

**Panel on Economic Development and Panel on Environmental  
Affairs**

**Joint-Panel meetings on 30 September and 7 October 2014:  
Response to the list of follow-up actions**

Our consolidated replies to the list of follow-up actions are set out below.

**(a) Overall Response to Views and Concerns**

2. In summary, many of the Panel members / deputations expressed support for the early implementation of the 3RS project to maintain Hong Kong's status as an aviation hub as well as long term economic competitiveness. They also enquired whether the capacity constraint at the Hong Kong International Airport (HKIA) could be relieved / resolved via means other than the construction of the Three-Runway System (3RS) project. Suggestions including collaboration with neighbouring Mainland airports, the use of wide-bodied aircrafts to replace narrow ones, and avoiding / minimizing flights to 3<sup>rd</sup> / 4<sup>th</sup>-tier cities in the Mainland were raised. Some also queried whether the "air wall" issue will limit the capacity of the 3RS. The following paragraphs set out our response to these major concerns.

3. Adequate facilities at HKIA are crucial to maintaining Hong Kong's status as an aviation hub. The aviation sector has always been Hong Kong's major economic driving force. Airport development and expansion is not just an important task for HKIA but is also vital in maintaining Hong Kong's economic success and sustainable developments. It has contributed substantially to Hong Kong's GDP and employment opportunities in aviation sector as well as logistics, hotel and tourism, retail and catering sectors. We must therefore continue to invest in airport infrastructure.

4. The aviation sector has experienced robust growth in the past decade and is proven to be resilient to external shocks such as global epidemic or financial crisis. The robust economic growth in Asia Pacific region has contributed to an increasing air traffic demand in the

region. Over the past decade, Hong Kong's air traffic demand<sup>1</sup> has climbed 65%, which was largely in line with the global air traffic growth of 67%. In 2013, HKIA handled around 60 million passengers, 4.12 million tonnes of cargo and 372 000 aircraft movements. This represents an increase of 6.1%, 2.4% and 5.8% respectively as compared to the performance in 2012. The HKIA currently handles, on average, over 1 100 daily flight movements, which is very close to the Two-Runway System (2RS)'s maximum runway capacity of 1 200. According to International Air Transport Association's (IATA) forecast as stated in "HKIA Master Plan 2030" (MP2030), the HKIA is expected to saturate within the period 2019 – 2022. Latest traffic statistics shows that HKIA's air traffic demand has exceeded the forecasts made in MP2030 and the 2RS is likely to be saturated in a few years' time.

5. In light of the imminent saturation of the 2RS and the rising competition from our neighbouring airports (including Singapore Changi, Seoul Incheon, Guangzhou, Shenzhen and Dubai Airports), which have all rolled out expansion plans, we must also upgrade the facilities at HKIA and plan ahead to meet the growing demand.

6. In the short to medium term, the Airport Authority Hong Kong (AAHK) is implementing the Midfield Development Project in three phases to increase the handling capacity of the HKIA. The Authority would complete the Midfield Phase 1 Project before the end of 2015 to increase handling capacity by 10 million passengers per annum. The project includes the building of a new midfield concourse with 20 aircraft parking stands, a new cross-field taxiway and the extension of the existing automated people mover to the midfield concourse. The Authority also has plans to proceed promptly with Midfield Phase 2 and the Remaining Midfield Development to provide an extra 34 full service stands, with a view to fully developing the entire Midfield apron by 2020 to provide for continued smooth operation of the 2RS before the planned commissioning of the 3RS in 2023.

7. While the Midfield Development Project could help marginally increase the terminal facilities at HKIA, the key constraint to capacity at HKIA lies with the capacity of the two runways. Currently, 2RS is

---

<sup>1</sup> Measured in number of passengers handled by HKIA.

expected to reach its maximum annual practical capacity of 420 000 flight movements in a few years' time and the two runways are already operating at an hourly air traffic movement of 66 during peak hours as against the maximum capacity of 68. It is essential to take forward further expansion at HKIA through the implementation of the 3RS project in order to cater for long-term air traffic demand and maintain HKIA as well as Hong Kong's competitiveness. With the 3RS in place, the capacity of HKIA will increase substantially from 420 000 flight movements per year under 2RS to 620 000 per year. By 2030, the HKIA under 3RS is expected to handle around 100 million passengers and 8.9 million tonnes of cargo annually.

8. There are suggestions that HKIA should cooperate with neighbouring Mainland airports to address the capacity problem in the sense that HKIA could focus on long-haul flights, whilst neighbouring Mainland airports could focus on regional flights. The international aviation industry is highly regulated and is subject to a network of bilateral air services agreements (ASAs) entered into between government authorities. These agreements are international treaties which provide the framework for scheduled air services between bilateral aviation partners. The Hong Kong Special Administrative Region Government (HKSARG), with Central People's Government (CPG)'s authorization in accordance with the Basic Law, negotiates traffic rights with our aviation partners, having regard to the needs of our aviation industry and home-based airlines. CPG will conclude their own ASAs for destinations within Mainland China.

9. For the scheduled air services provided in Hong Kong, it is the airlines (not the Government nor the airport) which determine, within the agreed framework as provided for in our ASAs, the level of air services (including destination and frequency) in response to market situation. If any airlines were forced to terminate services to certain Mainland or short-haul destinations, there would definitely be adverse economic implication to the airlines concerned. It would be inconvenient to passengers as they would have fewer choices and have to use indirect flights or shift to neighbouring airports. This would be detrimental to the sustainable development of HKIA as an international and regional aviation hub.

10. Research has also indicated that inter-airport connection is inconvenient to travelers. According to a research conducted by Strategic Access in 2011, among 12 cities<sup>2</sup> served by two or more airports, there has not been one single example of meaningful collaboration between airports notwithstanding that most of these city pairs are within the same jurisdiction. The research found that synergies seemed not to have developed amongst airports with each airport basically operating independently, and in competition. In cities such as Tokyo, Washington, Seoul, Osaka and Taipei, authorities restricted one airport to serve domestic destinations only, but this appeared to be the limit of synergistic development, and appeared frequently to lead to backtracking in response to passenger complaint (for example, the re-opening of Haneda in Tokyo and Songshan in Taipei to international services in light of political initiatives and passenger complaints about long and difficult journeys). Cross-boundary and multimodal connection would make passenger connection an even more unattractive proposition.

11. There are suggestions that HKIA should enhance the airport's operational efficiency, such as demanding airlines to use more wide-bodied aircrafts, to resolve the capacity constraint. Indeed, in terms of the average number of passengers and volume of cargo carried per aircraft (workload unit), HKIA is already the world's most efficient airport<sup>3</sup> in 2012. Among the world's top 100 airports, HKIA has the second-highest proportion of wide-bodied aircraft at 63.3% in 2012. In addition, the aircraft mixes at the airport are driven by market demand and determined by airlines. Airport operators have no right to influence such decision.

12. As regards some suggestions to cease flights to the smaller Mainland cities, it should be noted that decision to operate routes is driven by the market demand. Having an extensive flight network is one of the airport's core elements that help maintain Hong Kong's

---

<sup>2</sup> A survey of 12 cities including Hong Kong, London, New York, Paris, Tokyo, Osaka, Seoul, Frankfurt, San Francisco, Shanghai, Taipei and Moscow was conducted in the research.

<sup>3</sup> On average, each air traffic movement at HKIA carries 267 workload units. A workload unit is equivalent to one passenger or 100 kg of cargo.

competitiveness as a strategic aviation hub. Giving up destinations would not only inconvenience travelers, but also adversely impact on the development of industries including aviation, logistics, hotel and tourism, trading, retail and catering, which together account for 58% of Hong Kong GDP and 47% of Hong Kong jobs in 2012, thereby undermining the overall competitiveness of Hong Kong.

13. There have also been discussions on the “air wall” between the Hong Kong and Mainland airspace. The so-called “air wall” actually refers to an arrangement between the Hong Kong and the Mainland air traffic control units to fix a minimum altitude of 15 700 feet for handover of flights between Hong Kong and the Mainland air traffic control units. Given the proximity of the HKIA and the Shenzhen Bao’an International Airport, and that they are under the respective control of the two separate air traffic control units in Hong Kong and the Mainland, the requirement for flights departing from the HKIA to enter the Mainland airspace (or for flights entering Hong Kong airspace from the Mainland) at such an altitude is a normal arrangement that seeks to segregate the operations of aircraft in the adjacent airspace, thus preventing aircraft tracks from crossing so as to ensure safe operation of aircraft. Similar arrangements can also be found in other airports with high traffic volume. Such arrangement is not relevant to runway capacity. The constraints of runway capacity are the time interval and space separation between successive runway movements. In addition, as there is a 10-minutes flying distance between the HKIA runway and the “air wall”, the runway operation will not be affected by the requirement of a minimal altitude.

### **(b)&(c) Environmental Impact Assessment**

14. The Study Brief for the Environmental Impact Assessment (EIA) was issued by the Environmental Protection Department (EPD) on 10 August 2012. AAHK had conducted the EIA, covering 12 environmental aspects, with the support of international and local experts in a robust and professional manner. The 3RS EIA Report was formally submitted in accordance with the EIA Ordinance (EIAO) on 17 April 2014. The Report was then exhibited for public inspection for 30 days from mid-June to mid-July 2014 in accordance with the EIAO upon EPD’s consent that the Report had met the requirements of the EIA Study Brief and the EIAO Technical Memorandum. Subsequently, the Advisory Council on the Environment (ACE) and its EIA Subcommittee

(EIASC) had detailed deliberations including six meetings in August and September 2014 on the Report. At the meeting on 15 September 2014, ACE considered the recommendations of the EIASC and endorsed the Report with conditions. DEP was informed of ACE's advice on 19 September 2014. Pursuant to the EIAO and upon DEP's request, AAHK provided supplementary information on 10 October 2014. On 7 November 2014, DEP approved the EIA Report and granted the associated Environmental Permit (EP) to AAHK. There are 18 conditions and four recommendations attached to the EIA approval.

15. The completion of the EIA process is a major milestone for the 3RS project. Subject to the completion of the financial arrangement study for the project and obtaining a green light from the Government for taking forward the project, AAHK targets to commence construction of 3RS as soon as possible in 2016 with a view to commissioning the project in 2023.

16. AAHK has accorded great importance to addressing all environmental impacts associated with 3RS. In order to gauge the views of the green groups and conservation experts, AAHK has, during the EIA process, regularly met with them and formed four Technical Briefing Groups to deliberate issues with respect to aircraft noise and emissions, Chinese White Dolphins (CWDs), and marine ecology and fisheries. Through the statutory EIA process, AAHK has ensured that all the potential environmental impacts are properly minimized, mitigated and compensated. The EIA Report, approved by DEP, contains more than 250 initiatives to address the environmental issues identified. The full 3RS EIA Report is accessible at EPD's website ([http://www.epd.gov.hk/eia/english/alpha/aspd\\_651.html](http://www.epd.gov.hk/eia/english/alpha/aspd_651.html)). Some key measures committed in the EIA Report are at Appendix.

17. In particular, in response to the concerns of the public and the ACE over the conservation of CWDs, AAHK has formulated a multi-pronged approach to address the issue during the construction phase and operation phase of the project. To achieve the aim of "*Conservation alongside Development*", various measures would be put in place both before and during the construction of the project. These include the following –

- management of SkyPier high speed ferry (HSF) traffic, including speed control and route diversion;
- management of construction vessel traffic, including speed control and route designation;
- adoption of advanced design and specific construction methods (e.g. non-dredge method for land formation, deep cement mixing over existing contaminated mud pits, horizontal directional drilling for submarine pipeline diversion, and acoustic decoupling of noisy equipment on barges); and
- avoidance of bored piling during peak calving season for CWD.

AAHK will also designate dolphin protection zones around HKIA to minimize the impact of construction vessels, cap the SkyPier HSF operation at the current level prior to designation of the proposed marine park, and kick off the preparation work for the designation of a 2,400-hectares marine park (the largest ever in Hong Kong).

18. Moreover, to promote territory-wide conservation of CWDs and marine ecology, AAHK will formulate and implement a Marine Ecology Enhancement Strategy through the establishment and funding of a Marine Ecology Enhancement Fund (the Fund). The Fund will support scientific research and studies of CWDs in Hong Kong and the Pearl River Estuary waters. The outcome of the studies will help develop a holistic and long-term conservation framework for CWDs, including the identification of possible measures for conservation of CWDs and enhancing the carrying capacity of important CWD habitats in Hong Kong waters. AAHK aims to establish the Fund as soon as Government's approval for implementing the 3RS project is given and before the commencement of the construction of the project.

19. AAHK will advance the preparation work for designation of the marine park to facilitate the designation of the marine park by the Government before the full operation of the 3RS project. The proposed marine park will connect with the existing Sha Chau and Lung Kwu Chau Marine Park to its north and the committed marine park at the Brothers to the east (to be designated under the Hong Kong – Zhuhai – Macao Bridge

Hong Kong Boundary Crossing Facilities project), forming a huge continuous stretch of marine protected area of size as large as 5 200 hectares. The synergy effect thus gained would contribute significantly to the long-term conservation of CWDs.

20. The above commitments are reflected in the conditions set out in the EP. AAHK will ensure that the project is designed, constructed and operated in accordance with the recommendations contained in the approved EIA Report as well as the EP conditions. Besides, AAHK will carry out comprehensive environmental monitoring and audit (EM&A) in accordance with the requirements described in the EIA Report to ensure effective implementation of the proposed mitigation measures, and to identify the need for remedial action if required during both construction and operation phases of the project. AAHK will establish a full time on-site Environmental Team to this end. In addition, a full time on-site Independent Environmental Checker will be engaged to audit the EM&A performance. The Independent Environmental Checker will notify DEP direct if any non-compliance is identified.

#### **(d)&(e) Maximum Practical Runway Capacity of the Two-Runway System**

21. The 1992 “New Airport Master Plan” (NAMP) did indicate in general terms that a pair of parallel runways in different modes of operation could achieve different capacity in the range of 52 to 86 movements per hour. However, it also indicated that in the case of Chek Lap Kok Airport, due to the surrounding terrain notably Lantau’s high mountain obstruction, the highest capacity operation mode of 86 movements per hour under the “Independent Mixed Mode<sup>4</sup>” of runway operation could NOT be possible or practicable since it did not comply with the International Civil Aviation Organization (ICAO) standards on flight procedures.

22. Following the 1992 NAMP, the Civil Aviation Department (CAD) engaged a consultant in 1994 which also confirmed that the maximum capacity of the dual runway was no more than 63 movements per hour.

---

<sup>4</sup> Both departures and approaches can take place on each of the two runways separately without the need of coordination with operations on the other runway.



23. Subsequently in 2008, AAHK appointed London Heathrow Airport's air traffic control expert, the "National Air Traffic Services (NATS)", to conduct a "Airspace and Runway Capacity Study" for HKIA, taking into account the latest air traffic control technology and international standards. NATS confirmed that, after implementing 46 improvement recommendations such as "Airfield Infrastructure Improvements", "Air Traffic Control System Upgrade", "Air Traffic Control and Flight Procedures Enhancement", increasing the number of air traffic control staff and enhancement in relevant training, etc., the capacity of the two runways could be increased to 68 movements per hour<sup>5</sup>. The study result was accepted by CAD.

24. There are also comments that the 1992 NAMP has recommended terrain removal at Tai Yam Teng and Fa Peng Teng in North East Lantau to improve runway capacity. Yet, the recommendation in the NAMP was aimed to reduce the climb gradient of the contingency departure flight procedure under parallel departures' situation and was NOT related to the improvement of the dual runway capacity.

25. According to MP2030 released in 2011 and the latest aircraft movements demand growth trend, it is clear that HKIA will reach its dual runway maximum design capacity within a few years and, there is urgent need to implement 3RS to address the capacity problem of the existing 2RS.

**(f) Dedicated Website and Public Engagement**

26. Extensive efforts have been made since mid-2012 to cultivate a better understanding of the 3RS project among the public. AAHK has organised and participated in 710 briefings, forums, seminars and airport visits with relevant stakeholders and the general public, explaining every technical and non-technical aspect of the EIA and the 3RS project, listening to feedbacks, and addressing environmental concerns. During the EIA process, AAHK has also established five Community Liaison Groups (CLGs) covering five neighbouring districts (namely Islands,

---

<sup>5</sup> LegCo was briefed in March 2008 on the results of the consultancy study "Hong Kong Airspace and Runway Capacity", which can be downloaded from <http://www.thb.gov.hk/eng/legislative/transport/panel/air/200803171.pdf>.

Tsuen Wan, Tuen Mun, Kwai Tsing and Shatin). AAHK had regular dialogue with these CLGs comprising members from the respective District Councils, Area Committees, residents group, etc. so as to gauge their views and concerns over airport development and 3RS implementation. So far, public views gathered from the various public engagement activities showed general support for the 3RS project.

27. A dedicated bilingual 3RS website (<http://www.threerunwaysystem.com>) has been set up since May 2012 to provide the public with the latest updates on the 3RS project, as well as information on the background, public engagement efforts, frequently asked questions, publications and videos related to the project. The public may also send their comments and feedbacks via this online platform.

28. AAHK will continue to engage different stakeholders in gauging their views and to ensure the smooth implementation of the 3RS project.

**(g) Estimated Cost of 3RS**

29. AAHK is reviewing the cost of the 3RS project. LegCo and the public will be advised of the findings once AAHK is in a position to do so.

**Airport Authority Hong Kong  
December 2014**

## Appendix

Key mitigation measures and enhancement commitments set out in the EIA Report include –

**(a) Aircraft noise**

- (i) putting the existing South Runway on standby mode at night, where possible, to minimise aircraft noise impact on North Lantau. With 3RS in place, noise impact on North Lantau will be significantly improved and no new noise sensitive receivers will be affected;
- (ii) preferential use of the new arrival flight path over water from West Lamma Channel (i.e. Track 6) during night-time to minimize noise impact on densely populated areas;
- (iii) requiring departures to take the southbound route via West Lamma Channel during night-time;
- (iv) implementing a preferential runway use programme when wind conditions allow such that more flights would fly over the sea instead of over the urban areas at night time;
- (v) adopting the noise abatement take-off procedures stipulated by International Civil Aviation Organization (ICAO) for aircraft departing to the northeast so long as safe flight operations permit;
- (vi) adopting the Continuous Descent Approach (CDA) for aircraft on approach to the HKIA from the northeast between 2300 hours and 0659 hours;
- (vii) submission of an updated NEF 25 contour with actual operation data to DEP for approval after a full year operation of the project;
- (viii) review of the operation data annually and update of the NEF

25 contour if there are major deviations from the assumptions adopted in the approved EIA Report;

- (ix) submission of an Aircraft Noise Monitoring Plan to DEP for approval before the operation of the 3RS project. The Plan shall include monitoring of aircraft noise at representative locations in Tung Chung, Ma Wan, Tsing Yi, Tsuen Wan, Ting Kau, Siu Lam and Tuen Mun; and
- (x) providing noise enclosure to alleviate noise impact from operation of aircraft engine run-up facilities.

**(b) Air quality**

- (i) banning of use of Auxiliary Power Units for all aircraft at frontal stands by the end of 2014;
- (ii) replacement of all airside saloon vehicles by electric vehicles by the end of 2017;
- (iii) installing a total of 290 charging stations for electric vehicles and electric ground support equipment by end of 2018;
- (iv) providing the cleanest diesel and gasoline at the airfield;
- (v) submission of an Airport Operation related Emissions Control Plan to DEP before the operation of the project, detailing the measures to be taken to minimize and control the emissions due to the airport operation; and
- (vi) undertaking environmental monitoring and auditing that focus on air quality during the operation of the project.

**(c) Water quality**

- (i) use of non-dredge methods during land formation to minimise water quality impacts;

- (ii) adoption of deep cement mixing for ground improvement work in the contaminated mud pit area to avoid potential release of pollutants to the water column;
- (iii) specifying maximum allowable production rates for various marine works activities;
- (iv) specifying maximum allowable fines content for sand blanket laying and fill activities;
- (v) requirement for 200 metres of advanced seawall ahead of marine filling activities;
- (vi) installation of double layer silt curtains to screen marine construction activities from adjacent waters;
- (vii) adoption of Horizontal Directional Drilling method for diversion of aviation fuel pipelines to avoid disturbance on the seabed; and
- (viii) zero-discharge requirement for all activities at Sha Chau in connection with the submarine aviation fuel pipeline diversion works.

**(d) Terrestrial ecology**

- (i) conducting Sha Chau egret survey during the breeding season to update the latest egret boundary; and
- (ii) minimizing the impact to the Sha Chau Egret through scheduling all construction works at Sheung Sha Chau outside the breeding season. No night-time construction works at Sha Chau and pipeline daylight location and connecting pipeline to avoid the need for tree cutting. Artificial lighting shall be confined within the site. The containment pit at the daylighting location of the tunneling works of the aviation fuel pipeline shall be covered or camouflaged. The daylighting location and the mooring of flat top barge (if required) shall

not encroach onto the Sha Chau Egretry.

**(e) Waste management**

- (i) permitting only the use of non-dredge ground improvement methods to avoid the need for marine sediment disposal from land formation area;
- (ii) scheduling construction programmes to minimise the extent of excavation and maximize on-site re-use of inert construction and demolition (C&D) materials generated by the project as far as practicable;
- (iii) according priority to collect and reuse inert C&D materials generated from concurrent projects and Government Public Fill Reception Facility as land formation fill; and
- (iv) reuse of materials such as all rock armour demolished from the existing northern seawall in 3RS reclamation.

**(f) Landscape and visual impact**

- (i) planting of native coastal plants along the new land formation edge;
- (ii) installation of lighting units in a directional manner to minimize unnecessary light spill and glare;
- (iii) provision of vertical greening, green roofs, road verge planting and peripheral screen planting as far as possible at locations within the project site boundary; and
- (iv) submission of a landscape and visual plan to DEP before commencement of construction works on the formed land of the project, specifying the quality criteria on the overall landscape and visual environment of the project with broad-brush targets to be achieved for greening and planting as benchmarked against international standards and best

practices.

**(g) Marine ecology**

- (i) use of non-dredge land formation method known as “deep cement mixing” for foundation improvement;
- (ii) diversion of aviation fuel pipelines by Horizontal Directional Drilling in the deep sub-sea bedrock stratum;
- (iii) avoidance of bored piling during the peak CWD calving season (i.e. March to June);
- (iv) establishing a 250-metre 24-hour dolphin exclusion zone in the peripheral areas of the marine works. Relevant works will be suspended immediately upon sighting of any CWDs in the vicinity of the construction area of the reclamation works; and
- (v) acoustic decoupling of the construction equipment mounted on barges to minimise the impacts on CWDs.

ENDS