarly, data of the 10-minute wind speed collected from the anemometers in the same hour was used in deciding whether to cancel an issued signal. However, if assessment showed that the wind speed might not persist but become higher again within a short duration, the HKO might defer cancellation of the signal to a more suitable timing.

23. Mr Ronny TONG noted that the public in general was more concerned whether there would be any change to their work schedules under the new TCWS. He considered that apart from gales, rainstorms also affected public safety and caused much inconvenience for people in traveling to work or for school, in particular those living in remote areas.

24. The Permanent Secretary for Economic Development and Labour (Economic Development) (PSED) re-iterated that the planned changes to the existing TCWS involved only revising the technical reference the HKO used in deciding on the issue of No. 3 and No. 8 signals. To the public, the same set of signals would continue to be used. There was no need for changes to tropical cyclone-related response plans or guidelines by both the Government and the private sector. D/HKO added that to facilitate the public in formulating their response actions to tropical cyclones, the HKO would further enhance dissemination of regional wind information by, inter alia, highlighting those areas with significantly higher wind speeds in media broadcast; promoting understanding of the modified TCWS and the uneven wind distribution during tropical cyclones;

and encouraging the public to make good use of the full range of weather information on the HKO website and its Dial-a-Weather system.

V Replacement of the Civil Aviation Department (CAD)'s air traffic control system and the development of a new CAD Headquarters on the Airport Island

(LC Paper No. CB(1)966/06-07(04) - Information paper provided by the Administration)

Presentation by the Administration

25. With the aid of power-point presentation, the Assistant Director-General of Civil Aviation (Airport Standards) (ADGCA(AS)) briefed members on the project to replace the existing air traffic control (ATC) system of the Civil Aviation Department (CAD) and the development of a new integrated CAD headquarters on the Airport Island to house the new ATC system and all CAD functional divisions. He also briefed members on the Administration's proposal to create two directorate posts in relation to the ATC replacement project. He highlighted the details as follows:

(a) Growing air traffic

The aircraft traffic at HKIA and overflying traffic through the Hong Kong Flight Information Region (HKFIR) in 2006 were 280 000 (on average 768 daily) and 140 000 (on average 383 daily) movements representing growth of 72% and 95% respectively since the opening of new airport at Chek Lap Kok in 1998. The daily overflying traffic was expected to reach 850 movements by 2020 whereas HKIA would need to handle 1 300 movements per day by 2025. On the traffic growth in airports in the Pearl River Delta (PRD) region, the combined daily movement rate for the five airports, including Hong Kong, Guangzhou, Shenzhen, Macao and Zhuhai, was expected to increase from the present 2 000 to 5 000 movements by 2020. Without replacing the existing ATC system by a more up-to-date system, there would be insufficient system capacity to cope with traffic growth and Hong Kong would be unable to reap the economic benefits brought by increase in air traffic.

(b) Need to replace the existing ATC system

The existing ATC facilities in the ATC centre was designed in early 1990s with a usable life up to around 2012. However, due to limitations in capacity and processing power, the existing system was unable to adopt the latest technology and to provide direct data exchange with surrounding ATC centres. Moreover, there was limited scope for system upgrading and enhancement. In this connection, it was noteworthy that ATC systems used by ATC

authorities in Guangzhou and Shanghai had been enhanced in 2005 while those in Singapore, Taipei and Manila would be progressively enhanced in the next few years.

(c) Need to develop a new CAD headquarters

At present, CAD's headquarters and five functional divisions were scattered among four different locations. This was highly undesirable from the operation angle as it hindered efficient communications, duplicated support services, lengthened emergency response time and prevented CAD from providing convenient one-stop service to the aviation industry and the public. Moreover, there was a lack of space for expansion in the existing ATC complex as well as a lack of suitable area in the vicinity of the ATC complex for expansion. In addition, in-situ replacement of the ATC system was not possible given the limited space and disruption caused to the on-going ATC services. Therefore, it was proposed to develop a new CAD headquarters to house the new ATC system and the whole department. With the consent of the AAHK, a site at the southeastern part of the Airport Island to the north of the Dragonair and China National Aviation Corporation Building had been identified as the location for the new CAD headquarters cum ATC centre. A study completed by the Architectural Services Department in end November 2006 had confirmed that the project at the selected site was technically feasible with no adverse impact on the environment.

(d) Manpower requirement

(i) Having considered the scope and volume of work involved in the ATC replacement project, the Administration proposed to create a dedicated team within CAD to take up the project. A supernumerary directorate officer post of Assistant Director-General of Civil Aviation (ADGCA) (D2) would be created to act as the overall project coordinator and to head the dedicated team comprising 41 non-directorate staff. The post of ADGCA would be created for 5½ years (i.e. from October 2007 to March 2013) as the replacement project needed detailed planning (including adequate contingency planning) and coordination at various stages throughout. All tasks had to be carefully coordinated with thorough risk assessment. Moreover, it was necessary to provide a long period of parallel operations of the existing and the new ATC systems for testing and training.

(ii) The findings of a study in 2000 by the United Kingdom Civil Aviation Authority on Hong Kong's ATC operations had recommended the setting up of an Air Traffic Management Standards Office (ATMSO) to oversee the safety of ATC operations. CAD had since 2003 set up a skeleton unit to perform some of the essential functions on a temporary basis. However, this temporary arrangement had added pressure on the already stringent staffing situation in CAD, particularly with regard to the air traffic control side, and was becoming unsustainable as air traffic at the HKIA and HKFIR continued to grow. With the need to replace the ATC system confirmed, there was a need to establish an ATMSO on a long term basis to be responsible for reviewing the safety standards of the entire ATC system and ensuring compliance with the latest international standards in the run-up to the establishment of the replacement system and beyond. Given the experience and expertise required to perform the key regulatory functions of air traffic control operations, the Administration proposed to create a permanent directorate officer post at the rank of a Chief Air Traffic Control Officer (D1) in the third quarter of 2007 to head the ATMSO.

26. On the financial implications of the proposal, ADGCA(AS) advised that the total capital cost of the whole project was estimated to be $3,155 million including estimates of $1,565 million and $1,590 million for the replacement of the ATC system and building the new CAD headquarters respectively. A detailed break-down of the costs of the individual components of the replacement ATC system was set out in Annex G of the Administration's paper (LC Paper No. CB(1)966/06-07(04)). Detailed break-down of the building project estimate would be given when the Administration made a further funding proposal for the construction of the new CAD headquarters to the Panel in the fourth quarter of 2007.

27. Regarding the implementation plan, ADGCA(AS) advised that the new ATC system would be commissioned in December 2012. It would take more than two years to design and invite tenders for the new ATC system which comprised 17 major sub-systems and several ancillary systems.

(*Post-meeting note:* The softcopy of the presentation material was circulated through e-mail to all Members vide LC Paper No. CB(1)1021/06-07 on 26 February 2007.)

28. Members noted that the Administration planned to submit the proposed creation of the two directorate posts to the Establishment Subcommittee (ESC) of the Finance Committee (FC) for consideration on 25 April 2007 and to seek funding approval from FC on 11 May 2007 for the new ATC system.

Discussion

Development of a new CAD headquarters

29. Expressing support for replacing the existing ATC system, Ms Miriam LAU stressed that HKIA as the best airport in the world should be equipped with a state-of-the-art ATC system. She considered the proposal worth pursuing albeit its high cost. However, Ms LAU was concerned why CAD had not put up the proposal to develop a new CAD headquarters on the Airport Island to co-locate its functional divisions when HKIA was moved to Chek Lap Kok. Mr SIN Chung-kai and Mr Fred LI shared similar concern.

30. The Director-General of Civil Aviation (DGCA) explained that in 1998, HKIA was relocated to the Airport Island under a very tight schedule and CAD's primary concern at that time was to ensure the continuous compliance of aviation safety and security by the airlines and aircraft maintenance organizations at the new airport. Moreover, under the progressive air services liberalization policy, Hong Kong's aviation sector had been growing rapidly since the opening of the new airport and CAD had to expand to cope with the rising demand for its various services. However, it was increasingly difficult to identify suitable offices in the vicinity of the existing CAD's headquarters and functional divisions. The functional divisions of CAD would be even more scattered if the co-location proposal could not be taken forward. DGCA pointed out that scattered accommodation had undermined work efficiency and duplicated administrative and support services. The new CAD headquarters would better meet the long-term growth of the aviation sector in Hong Kong. He acknowledged that should CAD have been able to anticipate the robust growth in air traffic at the time of HKIA's relocation, it would have put up the co-location proposal. DGCA stressed that the co-location project would enhance CAD's productivity through the speedy provision of services and effective regulation of the aviation community, and maximize synergy among the various stakeholders located on the Airport Island.

31. Mr SIN Chung-kai queried why additional space had not been earmarked to cater for the expansion of the existing ATC centre, including housing the replacement ATC system. He also enquired about the usable life of the new ATC system and the disposal of the existing system after replacement.

32. In this connection, the Chairman was concerned whether additional space would be earmarked in the new CAD headquarters to cater for future expansion arising from air traffic growth in the PRD region and the commissioning of a new passenger terminal at HKIA.

33. DGCA advised that in designing the existing ATC system in the early 1990s, 20% to 25% additional space had been reserved for system upgrade and enhancement. In the last eight years, CAD had enhanced its ATC capacity and efficiency several times to meet the demand arising from the rapid growth in air traffic. However, the existing ATC system was approaching its full design/handling capacity and would need to be replaced by a completely new system to meet the needs of growing air traffic. DGCA further advised that as the

replacement ATC system would require a space three times the size of the existing ATC centre and it was necessary to provide on-going ATC services, in-situ replacement of the ATC system was not possible. Moreover, the existing and replacement systems would need to operate in parallel for some time before full transition. As such, CAD had taken the opportunity to develop a new CAD headquarters on the Airport Island to, inter alia, house the replacement ATC system which would likely take up some 75% of the space of the new CAD building.

34. DGCA envisaged that the new ATC system would commence operation by end 2012 with a usable life of about 15 years to around 2027. CAD would consider the need to replace the system again in about 2020. Nevertheless, he assured members that CAD would reserve sufficient space in the new ATC centre for system replacement and office accommodation and no new building would need to be constructed for system replacement. On the disposal of the existing ATC facilities, DGCA explained that it would be deployed as the back-up system for the new ATC system and would be removed after the completion of parallel operation in about six months' time. A new back-up system would then be installed and commissioned in the existing ATC centre.

35. Miss TAM Heung-man enquired about the impact of the new CAD headquarters on the nearby environment and whether the Administration would put in place measures to alleviate such impact. In reply, DGCA remarked that the proposed site had been the most suitable for developing the new CAD headquarters having regard to considerations including environmental impact, staff travelling convenience, availability of other sites in the vicinity of HKIA, and alternative uses of the site for other purposes.

36. Mr Howard YOUNG expressed support for the proposal to replace the ATC system and develop a new CAD headquarters. He agreed that the proposed site which was on the land-side of HKIA was suitable. He sought information on the number of staff who would still be required to work on the restricted air-side after setting up the new CAD headquarters.

37. DGCA pointed out that currently, staff performing ATC functions accounted for 65% of CAD's manpower who were working at the ATC centre located on the restricted air-side, the access to which was subject to time-consuming airport security checks. With the construction of the new headquarters, more than 70% of ATC staff would not be required to work on the restricted air-side.

38. Noting that the existing control tower would be preserved, Ms Miriam LAU enquired about different ATC services to be provided by the existing control tower and the new ATC centre.

39. Mr WONG Ting-kwong expressed the support of the Democratic Alliance for the Betterment and Progress of Hong Kong for the proposal to replace the existing ATC system and develop a new CAD headquarters on the Airport Island. He enquired whether it would be necessary to upgrade services provided by the control tower to tie in with the commissioning of the new ATC system and cater for

the parallel operations of the control tower and the new ATC centre.

40. In response, DGCA highlighted CAD's primary functions including providing ATC services and regulating the civil aviation industry. As the ATC centre controlled air traffic of the entire HKFIR through information gathered by surveillance radars and transmission devices installed at different locations over the territory, the centre could be located away from the air-side of HKIA. The control tower at HKIA only controlled air traffic within its visual range, from which the controllers could have a close and unobstructed view of the runways, taxiways and airport apron. He added that the current control tower and its back-up tower would not be relocated but the equipment at both towers would be upgraded in tandem with the ATC system. Moreover, some modification works would be carried out at the control tower.

41. DGCA further advised that as a regulator of the civil aviation industry, CAD set aviation safety and security standards; ensure the compliance of AAHK, airlines and aircraft maintenance organizations with such standards; and maintained a licensing system for aviation professionals. CAD also participated in the work of the International Civil Aviation Organization (ICAO), implemented ICAO standards and ensured airlines' compliance with the relevant air services arrangements.

Replacement of the ATC system

42. Noting that the existing system, although originally planned to provide service until 2012, had found to be unable to cope with the rising demand, Mr WONG Ting-kwong was concerned that the new ATC system might have a usable life shorter than the expected 15 years. He was therefore keen to ensure that the new ATC system would be a state-of-the-art system in the world.

43. Sharing Mr WONG's view, Mr Howard YOUNG opined that CAD should not lag behind its counterparts in the vicinity in provision of ATC services. Otherwise, Hong Kong would lose its competitive advantage as the regional aviation hub. He also highlighted that the issue of congested air space in the PRD region had received on-going attention of the Liberal Party.

44. DGCA assured members that the new ATC system would adopt the most advanced technology. With increased capacities in data transmission, processing and display power, the new ATC system could provide up to twice the handling capacity of the existing system, thereby meeting the needs of air traffic growth by 2025 as forecast by the AAHK. DGCA advised that the existing ATC system was also the most advanced system of the time when it was designed in the early 1990s. The overall system design and operational requirements were planned to meet an annual forecast traffic of some 200 000 movements in 2005. However, the actual level of aircraft movements had outgrown the projection and reached some 280 000 movements by 2006.

45. Noting that the number of aircraft movements in 2006 was 39% higher than the original projection made in early 1990s, Ms TAM Heung-man was concerned how the Administration would ensure more realistic projections on future aircraft movements.

46. DGCA acknowledged that the projection made in early 1990s might have underestimated the growth in air traffic. In fact, under the progressive air services liberalization policy and given the growing number of low-cost carriers, Hong Kong's aviation sector had been growing rapidly since the opening of the new airport. Following the commissioning of new airports in Guangzhou, Shenzhen and Macao, the PRD region was one of the fastest growing areas for air traffic and the pace of development had far exceeded the Government's forecast in early 1990s. For the past eight years, there was an average annual growth rate of 6% to 7% in air traffic. CAD had worked out the present projected level of aircraft movements by 2025 taking account of the past growth rate and the 5-year forecast in the number of aircraft movements made by the ICAO. DGCA pointed out that apart from the ATC system, other elements including the design of flight procedures, airspace management and manpower support all played a part in the smooth and effective provision of ATC services. He assured members that if these elements were well placed, the new ATC system could meet the estimated traffic growth of 490 000 movements provided in AAHK's long-term development plan – *HKIA 2025*. Nonetheless, CAD would review the situation in the light of actual traffic growth and consider the need for replacing the ATC system again in about 2020.

47. In reply to the Chairman's enquiry on the impact of the Administration's policy on air traffic growth, PSED stressed that it was the Government's policy to promote Hong Kong's aviation industry and reinforce its position as an international and regional aviation hub. However, air traffic growth was subject to a number of factors, including competition among airports in the region and the growth in the Mainland economy.

48. Mr Fred LI expressed concern about the huge capital cost involved in the project. He considered that the cost-effectiveness of the new ATC system linked closely to the growth in air traffic in the future. He noted that the existing ATC system had been subject to additional strain due to the high concentration of airports in the PRD region, which had created a congested airspace that greatly reduced the efficiency of ATC management. Hence, he was of the view that enhancement in airspace management in the PRD region would also be essential apart from enhancing the ATC system.

49. On airspace management over the PRD region, DGCA advised that CAD, General Administration of Civil Aviation of China and Macao Civil Aviation Authority had put concerted efforts in reviewing and refining related arrangements through the tripartite working group formed to explore long-term resolutions of air traffic management over the PRD area. Good progress had been achieved and CAD would continue to work closely with the two authorities to enhance air traffic capacity, flight safety and ensure sustainable air traffic growth within the PRD region. To meet the anticipated air traffic growth in future, DGCA re-iterated that

CAD had proposed to replace the ATC system now as it would take five to six years to commission a new system. It was expected that the new system could be commissioned by end 2012 when the existing system reached the end of its usable life.

50. The Chairman enquired whether CAD would consider connecting its ATC system with those in the PRD region so as to gain synergy through regional cooperation in terms of information sharing and manpower support and training.

51. In response, DGCA said that as the ATC systems used by other civil aviation authorities in the vicinity had been migrated to more up-to-date systems, it was expected that after the commissioning of new ATC system, CAD would be able to exchange operation-related data with its counterparts to strengthen inter-agency coordination with a view to enhancing ATC efficiency. On manpower support, DGCA advised that the matter was under regular assessment in anticipation of increase in air traffic as a result of improvement in airspace management in the PRD region. In reply to Mr Howard YOUNG's enquiry, DGCA confirmed that the new ATC system and CAD's manpower arrangement could cope with the estimated increase in air traffic.

52. Noting that the existing ATC system could not cope with the rising air traffic demand due to limitations in system upgrading and enhancement, Mr Ronny TONG considered this unacceptable because as he understood, sophisticated systems involving huge capital investment like the ATC system should have allowed ample room for subsequent upgrading and enhancement after commissioning. He considered it wasteful to replace the system by a completely new once every 10 to 15 years.

53. DGCA re-iterated that in the past eight years, the existing ATC system had been enhanced several times and such system enhancements had taken up all the space reserved for the purpose in the existing ATC centre. Moreover, designed in early 1990s, the existing ATC system which was run primarily on 486 chips could not support some of the functionalities common in state-of-the-art ATC systems like automatic display of essential flight data to controllers, and was unable to adopt the latest ATC technology. Its inter-operability with the updated systems in neighbouring ATC centres was also constrained. The system was approaching its full handling capacity. For instance, the number of control positions had already been increased to the system limit and new position could hardly be introduced. The supplier of the existing ATC system had suggested a major modification to the system software, which however involved some risks. PSED stressed that despite partial enhancement of the existing ATC system had been carried out in the past years, the system *per se* could no longer cope with the substantial increase in air traffic and a replacement system was needed by around 2012.

54. Mr Ronny TONG was unconvinced and considered that in designing the new ATC system, a much larger scope for system upgrading and enhancement should be considered. This would obviate the need for commissioning a completely new system again in 10 to 15 years' time.

55. DGCA assured members that in awarding the contracts for supplying the various components of the new ATC system, the suppliers would be required to reserve capacity for upgrading/enhancement and provide the necessary technical support. Nevertheless, DGCA advised that given rapid technological advancements nowadays, it was difficult to assure at this stage that the new system would not need to be replaced in the next 10 to 15 years.

Manpower requirements

56. Mr Vicent FANG expressed support for the proposal in the Administration's paper. Noting that the notional annual salary cost of the 23 additional posts of non-directorate supporting staff in the dedicated project team and ATMSO at mid-point was $16.82 million, and the full annual average staff cost, including salaries and staff-on-cost, was $28.79 million, Mr FANG sought details of the staff on-cost which was about 70% of the salaries. In response, DGCA said that staff on-cost included housing allowance and retirement arrangement. He added that the non-directorate posts would be created within the resources allocated to CAD and the necessary provision had been set aside in the 2007 – 2008 draft Estimates for the purpose.

57. Noting that the project team would comprise 41 non-directorate staff and 12 of them would be re-deployed from within CAD, Mr Vincent FANG was concerned about the manpower position in CAD in maintaining quality ATC services.

58. DGCA explained that the proposed new ADGCA would be supported by 41 non-directorate staff comprising mainly Air Traffic Controllers (ATCO) and Electronic Engineers. In the past two years, CAD had recruited more than 10 Student ATCOs and it planned to recruit another 20 in 2007. The newly recruited staff would be trained to take up the duties of the redeployed staff to ensure undisrupted provision of quality ATC services.

59. Mr Abraham SHEK conveyed the support of the Alliance for the project and creation of the two directorate posts, including the proposal of creating the supernumerary ADGCA post for 5½ years to oversee the development of the new CAD headquarters as well as the commissioning of the new ATC system and related staff training. Given the complexity of the project, Mr SHEK said that CAD should ensure that more experienced staff would be redeployed to join the dedicated project team. He also requested CAD to report to the Panel any savings in manpower subsequent to establishing the new CAD headquarters.

60. DGCA stressed that the replacement of ATC system and construction of the new CAD headquarters were key elements of a highly complicated project. It was expected that being the overall project coordinator, the ADGCA post holder would make effort to achieve an early completion of the ATC centre so that the installation, testing and evaluation of the new ATC system could be started as early as possible. DGCA confirmed that more experienced CAD staff would be redeployed temporarily to assist in the dedicated project team. For the next six

years before the completion of the new CAD headquarters, adequate number of Student ATCOs would be recruited to receive on-the-job training, including the operation of the new ATC system, with a view to providing ATC services of a high safety standard. DGCA envisaged that as the co-location arrangement could enhance the work efficiency of CAD, there should be manpower savings in the long-run. He undertook to brief the Panel accordingly in due course.

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Implementation plan

61. Acknowledging the urgency of CAD's proposed project, Mr Vincent FANG opined that the Administration should consider seeking the FC's funding approval for the replacement of ATC system and construction of the new CAD headquarters at the same time, instead of just submitting the proposal to create the two directorate posts and the replacement project in May 2007.

62. DGCA clarified that the Administration planned to submit the proposed creation of the two directorate posts to ESC on 25 April 2007 and the proposal of replacing ATC system to FC on 11 May 2007. It would brief the Panel on the details of the development of the CAD headquarters in the fourth quarter of 2007 and seek funding approval from FC afterwards. He further elaborated on the need to make an early start for the procurement of the ATC system. To ensure the new ATC system could meet the needs of the aviation industry, CAD had set up an internal working group to undertake preparatory work including visiting ATC centres in Guangzhou, Europe and Australia which had installed or were migrating to up-to-date ATC systems. DGCA envisaged that it would take about 30 months to complete the construction of the new CAD headquarters cum ATC centre and a further 21 months or so for transition to and commissioning of the new ATC system, including the installation and integration of the system for testing and evaluation, operational evaluation and controller training.

Impact on charges for ATC services

63. Noting that ATC service charge per flight using HKIA would increase by about 6% while there would be no change in the en-route navigation charge for overflying aircraft, Mr Howard YOUNG considered that the additional costs should be shared among overflying aircraft and aircraft using HKIA in such a way that charges on both types of aircraft would see a similar level of increase.

64. DGCA advised that under the existing "user-pays" principle, the amortized project cost and the recurrent cost for providing air traffic control service would be recovered through the ATC service charges collected from AAHK (which in turn would take into account the ATC service charges when determining the landing charges that it collected from the airline operators) and en-route navigation charges (for overflying aircraft without landing at HKIA) collected directly from airlines by the Government. Currently, overflying aircraft were paying lower charges than aircraft using HKIA because the latter enjoyed a broader range of ATC services. It was also an international practice to charge lower fees for overflying aircraft than aircraft using the airports. On the changes in the charges, DGCA explained that

the number of flights using HKIA was expected to increase from the existing 140 000 to 176 000 movements by 2013, it was likely that the cost per flight would only see a mild increase of about 6% of the existing figure if AAHK fully passed on any additional ATC service charges to the airlines. The cost per flight might be lowered after 2013 should the number of flights using HKIA increase further to the figure projected by AAHK. However, the case for overflying aircraft was different. It was envisaged that the increase in en-route navigation charge arising from the project was expected to be cancelled out by the increased traffic.

Conclusion

65. Summing up, the Chairman said that the Panel supported in principle CAD's proposal to replace the existing ATC system and develop a new CAD headquarters on the Airport Island, including the creation of a supernumerary D2 post to head the project team and a permanent D1 post to lead the ATMSO.

VI Any other business

66. Mr Abraham SHEK requested that the reply provided by the CLP Power to his further enquiries raised in response to the company's information provided subsequent to the Panel meeting on 21 December 2006 be circulated for members' information.

(*Post-meeting note*: Mr Abraham SHEK's letter dated 6 February 2007 and CLP Power's reply thereto were circulated to all Members vide LC Paper No. CB(1)1011/06-07 on 27 February 2007.)

67. There being no other business, the meeting ended at 12:45 pm.

Council Business Division 1
Legislative Council Secretariat
4 April 2007