

By post and by fax at 2877 0245

8 September 2015

Town Planning Board Secretariat  
15/F, North Point Government Offices  
333 Java Road, North Point  
Hong Kong

Dear Sir/ Madam

**Views on Expanding Hong Kong International Airport into a Three-runway System (Ref: Draft Chek Lap Kok Outline Zoning Plan No. S/I-CLK/13)**

The Hong Kong Institution of Engineers would like to provide our views on the captioned for your reference.

For reason of the importance of Chap Lap Kok Airport to the economy of Hong Kong, and with the understanding that issues relating to environmental impacts and other social concerns to the project are being handled under various formal platforms, the Institution supports:

- I. Designation of an area on the proposed reclamation to the north of the Hong Kong International Airport as 'Other Specified Uses' annotated 'Airport'; and
- II. Designation of two areas in the east and west of the proposed reclamation as 'Other Uses' annotated 'Airport Service Area'.

The Institution is also to provide herewith our previous submissions to Environmental Protection Department and Legislative Council Panel on Economic Development and Panel on Environmental Affairs respectively on the relevance of the captioned subject for your reference.

Thank you for your attention.

Yours faithfully



Ir CHAN Chi Chiu  
President  
The Hong Kong Institution of Engineers

Enc

By post and by fax at 2147 0894

18 July 2014

Ms Anissa WONG Sean Yee  
Director of Environmental Protection  
Environmental Protection Department  
27/F, Southorn Centre  
130 Hennessy Road  
Wanchai, Hong Kong

Dear Ms WONG

**Views on Environmental Impact Assessment Report on the Expansion of Hong Kong International Airport into a Three-Runway System**

In response to the Environmental Impact Assessment Report on the Expansion of Hong Kong International Airport into a Three-Runway System, the Institution is pleased to provide herewith our views on the subject for your consideration.

Thank you.

Yours sincerely



Ir Victor CHEUNG Chi Kong  
President  
The Hong Kong Institution of Engineers

VC/wc

**Enclosure**

**Views from the Hong Kong Institution of Engineers  
on Environmental Impact Assessment Report on the  
Expansion of Hong Kong International Airport into a Three-Runway System**

**Introduction**

The Hong Kong International Airport (HKIA) has been facilitating the development and strengthening of various economic pillars, including finance, trade and logistics, tourism and professional services, in Hong Kong. We treasure to enhance the status of the HKIA as the international aviation hub. However, to sustain the connectivity advantages of the HKIA, and in view of the increasing business activities in Hong Kong and mobility needs for passengers around the world, enlarging the handling capacity of the HKIA to fulfill the increasing long-term demand would be necessary.

2. The Hong Kong Institution of Engineers (the HKIE) recognises that the HKIA is expected to reach the maximum practical runway capacity between 2019 and 2022 according to the HKIA Master Plan 2030 (MP2030) Study. Hence, with the driving concern on the overall long-term sustainable development of Hong Kong, the HKIE has expressed support for the expansion of the HKIA into the three-runway system (3RS) in order to enhance the capacity of the airport and thus facilitating development in Hong Kong.

**Environmental Impact Assessment of the Project**

3. The HKIE notes that the Environmental Impact Assessment (EIA) Study has been carried out and the EIA Report is exhibited for public inspection by Environmental Protection Department. In general, the HKIE is of the view that the EIA Report demonstrates itself to have followed the acceptable standard in truly identifying, assessing and reporting the impacts of the 3RS Project in various aspects of concern, and the EIA Report is systematic, comprehensive, and fact-based. In particular, we are pleased to offer further views in some aspects as follows:

Air Quality

4. We welcome to note that Airport Authority Hong Kong (AAHK) has been implementing a number of measures and initiatives aiming at reducing air emissions from airport activities and operations, including banning all idling vehicle engines on airside since 2008, banning the use of auxiliary power unit (APU) for all aircraft at frontal stands by end 2014, requiring all airside saloon vehicles to be electric by end 2017, increasing charging stations for electrical vehicles (EVs) and electric ground service equipment (GSE), improving the emission performance of GSE, requiring all of the AAHK's diesel vehicles to use biodiesel, etc. We believe that implementation of these measures and initiatives are important in effectively controlling the emissions for now and for the future operation of the 3RS.

5. Meanwhile, based on the trends of future aircraft emissions forecast by the International Civil Aviation Organization (ICAO), there will be improvement in the fuel combustion design for new aircraft models as an international requirement, therefore the aircraft emission performance will be improved in the long run. Also, with the 3RS, the aircraft departure from the South Runway can be shifted to the Centre Runway, thus reducing the concentration of pollutants at Sha Lo Wan Village and Tung Chung Town Centre area. We are of the view that with the above and further sustaining of the emissions control measures, the 3RS can meet the criteria under the new air quality objectives during operation.

#### Noise Impact

6. We note that there have been measures being implemented since the past decade to minimise the aircraft noise generated from the operation of the airport, including not allowing airlines to schedule the noisier marginally compliant aircraft to operate between 2300 and 0659, requiring all subsonic jet aircraft landing or taking off in Hong Kong meeting the noise standards, implementing a set of flight procedures for aircraft to depart making the turn to the West Lamma Channel to reduce noise impact on noise sensitive receivers, etc. In addition, according to the EIA Report, under the 3RS operation there are other aircraft noise mitigation measures identified, including putting the South Runway on standby at night between 2300 and 0659, requiring departures to take the southbound route via the West Lamma Channel at night from 2300 to 0659, and implementing west flow for departures and east flow for arrivals during night-time. The HKIE has reviewed these measures and considers that they are effective in reducing the noise exposure to be below the noise criteria on those areas under and near the flight tracks.

#### Sewerage and Sewage Treatment

7. The sewage generated from the airport will be conveyed by gravity sewers to Tung Chung Sewage Pumping Station (TC SPS). The TC SPS also receives sewage from nearby Tung Chung New Town and will pump the collected sewage to Siu Ho Wan Sewage Treatment Works (SHW STW) for treatment before discharging into the sea. According to the EIA Report, as it is expected that the increase in handling capacity of the airport under 3RS will generate a total sewage flow of 43,500m<sup>3</sup>/day, the existing gravity sewers from the airport to the TC SPS will reach its full capacity by 2027. Upgrading the gravity sewers is therefore required. Also, in conjunction with the proposed Tung Chung New Town Extension and future developments in the northern Lantau, the existing design peak flow capacities of TC SPS and SHW STW will be exceeded in 2023 and 2026 respectively. Therefore, TC SPS and SHW STW are also required to be upgraded. It is noted that the upgrading of the gravity sewer, TC SPS and SHW STW will be completed by 2026, 2022 and 2026 respectively by the Government in conjunction with the developments in Tung Chung New Town Extension and in the northern Lantau. No interim sewage treatment facilities will be required for the expansion of HKIA into 3RS.

8. With reference to the above information from the EIA Report, and in view of various planned developments in the northern Lantau and the airport, the HKIE suggests the Government to devise better planning and schedule monitoring of the

design and construction of the said upgrading works, so as to ensure timely completion of the necessary infrastructures for the proposed developments for better effective sewage treatment.

### Waste Management

9. The HKIE is of the opinion that the proposed construction methods for the Third Runway are feasible, suitable and environmentally friendly. Deep Cement Mixing (DCM) method is proposed to stabilise contaminated marine mud in place without the need of removal for the site formation of the land for the third runway and the associated infrastructure. The HKIE agrees that the proposed construction method is most suitable under the circumstances of this Project and will be able to substantially reduce the amount of unsuitable or contaminated material to be disposed of. While marine sediments will be generated by other construction activities such as laying of submarine pipelines and cables, the HKIE agrees to the arrangement as stated in the EIA Report that the marine sediments will be treated and reused on-site as backfilling materials to avoid the need for disposal off-site. After all, the HKIE believes that with the proper selection and use of proven engineering technology, impacts to the environment due to the construction of 3RS Project can be kept to be under well control.

### Marine Ecology

10. It is noted that the Project will result in the permanent loss of 672ha of seabed of which about 40% is part of the capped contaminated mud pit. However, the ecology value of the corresponding seabed is believed to be relatively low. Also the adoption of the method of DCM can minimise disturbance to the marine environment. Hence, it is believed that the construction of the airport expansion will have minimal potential ecological impacts.

11. However, according to the EIA Study, the construction and operation phases will have some impacts on the Chinese White Dolphin (CWD) population in Hong Kong waters, mostly related to the loss of CWD habitat and the reduction of the size of CWD travelling areas. In the EIA Report, specific mitigation measures for the protection of CWDs and marine ecology have been recommended during construction and operation phases, which include avoiding peak calving season for CWDs when undertaking bored piling activities, acoustic decoupling of construction equipment mounted on barges, setting speed restrictions for construction vessels whining areas where CWDs are likely to occur, diverting SkyPier High Speed Ferrys travelling to/from Zhuhai and Macau to the north of Sha Chau and Lung Kwu Chau Marine Park (SCLKCMP) and restricting their speed to 15 knots across areas with high CWD abundance. We believe that these measures are appropriate and effective.

12. A new marine park of approximate 2,400ha is to be established by linking the planned Brothers Marine Park (BMP) and the existing SCLKCMP. The extended marine park is expected to improve the conservation prospects for the Hong Kong sub-population of CWDs and will be contiguous with the Pearl River Estuary CWD national nature reserve established by the Mainland. However, it is aware that there are voices in the community for worries on the practicality and effect of the

compensatory marine park. To address these genuine concerns from them, the HKIE suggests the Government and AAHK to closely work out with the concerned parties in better putting forward the completion of the marine park and related measures to best realise its positive outcome to the marine ecology to gain public confidence.

### **Conclusion**

13. The HKIE believes that the EIA Report has clearly laid down the analysis and rightly proposed the corresponding initiatives for solutions as well as the mitigation measures. After all, it is noted that the EIA Report provides a logical and substantiated framework for addressing environmental impact on the 3RS Project.

14. While the need of expansion of HKIA into 3RS has been recognised, it is considered that with adoption of better technology and planning, the potential impact to the environment can be made insignificant with proper design of layout and construction methods. With the implementation of the proposed mitigation measures, the expansion of the HKIA into a 3RS will not create unacceptable impact to the environment.

15. However, it reveals in the EIA Report that the determinant factor is how well and effective all these initiatives and mitigating measures can be timely and rightly designed in details and implemented according to the schedule. For such, the HKIE believes that the Government and AAHK should acknowledge the uncertainties and worries from the concerned parties in the public, and set up mechanism to partner with the green groups and other stakeholders for taking forward the proposals vigorously. Mechanism should also be in place to ensure that the design and construction of the expansion of the HKIA together with the committed environmental mitigation measures can be equally focused on and monitored in the coming construction and operation phases.

By post and by fax at 2869 6794

19 September 2014

Clerk to Panel on Economic Development  
Legislative Council Secretariat  
Legislative Council Complex  
1 Legislative Council Road  
Central Hong Kong

[Attn: Miss Michelle LEE]

Dear Miss LEE

**LegCo Panel on Economic Development and Panel on Environmental Affairs -  
Meeting on 29 September 2014  
Views on the Third Runway Project in the Hong Kong International Airport and  
the relevant Environmental Impact Assessment Report**

Thank you for inviting the Institution to put forth our views on the captioned subject.

In response to your invitation, the Institution is pleased to provide herewith our views and suggestions on the subject for your consideration.

Thank you for your attention.

Yours sincerely



Ir Victor CHEUNG Chi Kong  
President  
The Hong Kong Institution of Engineers

VC/wc

**Enclosure**

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

**Views from the Hong Kong Institution of Engineers  
on The Third Runway Project in the Hong Kong International Airport  
and the relevant Environmental Impact Assessment Report**

**Introduction**

Airport Authority Hong Kong (AAHK) proposed the Third Runway Project in the Hong Kong International Airport (HKIA) in 2011. The need is keenly contested in some sectors. It is not going to be an easy decision for Hong Kong. The Hong Kong Institution of Engineers (HKIE) has been following the development of the subject, and tracking views and arguments for and against the Third Runway. We see it suitable to submit our view to the Panel for its consideration.

**Need for the Third Runway**

2. The HKIE tenders its support for the Third Runway Project for its potential benefit to the economic health of the Hong Kong Special Administrative Region (HKSAR).

3. With very limited primary production and limited secondary production, Hong Kong imports all the energy and most of its food, raw materials and industrial products to support its community and work. It relies on providing national and international services to generate the wealth to pay for these imports and fund leisure and enjoyment by its people. Being an international flight hub is an important wealth-generating service in this respect. The others include finance, port, trade and commerce, and tourism.

4. The position of an international flight hub also contributes to other wealth-generating national and international services. The high and prompt air cargo delivery capacity fosters logistics services that draw part of its cargos by sea through the port facilities. Fast accessibility to all parts of the world predisposes Hong Kong for setting up offices and to cut deals by national and international enterprises and firms, with benefits to its trade and commerce services. Passengers on transit to other destinations may stop over, contributing to tourism.

5. Hong Kong has to invest to maintain its competitiveness in the wealth-generating services, including its airport. Any set back will unavoidably lower the living standards of the community. It is usually the less well-off classes that will suffer more from such.

6. The business case for the airport has up to the moment been mostly in terms of contributions to Gross Domestic Product (GDP). It does not distinguish wealth-generating economic activities from others, and hence fails to draw attention to the important role the airport plays in paying for the subsistence and welfare of the people of Hong Kong. AAHK may like to look into this line of reasons and quantify it for a more relevant business case to focus discussion.

7. The HKIE is aware of the views that short-term improvements, in form of enhancing facilities and beefing up human resources to optimise their use, are important. This is likely to be true but by itself may not be sufficient to ensure the lead of HKIA in its position as an international flight hub. AAHK should seriously look at the suggestions and make the best of them.

8. The HKIE is aware of the views that the benefit of a Third Runway is limited by a crowded air space. There is merit for AAHK to open its assumptions and release its calculations on the subject, for the benefit of an informed discussion. However, constraints always exist in one form or the other. It is for Hong Kong to look for ways of easing them and their effect.

9. The HKIE is aware of the views that the capacity of the existing runways can be improved by discouraging narrow-bodied aircraft and routes to less important destinations. This should be possible but there is a limit to which such constraints could be imposed without hurting HKIA's lead. Again, it would be to the advantage of AAHK if it could put this in relatively concrete terms.

10. The HKIE is aware of the views that Hong Kong should not attract economic activities that its environment cannot support. This is true and hence the Environmental Impact Assessment (EIA) is believed to be a key subject for this meeting of the Panel.

11. The HKIE is aware of the very tight programme AAHK has drawn up for the construction of the Third Runway and associated facilities. While it admires its determination for Hong Kong to reap the benefit of a Third Runway as early as possible once the project is authorised, the HKIE would note that such a programme could only be achieved when all conditions are favourable. AAHK should plan for early actions to create favourable conditions where it can, and to draw up contingency plans for those that it has no control.

### **Environmental Impact Assessment**

12. The HKIE has reviewed the EIA Report on the Expansion of HKIA into a Three-Runway System. The HKIE finds the assessment to have followed currently accepted standard of good practice, is fact-based where appropriate, with holistic analysis on the effects of the project in specific aspects of the environment, and have recommended mitigation measures. It should provide a sound platform for informed discussion and judgement by the Advisory Council on the Environment (ACE), green groups, other stakeholders, and the public in general.

13. The HKIE is aware of the particular emphasis of green groups in protecting the Chinese White Dolphins. In this regard, the continual field studies on them since 1995 provide a wealth of data on the habitat and habits of the dolphins. There is a declining trend of their abundance around Lantau Island. The more recent decline around the Brothers Islands and the east of the airport platform may have been related to the marine works there. The decline at the north of Lantau may be related to the operation of the Sky Pier. There is also evidence of dolphins that avoided areas of the marine works having extended their range to the previously less favoured waters at the west of Lantau. On the bright side, one may contend that Chinese White Dolphins are mobile to some extent in avoiding unpleasant waters. The food and sanctuary promised by the planned marine parks could attract them back. Knowledge of their ranging habit and impact of the Sky Pier would permit better planning of the marine parks and operation of the Sky Pier for the good of the dolphins. On the pessimistic side, how far this would work out carries uncertainties.

14. The HKIE is also aware of the concern that the promise for marine parks may not materialise, and the green groups' preference for setting them up before works start. The Institution sympathises with the concern but also understands that the conservation areas with the associated constraints on marine activities, if set up by the time of the construction, could render the works very expensive and slow if not impractical. AAHK should liaise with the green groups to build up sufficient mutual trust and common ground.

### **Preparedness for Project Implementation**

15. Hong Kong's construction industry has a long record of meeting the challenge of compressed programme and very tight completion targets, but there are signs that this might have been pushed a bit too far. A compressed programme also adds to the cost and risk of contractual complications and delays.

16. Works for the Third Runway will be many folds more taxing than the construction of the present airport in the 1990's. It will have to be done alongside a live airport operating close to its capacity. The public is generally less sympathetic and environmental and safety requirements are now more stringent. AAHK should review its programme to identify actions that could be taken to reduce uncertainties and plan for contingencies. The HKIE would raise two examples to illustrate.

17. Land formation for the Third Runway would require 0.1 billion cubic metre of fill. Supplies from outside Hong Kong will be needed. Marine sand from the Mainland will be one likely source. Demand for such fill within Mainland China is high and the Mainland government has stepped up controls and regulations of winning and export of sand fills. The HKIE urges the Administration and AAHK to do its best to liaise with the relevant authorities and supplying parties, to secure supplies early.

18. Seabed utilities have to be diverted for the land formation. The diversion could be done alongside the formation works, but this will reduce the flexibility of

works sequence and programme. The cost of such diversion would be a small fraction of the total cost of the land formation works. AAHK should look into the merit of advancing such works at the risk of their being abortive if the project fails to be authorised by Legislative Council.

### **Public Engagement**

19. The HKIE is aware of the heavy effort by AAHK in communicating with stakeholders. It should keep up the momentum, monitor its effectiveness, and step up effort where needed. One that commonly helps is opening information to stakeholders, for informed discussion, and to permit third parties to judge on the strength of arguments on key issues.

### **Concluding Remarks**

20. With the information available at present, the HKIE supports the Third Runway. We see the EIA Report as having provided a sound platform for ACE and stakeholders to deliberate and judge on the environmental acceptability of the runway. We note the need for AAHK to advance actions where possible to create conditions favourable to project implementation. We are pleased with AAHK's effort in engaging stakeholders and suggesting areas that could merit further actions.