Confirmed Minutes of the 128th Meeting of
the Environmental Impact Assessment Subcommittee
held on 11 August 2014 at 9:30 am

Present:
Dr Dorothy CHAN, BBS (Chairperson)
Dr HUNG Wing-tat, MH (Deputy Chairman)
Dr Gary ADES
Prof CHAU Kwai-cheong, BBS, JP
Prof FUNG Tung
Dr Billy HAU
Prof John NG
Miss Yolanda NG, MH
Prof Nora TAM, BBS, JP
Dr Eric TSANG
Mr Luther WONG
Prof Ray YEP
Dr Eric YIP
Miss Evelyn LEUNG (Secretary)

Absent with Apologies:
Prof LI Xiang-dong

In Attendance:
Non-EIASC Members
Prof Paul LAM, SBS, JP
Mr Anthony LOCK
Dr Alfred TAM
Dr Carrie WILLIS, SBS, JP
Prof Jonathan WONG, MH, JP
Ms Pansy YAU
Prof Ignatius YU

Government Officials

Mr Andrew LAI	Deputy Director of Environmental Protection (3), Environmental Protection Department (EPD)
Mr K F TANG	Assistant Director (Environmental Assessment), EPD
Dr SO Ping-man	Assistant Director (Conservation), Agriculture, Fisheries and Conservation Department (AFCD)
Mr Joseph SHAM	Assistant Director (Country and Marine Parks), AFCD

Mr Louis CHAN	Principal Environmental Protection Officer (Regional Assessment), EPD
Mr Maurice YEUNG	Principal Environmental Protection Officer (Assessment & Noise), EPD
Mr Lawrence NGO	Senior Environmental Protection Officer (Regional Assessment)1, EPD
Dr Kenneth LEUNG	Senior Environmental Protection Officer (Strategic Assessment)5, EPD
Mr Cary HO	Senior Nature Conservation Officer (South), AFCD
Mr Dick CHOI	Senior Marine Conservation Officer (West), AFCD
Mr Alan CHAN	Senior Marine Parks Officer, AFCD
Ms Valerie HO	Senior Fisheries Management Officer, AFCD
Ms Joanne CHIN	Executive Officer (CBD), EPD

Project Proponent Team

Mr John CHAI	Executive Director, Projects, Airport Authority Hong Kong (AAHK)
Mr Kevin POOLE	Deputy Director, Projects, AAHK
Mr Peter LEE	General Manager, Environment, Projects, AAHK
Mr Martin PUTNAM	Senior Manager, Environment, Projects, AAHK
Mr Eden NGAN	Senior Manager, Environment, Projects, AAHK
Ms Julia YAN	General Manager, Strategic Planning & Development, AAHK
Mr James TSUI	General Manager, Corporate Communications, AAHK
Ms Gigi CHONG	Manager, Project Liaison, Projects, AAHK
Dr Anne KERR	Director, Mott MacDonald Hong Kong Ltd. (Mott MacDonald)
Mr Eric CHING	Divisional Director, Mott MacDonald
Ms Julia CHAN	Principal Environmental Consultant, Mott MacDonald
Mr Gary CHOW	Senior Environmental Consultant, Mott MacDonald
Dr Tom JEFFERSON	Dolphin Expert, Clymene Enterprises
Dr Bernd WÜRSIG	Dolphin Expert, Clymene Enterprises
Dr Jasmine NG	Principal Consultant, ERM Hong Kong Ltd.
Mr Sam TSOI	Director, ARUP
Mr Hans DORRIES	Senior Airport Noise Specialist, URS
Prof WONG Tze-wai	Professor, Faculty of Medicine, The Chinese University of Hong Kong
Mr Laurent DELARUE	Assistant Director, International Air Transport Association (IATA)

****

Action

The Chairperson welcomed Dr P M So who had taken up the post of Assistant Director (Conservation) of AFCD in place of Mr Y K Chan. Mr Chan had proceeded on his pre-retirement leave.

2. The Chairperson informed Members that she had received a joint petition

from green groups including Friends of the Earth, World Wide Fund (Hong Kong), Conservancy Association, Hong Kong Dolphin Conservation Society and Green Sense before the meeting requesting the Advisory Council on the Environment (ACE) to closely scrutinize the EIA report on "Expansion of Hong Kong International Airport into a Three-Runway System (the 3RS EIA report)". The petition would be circulated to Members for information.

Item 1 : Confirmation of the draft minutes of the 127th meeting held on 23 June 2014

3. The draft minutes were confirmed without amendment.

Item 2: Matters arising from the minutes of the last meeting

4. There were no matters from the minutes of last meeting.

Item 3 : EIA Report on "Expansion of Hong Kong International Airport into a Three-Runway System"
(ACE-EIA Paper 3/2014)

Internal Discussion Session

5. The Chairperson advised that today's meeting would discuss the 3RS EIA report submitted by the Airport Authority Hong Kong (AAHK). It was a designated project under "Schedule 2" of the EIA Ordinance (EIAO). The public inspection period of the report was from 20 June 2014 to 19 July 2014. Public views were mainly focused on the impacts related to marine ecology, in particular the protection/conservation on Chinese White Dolphins (CWDs). As an administrative arrangement, public comments and the gist of major issues/concerns received by EPD had been circulated to Members for reference before the meeting. Written response from AAHK to the questions raised by Members had also been circulated for Members' information before the meeting.

6. The Chairperson informed Members that the discussion of the 3RS EIA report would be divided into the following four sessions –

(a) Internal Discussion Session
(b) Presentation Session
(c) Question-and-Answer Session
(d) Internal Discussion Session

The Presentation Session and Question-and-Answer Session would be opened to the public. The Internal Discussion Sessions and all other parts of the meeting would remain closed.

7. The Chairperson asked Members if they had any interest to declare. Three Members declared that they were members of the green groups which had joined the

petition or made a submission on the 3RS EIA report. The meeting agreed that they could stay and continue participating in the discussion.

8. The Chairperson reminded Members to keep confidentiality of the discussion as the full Council had yet to consider the EIA Subcommittee (EIASC)'s recommendations before tendering its comments to the Director of Environmental Protection (DEP) on the report under the EIAO. Members were advised to refer any enquiries to the Secretariat for follow up in case they were approached on the discussion and/or decision of EIASC.

9. In view of the wide scope of the environmental aspects covered in the 3RS EIA report, the Chairperson suggested and Members agreed that for a more structured and focused discussion at today's meeting, questions should be raised on the key subject areas in the order of –

(a) Marine and terrestrial ecology
(b) Fisheries
(c) Air quality and noise and impacts on health

[The project proponent team joined the meeting at this juncture.]

Presentation Session (Open Session in the morning)

10. Mr John Chai briefed Members on the need and urgency of expanding the Hong Kong International Airport (HKIA) into a three-runway system and confirmed AAHK's commitment to avoid and minimize the environmental impacts of the 3RS project. Mr Peter Lee then briefed Members on the major findings in respect of the ecological aspect particularly in respect of CWDs, including measures to minimize the construction impacts on dolphins, designation of the proposed marine park and the proposed mitigation measures for high speed ferries (HSFs) operating from the SkyPier.

Question-and-Answer Session (Open Session in the morning)

11. Members raised questions and concerns in respect of protection/ conservation of CWD and the proposed marine park as follows –

(a) Experience in designating Sha Chau and Lung Kwu Chau Marine Park (SCLKCMP) in 1990s as the mitigation measure for marine works relating to the construction of HKIA at Chek Lap Kok;
(b) Effectiveness of designating the proposed marine park in the north Lantau waters which was not the most critical habitat for CWDs;
(c) Practicability for the mitigation measures to be implemented with the long lapse of time in 2023 when the 3RS would be in full operation;
(d) Quantitative analysis on behaviour of CWDs (e.g. fidelity to own habitats) to support the claim that dolphins would return in 7-10 years' time after all the disturbances and human activities that had been made in the area;

(e) Enhancement of adjacent habitats for dolphins as a compensatory measure during the construction phase, particularly in considering the cumulative impacts of the Hong Kong-Zhuhai-Macao Bridge (HZMB) projects and the Tung Chung New Town Development Plan;

(f) Proposal to designate west/southwest Lantau as a marine conservation zone as an off-site compensation for the dolphins displaced;

(g) Feasibility of phased designation of the proposed marine park before or during the 3RS construction to lessen the construction impacts on CWDs, i.e. 2 400 ha of the proposed marine park less the actual temporary works areas during the different phases of the construction works;

(h) Impact assessment on CWDs over the proposed speed limit of 15 knots and route diversion for HSFs operating at the SkyPier, i.e. reduction of speed limit vs. congestion of vessels and increase in journey time in the Sha Chau and Lung Kwu Chau waters;

(i) Alternative or fall back in the event that the proposed marine park could not proceed as planned; and

(j) Information on the performance of the Pearl River Estuary (PRE) CWD National Nature Reserve where some dolphins were expected to move to during construction of the 3RS project, as well as the concern on pollution and contamination in the PRE which would render the National Nature Reserve not a suitable habitat for dolphins displaced.

12. The dolphin experts Dr Tom Jefferson and Dr Bernd Würsig of AAHK responded to the concerns/questions as follows –

CWDs

- Data from AFCD over the past decade showed a general increase in the density and abundance of CWDs in SCLKCMP. There was local experience during the development of the Airport Fuel Receiving Facility (AFRF) near Sha Chau and overseas example, e.g. San Francisco Bay to suggest that CWDs would likely re-establish use of the previous habitats within their range when disturbance (e.g. noisy construction activities) was reduced and if the habitats were returned to a healthy state and well protected.
- A decrease in dolphin population in SCLKCMP had been noted from AFCD data since 2004/05 possibly as a result of an increase of HSFs in the area including those from the SkyPier.
- Areas identified as critical habitats for CWD activities that would benefit from the highest standards of protection included Sha Chau and Lung Kwu Chau, Brothers Islands extending to the north Lantau coastline, and west/southwest Lantau extending to Fan Lau and Soko Islands. Certain parts of these areas were already designated or soon to be designated as marine parks (e.g. Sha Chau and Lung Kwu Chau and The Brothers) with additional important areas to be covered in the proposed marine park of the 3RS project.
- Mitigation measures on CWDs would focus on the areas immediately affected by the 3RS construction phase.
- A multi-pronged approach would be implemented to mitigate construction phase

impacts on CWDs. These would include management of the SkyPier HSF traffic and construction vessel traffic, adoption of advanced design and specific construction methods intended to minimize environmental impacts where possible (e.g. non-dredge methods during land formation, deep cement mixing (DCM) over contaminated mud pits (CMPs), horizontal directional drilling (HDD) for submarine pipeline diversion, acoustic decoupling of noisy equipment on barges and dolphin exclusion zones around certain marine works), avoidance of bored piling during peak calving season for CWDs, and strict enforcement of pre-defined routes and speed controls for works vessels, etc..

Proposed marine park

- The proposed marine park would offer good protection providing important linkage between the existing and planned CWD protection areas and other critical habitats for dolphins in north Lantau waters which were currently fragmented. AAHK would cooperate fully with the Government and relevant authorities in relation to CWD mitigation/compensation measures. This included an environmental enhancement fund namely the Marine Ecology Enhancement Fund (MEEF) to be set up to support research and/or actions and initiatives that could serve to further enhance marine ecology including CWDs.
- It was not practicable to designate the proposed marine park before commencement of construction or to adopt a phased designation approach as the proposed marine park would be situated right in the area where the construction works would take place.
- AAHK had proposed a Marine Ecology and Fisheries Enhancement Strategy (MEFES) and the associated funds in the EIA report.
  (Post-meeting note: AAHK advised on a three-pronged approach for protecting/ conserving CWDs under the proposed MEFES :-
  (a) conducting further studies on CWDs in the PRE waters, including collaboration with the relevant Mainland authorities;
  (b) work on early implementation of initiatives serving to promote CWD use of areas near to the proposed Third Runway site including setting up some 1000 ha of the Dolphin Protection Areas close to the site during the construction phase through administrative means, within which speed limits on all AAHK-controlled vessels (including SkyPier HSFs) would be imposed. Early deployment of artificial reefs (ARs) and fish fry release would be considered if determined to be of value, as well as other initiatives that might enhance these habitats evaluated and implemented when considered beneficial; and
  (c) *stepping up research studies on CWDs, initiatives to enhance or enrich fisheries resources and/or other marine habitats and ecology in other parts of Hong Kong waters around Lantau)*
- The range of specific construction methods such as non-dredged reclamation method and DCM in CMPs and other mitigation measures defined in the EIA report could minimize or directly mitigate impacts on the marine environment and were considered adequate and appropriate.
- High speed and volume of HSF activities were considered the major threats to CWDs even at the construction stage in that :-

(a) the growing number of HSFs moving at high speed would increase the chance of collision with dolphins causing injuries or death; and
(b) high frequency underwater noise generated by HSFs operating at high speed would cause significant disturbance to dolphins.

- SkyPier HSFs travelling between Hong Kong and Macau/Zhuhai accounted for 60% of daily HSF numbers navigating the waters between the airport island and SCLKCMP while the preferred route for those HSFs traveling between Hong Kong and Macau/Zhuhai was south of Lantau (around 90% of total Hong Kong and Macau/Zhuhai traffic use a south Lantau route).
- The proposed 15-knot speed limit for the diverted SkyPier HSFs was a reasonable balance between the desired 10 knots for the protection of dolphins and what was practical for HSFs normally travelling at 30-40 knots without causing unacceptable safety and operational impacts on passengers on board. According to overseas research and AFCD studies, any reduction in speed from the 30-40 knot normal HSF travel speed would lessen the impact from HSFs on CWDs.
- Management of the SkyPier HSF traffic would include removing SkyPier HSF traffic from the water channel between SCLKCMP and the third runway to be constructed, re-routing these HSF to the north of Sha Chau and Lung Kwu Chau and reducing the speed of the diverted HSFs when they travelled close to CWD hotspots during the construction phase to minimize chances of collision and disturbance to CWDs. An additional initiative to the measures detailed in the EIA report was the commitment to cap the number of HSFs operating to and from the SkyPier at the current level of operation (i.e. an annual daily average of 99) prior to designation of the proposed marine park.
- Government had given a firm commitment to seek designation of the proposed marine park in accordance with the statutory process as a mitigation measure for the permanent CWD habitat loss arising from the 3RS project. Once the EIA report was approved, AAHK would be required under the EIAO to implement all mitigation measures, including seeking to assist in completing the designation of the proposed marine park by 2023 to tie in with the full operation of the 3RS.
- A marine park management plan would be submitted for approval by EPD and AFCD before the commissioning of the 3RS project.

PRE CWD National Nature Reserve

- AAHK had identified rather limited knowledge quantifying CWD abundance and habitat use patterns in the PRE CWD National Nature Reserve. Estimates on the effectiveness of the conservation measures of the National Nature Reserve could not be prepared as creditable data were not available at present.
- A MEEF under the MEFES would be set up. Part of the planned efforts under the MEFES would be appropriate studies to better establish CWD abundance and an understanding of habitat use in the PRE waters in order to provide the basis for establishing a holistic conservation framework for the PRE CWD population in collaboration with non-governmental organizations and CWD experts in Hong Kong and elsewhere, e.g. the Ocean Park Conservation Foundation.

13. A Member was concerned that some dolphins might face a higher chance of mortality if they were displaced to other habitats. Besides, even the core area in the PRE CWD National Nature Reserve was not a completely safe zone due to disturbance by HSFs and on-going activities of the HZMB projects. There were remarks that the CWD population in the area had dropped to 1 800 against 2 500 as quoted in the EIA report. He suggested AAHK to investigate into the home range of CWD, protection measures in their hotspots, impacts on them when they moved outside the Hong Kong waters and assurance of their return after completion of the 3RS construction. This view was shared by five Members.

14. Dr Tom Jefferson said that the home range of CWDs was around 130 km^2 on average. Dolphins naturally would shift from the disturbed construction works areas to other areas like SCLKCMP, southern part of Deep Bay and southwest Lantau, while some would shift to the PRE waters. Many of these areas were critical CWD habitats, some of which were already designated or soon to be designated as marine parks, with the marine park proposed in the EIA report to extend to additional important habitat areas and also to provide important protected linkages between existing critical habitat areas. He stressed that the proposed marine park would better protect these habitats and increase the chances of their continued use as CWD habitats in the Hong Kong waters in the long term. Dr Bernd Würsig supplemented that a recent AFCD report suggested that the decreased usage of parts of the habitat in and around SCLKCMP might be attributed to the increased HSF activities in the area. Imposition of a speed limit on some of the HSF routings through the area could improve the situation. It was again noted that there were local and overseas examples showing the return of dolphins after habitat restoration.

15. A Member pointed out that there would be a gap of 7-10 years for setting up the proposed marine park between now and 2023 when the 3RS would be in full operation. There was no scientific evidence to support that CWDs would return with this long lapse of time if dolphins were comfortable in the new habitat. The survey conducted by AAHK showed that the western part of Lantau was a good habitat regularly frequented by CWDs. She opined that a new initiative to set up some conservation or marine protected areas for CWDs in that area should be more meaningful.

16. Regarding the claim that the number of dolphins in the PRE CWD National Nature Reserve had declined, Dr Tom Jefferson advised that no meaningful reference had been found in the scientific literature to support such a claim, noting that the figure might possibly have been obtained from photo identification work, which could not be directly compared to the findings from their and AFCD's scientific surveys in the Hong Kong waters. AAHK had not been able to find good information describing trends of dolphin abundance over time in the National Nature Reserve or in other parts of the PRE. A paper on a modelling study of CWDs published in 2012 suggested that dolphins in the National Nature Reserve might be declining by 2.5% per year, which he considered was debatable. In response to the questions from two Members regarding the population modelling study in a scientific paper published in 2012 on the subject, Dr Jefferson said that the predictions were based on stranding data which could contain certain biases, for example due to failing to count stranded

dolphins that were remote (i.e. never found) or decomposed such that age or sex could not be determined. He understood that the modelling study used the demographic representation of different age classes within the stranded sample in calculating the expected population trends. This was problematic as other studies had shown that dolphins of different age and sex classes had different likelihoods of stranding. There were biases in the representation of different age and sex classes in the stranded sample. The 1 800 dolphins predicted to remain in the National Nature Reserve might not be representative of the actual situation. Dr Jefferson reiterated that it was valuable to have the designation of a protected area as a first step to protect marine life including CWDs, and hoped that the Mainland authorities would provide proper regulations and enforcement for the same purpose.

17. Mr Joseph Sham said that he generally agreed with the experts' comments. As regards the CWD's home range issue, data collected by AFCD monitoring in the past decade showed that while some dolphins had strong fidelity to the Hong Kong waters, others chose to move freely between Hong Kong and the PRE.

18. In reply to the question from a Member on the expected decline of CWDs in relation to the 3RS project, Dr Tom Jefferson said that of a number of key human activities known to adversely affect CWD well-being, the frequency and volume of high speed vessel traffic (including HSFs) as well as the engine noise were identified as posing the greatest threat to dolphins in recent years. There was evidence to show that the decline in the number of CWDs in north Lantau coincided with the increase in HSF traffic in the area, some from increasing SkyPier activities. The mitigation measures at the construction stage on diverting the SkyPier HSF traffic from the waters between HKIA and SCLKCMP and reducing HSF speed limit to 15 knots from the normal 30-40 knots along those parts of the diverted routes with high CWD abundance would hence be effective in reducing the expected construction impacts on CWDs. The additional initiative of capping the number of HSFs operating to and from the SkyPier to the current level prior to the proposed marine park designation would also be beneficial.

19. A Member asked about the data on the number of stranded/wounded dolphins treated by the Dolphin Rescue Centre inside the PRE CWD National Nature Reserve which could give indication of the effectiveness of its serving as the temporary habitat for CWDs. Dr Tom Jefferson replied that there was not much information published in the scientific literature or reports about the National Nature Reserve including methods used in protecting the dolphins. In response to a Member's further enquiry on whether the Government could assist on the matter, Mr Joseph Sham said that he had the understanding that not many CWDs had been referred to the Dolphin Rescue Centre for treatment.

20. A Member remarked that there was no scientific evidence to support that CWDs would come back after being displaced by the 3RS project, especially when there was no guarantee that there would be no further projects to be embarked in the area during the construction phase until 2023 when the 3RS would be in full operation. Another Member echoed that the overall declining trend of dolphins in the Hong Kong waters must be attributable to the HKIA activities at Chek Lap Kok. A

Member pointed out that there were cumulative impacts of the construction works around the 3RS project which had to be taken into account. In response, Dr Bernd Würsig said that the area to the west of the airport island was used to some extent by CWDs for feeding and foraging as well as travelling and the area to the north was identified in particular as an important east-west travelling area for CWDs. There was good evidence that dolphins had come back after the airport construction works completed in the 1990s, although it was unknown on how the number compared to the situation before the airport construction. The crux on whether dolphins would return to the area avoided due to marine construction activities was whether or not any impacted area could be returned to a healthy state and whether the remaining area was well protected. Dr Tom Jefferson supplemented that the number of dolphins had fallen during the development of the temporary AFRF development near Sha Chau, but had re-bounded to pre-construction levels after the facility was completed. After that time, a general decline was noted from around 2004/05 likely as a result of increase in HSF traffic including those from the SkyPier, lack of regulation on fishing activities in the Hong Kong waters including waters used by CWDs, as well as an overall lack of sustained measures in the protection of dolphins. The 3RS project had proposed to introduce new initiatives to protect CWDs including the designation of a marine park serving to increase the total marine protected area in north Lantau waters as well as providing important linkage between known high value CWD areas. In addition, the proposed SkyPier HSF route and speed limit proposals along with the additional initiative of a SkyPier HSF cap were expected to be effective to provide the basis for ensuring that the remaining marine habitats around the proposed 3RS development could revert to a healthy and protected state after completion of the 3RS. In response to the questions from a Member, Dr Jefferson and Dr Würsig recapped their claim that there were local and overseas examples e.g. San Francisco Bay showing the return of dolphins after habitat restoration.

21. A Member was also concerned about the large number of sand barges and construction vessels working/mooring in the area during the peak construction period. He opined that the cluttered environment would affect the sense of orientation of CWDs and hence increase the chances of their collision with vessels. Dr Bernd Würsig replied that construction vessels generally would be slow-moving and created only low frequency engine noise which was expected not to adversely affect CWD communication frequencies. Dolphins naturally would vacate the disturbed and noisy works areas and move to alternative habitats nearby. With experience from the HZMB projects and earlier construction works, there was no evidence to indicate a higher chance of dolphins getting disoriented and colliding with slow-moving vessels.

22. A Member pointed out that as CWDs would be forced to leave the habitat during the construction phase to avoid the disturbance, it was important to have a marine park or conservation zone off-site for these dolphins to stay before commencement of the 3RS construction. She suggested AAHK to enhance the water quality and carrying capacity of the west Lantau waters which was an ideal sanctuary for CWDs in parallel with the designation of the planned Brothers Marine Park (BMP). On marine traffic, the Member pointed out that there was HSF traffic operated by other operators in addition to those at the SkyPier. There was no detailed

study in the EIA report on the speed and volume of such HSFs and their impact on CWDs. She further pointed out that with the 3RS in place, the navigation channel between the airport island and SCLKCMP would become much narrower. This would increase the disturbance and chances of collision which again had not been fully assessed in the EIA report. A Member echoed this concern and considered that the SkyPier HSF routings had to be carefully planned to avoid further fragmenting the CWD habitats in the Lantau waters as the current HSF routings had already fragmented the dolphin habitats in the area.

23. Mr Peter Lee said that the 15-knot speed limit applied only to the SkyPier HSFs under the control of AAHK which comprised around 60% of HSF traffic operating between SCLKCMP and HKIA. With the designation of the proposed marine park, a speed limit of 10 knots would apply to all vessels (including HSFs) routing through the marine park. Some HSFs might re-route to avoid the marine park. A Member pointed out that this would divert HSFs to Urmston Road where there were high densities of dolphins with great impact on their safety. He was also concerned about the lack of speed limit on the SkyPier HSFs en-routing through the core area of the PRE CWD National Nature Reserve which was outside Hong Kong's jurisdiction.

24. In response to the question from two Members over the designation process of the proposed marine park, Mr Joseph Sham recapped the firm commitment of the Government to designate a marine park of approximately 2 400 ha to the north of the project site. The proposed marine park was considered as an appropriate mitigation measure that would provide a vital connection between the existing SCLKCMP and the planned BMP to compensate for the permanent loss of CWD habitats connected with the 3RS construction. The Transport and Housing Bureau (THB) as the supporting bureau to the project and AAHK as the project proponent would respectively take the lead in the process including provision of the necessary resources for the designation. All the relevant parties would work towards the target in completing the designation process by 2023 to tie in with the full operation of the 3RS.

25. A Member referred to the previous proposal to designate the waters around Soko Islands and Fan Lau as a marine park which had undergone all the designation processes including the gazettal, save seeking announcement by the Executive Council. He asked if AFCD could give an update on the position as Members were suggesting a marine park in the subject area as a refuge for CWDs displaced during the 3RS construction. Mr Joseph Sham explained the designation process required under the Marine Parks Ordinance (MPO). He said that the Government had planned to designate the area around southwest Lantau and Soko Islands as a marine park for enhancing conservation of CWD. AFCD had started the necessary ground work including consulting stakeholders such as fishermen's organization and rural committees. AFCD's present priority was the designation of the planned BMP which was a condition on the Environmental Permit (EP) for the HZMB projects set for completion by 2016. The Government had also planned to designate another marine park at Shek Kwu Chau in connection with the Integrated Waste Management Facilities (IWMF) project at Shek Kwu Chau by 2018.

26. Regarding a Member's request for the assessment of the environmental benefits and dis-benefits with and without the 3RS project, Mr Eric Ching explained that environmental benefits and dis-benefits had been addressed in the relevant parts of the EIA report. He pointed out that without the 3RS project, there would be obvious environmental impacts including air traffic movement (ATM) congestion when HKIA reached its full operation capacity, which in turn would lead to increased holding time for take-offs and landings and hence increased aircraft emissions and noise impact.

27. Dr Tom Jefferson, in response to a Member's enquiry about the EM&A monitoring and triggers for the action and response levels, said that there were considerations to give monitoring to allow quantitative analysis of the density and abundance of CWDs for different phases of construction works and the prospect of using additional information from the stranding programme to look at mortality during particular periods of the year, for assessment of unforeseen negative effect of the construction on dolphins. On the baseline for monitoring and evaluating the effectiveness of the mitigation measures, A Member commented that it would not be appropriate to set the baseline just before the construction of the 3RS in view that the disturbance on CWDs was already felt since the construction works of the HZMB projects. Dr Jefferson responded that they had a long-term database based on 19 years of survey findings on the changes of abundance and density of CWDs which had already been factored in the analysis. With regard to the Member's suggestion on getting stranding data by surveys at the coast of north Lantau and Tuen Mun regularly rather than relying on public reports, Dr Jefferson responded that no stranding surveys had been conducted before and historical data were largely based on reports by the public and government departments. Stranding data gathered through surveys and available historical data could not be compared on the same basis.

28. In response to related questions from Members, Dr Tom Jefferson, Dr Bernd Würsig and Mr Eric Ching explained details on the methodology typically used for estimating CWD abundance in Hong Kong as well as explaining the data-sets collected and methodologies used in completing the impact evaluation for the construction phase of the 3RS project. The use of night-time data in evaluating the importance of the 3RS project area as CWD habitats was also further explained, including the use of high resolution night vision device that was made possible only very recently.

29. A Member opined that the proposed 2 400-ha marine park was an existing habitat and should not be taken as compensation for the permanent habitat loss for the 650-ha reclamation footprint. AAHK should demonstrate that the proposed marine park would be properly managed to provide sanctuary for dolphins displaced by the loss of the existing habitat. Management measures were considered effective only if there would be a significant increase in the dolphin population after the designation. A Member pointed out that compensation should be in terms of quality of the habitat rather than simply a direct compensation for the area of the habitat lost. The key was to analyse the major factors causing the decline in the number of CWDs in the area and impose proper mitigation measures during the construction phase. A Member

pointed out that there would be eco-design of seawall to provide suitable habitat for CWDs and the fish population which in turn would enhance fisheries resources for the betterment of CWDs in the long run.

30. In view that a marine reserve had a higher standard of protection than a marine park, a Member suggested designating Sha Chau and Lung Kwu Chau and Brothers Islands which were hot spots of CWDs, together with the proposed marine park in the EIA report, as an enlarged marine reserve. This would give a stronger protection to CWDs. Dr Tom Jefferson advised that he had not undertaken a detailed study on the different requirements in setting up a marine park and a marine reserve. Mr Peter Lee reiterated that appropriate and suitable mitigation measures had been identified in the EIA report. The major commitment to establish a large marine protected area in the form of a marine park was appropriate and when considered with other proposed mitigation measures including HSF re-routings and speed controls would adequately mitigate/compensate the identified 3RS impacts. Dr Tom Jefferson added that fishing, including purse seine, was one of the major threats to CWDs, but fishing in the marine park would be restricted by permits issued by AFCD. In addition, designation as a marine park ensured that future development inside the marine park would be restricted. It was noted that the threat of contaminants in the marine environment in the PRE came mainly from agricultural activities in the Mainland, and Hong Kong could not control this aspect even with the setting up of a marine reserve in the area. The designation of the proposed marine park was considered sufficient to minimize the major threats which Hong Kong could control. Mr Eric Ching supplemented that a marine park management plan would be developed in conjunction with the designation of the proposed marine park. Designation of some no-take zones could be considered in this plan for the core areas of the proposed marine park and related limitations on fishing activities. Details would be worked out later when the management plan was developed.

31. Mr Joseph Sham advised that no fishing would be allowed in a marine reserve, whereas fishing in marine parks was mainly restricted to indigenous fishermen to continue their operation under the permit control and they had to use specified gear and methods as stipulated in the permits. Designation of a no-take zone was enforced by way of regulation under the MPO, e.g. at Tung Ping Chau for protection of corals. For the 3RS project, it was assessed that the impact on fisheries in the proposed marine park area would be moderate. There was no issue on indigenous villagers being issued with fishing permits as there were no such villagers living near the proposed marine park. The actual arrangement would be assessed after consultation with relevant stakeholders.

32. With regard to a Member's reference to the advice from some experts that even vessels travelling at 10 knots was not acceptable to CWDs, Dr Tom Jefferson clarified that the suggestion was that a speed of 10 knots was not dangerous for dolphins. He understood that a speed limit of 10 knots for vessels was common for most places with marine park restrictions. Mr Peter Lee supplemented that the proposed 15 knots for HSFs was a reasonable balance between safety for CWDs and passenger comfort on board.

Action

Question-and-Answer Session (Open Session in the afternoon)

Egretry

33. Members including four Members asked about the potential disturbance on egrets arising from the works of diverting the existing submarine pipeline from the airport to the existing AFRF located right next to Sheung Sha Chau, and the potential impacts on the existing egretry in Sha Chau during the construction and operation phase.

34. Mr Eric Ching explained that pre-construction surveys would be conducted during the breeding season to update the latest boundary of the egretry before confirming the daylighting location of the HDD tunnel. The specific method of HDD would be adopted to keep the disturbance on land to a minimum. All the drilling works would be carried out on the airport island and there would be no drilling station on Sheung Sha Chau. The HDD tunnel daylighting point would be kept to the minimum size and be situated as far away from the egretry boundary as practicable during the construction phase. There would be no night-time works during the construction and no works during the egret breeding season of April to July which was site-specific at Sha Chau. The pipeline would be laid along the rocky shoreline of the existing AFRF rather than through the vegetation of Sha Chau which was essential for breeding and night roosting of egrets. Minimal impact was expected on the egrety during the operation phase as the frequency and nature of human activities would be limited to routine maintenance of the existing AFRF.

35. As regards the questions regarding the submission from the Hong Kong University (HKU) Ecology Alumni which disputed the assessment in the EIA report, Mr Eric Ching said that they had carried out modelling work and found that the potential construction dust impact would be confined within the 500m of the existing or extended airport island. Construction noise impact would be limited to areas within 300-500m from the existing or extended airport island. With a separation distance of 1-2 km between the Third Runway and the egretry boundary, the impacts of construction dust and noise would be minimal to the Sha Chau egretry. The future lighting arrangements at the airport island would not be much different from the current situation. Mr Ching also pointed out that as there would be no significant egret flight path from the egretry to the land formation area, the potential impact on displacement of egrets due to glare and lighting effects was assessed to be negligible.

Fisheries

36. Two Members asked about the mitigation measures for the loss of fishing grounds during the construction phase, e.g. deployment of ARs, eco-design of seawall, etc. and supporting evidence on the suitability and sustainability of these measures. Questions were also raised on the comparison of the economic loss over the loss of fishing grounds/fisheries resources with that in the HZMB projects as well as on the conservation of marine fauna and species of conservation importance, e.g. longheaded eagle ray, long-tooth grouper and Gorgonian coral species.

37. Mr Eric Ching advised that the proposed 2 400-ha marine park, to be connected with the existing SCLKCMP and the planned BMP, was designed to compensate for the permanent loss of fishing grounds and fisheries habitats (and resources) upon completion of the 3RS project. Mitigation measures during the construction phase included minimization of land formation footprint to 650 ha, alternative alignment for submarine pipeline diversion and use of advance construction methods (e.g. non-dredge and HDD) to minimize impacts on the marine environment. Fisheries resources recovery as a result of the protection measures to be applied for the proposed marine park could be achieved and would benefit the adjacent fishing grounds by the spill-over effect. An enhancement measure of a Fisheries Enhancement Fund (FEF) was proposed in the EIA report to be set up to support sustainable development of the fisheries industry, e.g. to support and enhance on-going fisheries operations, improve mariculture, fishing technologies and techniques, and support the promotion of fisheries-related business opportunities. Fisheries stakeholder groups would be engaged during formulation of the FEF and the associated management arrangement, funding amount and allocation mechanism, as well as implementation of the FEF.

38. Mr Eric Ching further advised that there was no specific data available for a direct comparison between the 3RS project and the HZMB projects. Based on AFCD Port Survey results, the overall fisheries production in the 3RS project area in terms of weight had been assessed as moderately low (100-200 kg/ha/year) and in terms of value as moderately low to moderate ($1,000-$5,000/ha). Impact of direct fisheries habitat loss was assessed to be moderate in view of high mobility of the marine fauna, small population to be affected and availability of suitable habitats in the neighbouring waters, e.g. SCLKCMP and Brothers Island. There were relevant mitigation and enhancement measures recommended in the EIA report to sufficiently and adequately compensate the impacts. A Member disputed the basis of these assumptions for AAHK in devising mitigation and compensation measures for the fisheries habitat loss impact.

39. In reply to the Member's concern about the suitability and sustainability of deploying ARs in west Lantau waters as well as the possible change to the fisheries population dynamics in that part of the waters, Ms Julia Chan said that they had reviewed the scientific information on the deployment of ARs inside SCLKCMP and had presented the key findings in the EIA report. AFCD had also monitored the fishery resources around ARs. The study indicated that the highest density of fishery resources was recorded at Sha Chau and Lung Kwu Chau when compared to adjacent waters. Fisheries surveys and dive surveys at the waters around the ARs deployed in SCLKCMP had also been conducted for the 3RS EIA study and had recorded fisheries resources, as well as some Gorgonian coral species and other macro invertebrates were observed inhabiting on the ARs. These indicated that ARs had provided habitats for the aggregation of fisheries resources and other marine fauna in the western Hong Kong waters.

40. In response to a Member's question on the discrepancy in the estimated loss of fishery production of 0.08% in the EIA report and 0.81% submitted by the HKU Ecology Alumni, Mr Eric Ching advised that their estimation was based on field

specific data from surveys conducted with AFCD, whereas the one by the latter was a modelling result based on fishery modelling exercise.

41. Replying to the Member's further enquiry on how the proposed marine park could compensate for the loss of some 700 ha of fishing grounds, Mr Eric Ching said that the permit control system and other mitigation measures would restore and enhance fisheries resources in the marine park, which would have spill-over effect and bring up the fisheries resources in the waters adjacent to the marine park.

Corals

42. Two Members asked about the translocation plan for coral colonies identified in the land formation area which were of conservation importance. Mr Eric Ching said that potential for translocation would be reviewed prior to commencement of the construction and would be based on the conservation importance of the coral species, health conditions of the coral, size of the colonies and feasibility for translocation. The Gorgonian coral species to be affected was of very low coverage (<1%) and assessed as low to moderate impact significance. A coral translocation plan would be developed which would include information of coral colonies to be translocated, the proposed recipient area and baseline conditions, translocation methodology and monitoring of the transplanted coral colonies. Approval of EPD and AFCD would be sought before implementation of the plan.

43. As regards the concern on the compensation/mitigation measures for the loss of habitat for marine fauna particularly sea grass and horseshoe crabs which were of high conservation value as well as the construction impact on the Sites of Special Scientific Interest (SSSI) and marine parks nearby, Mr Eric Ching said that sea grass and horseshoe crabs were identified in some locations in northern Lantau but not on the existing artificial seawall or within the reclamation footprint. They hence would not be directly affected by the construction works. Results of a water quality modelling exercise also showed that the impact on water quality along the north Lantau coastline would be minimal, so there would be no direct impact and negligible indirect impact on the habitat and the marine species.

Presentation Session (Open Session in the afternoon)

44. Mr. Peter Lee briefed Members on particular questions/concerns raised on air quality and aircraft noise received during the public inspection period, explaining why the assumptions adopted in the operational air quality assessment were not considered to be overly optimistic; contribution of HKIA emissions on local air quality, including effect on ozone level; emissions reduction measures that would be implemented at HKIA; proposed aircraft noise mitigation measures under the 3RS operation; and the assessment criteria adopted in the aircraft noise impact assessment.

Question-and-Answer Session (Open Session in the afternoon)

45. Members raised questions/concerns on air quality and aircraft noise and impacts on health which were summarized as follows –

(a) Information on assumptions and assessment criteria on air quality and noise modelling and comparison on emission inventory for airport-related activities with and without the 3RS project;
(b) Justification on the assumption regarding the use of newer models of aircraft and engines with lower emission levels used in the EIA assessment;
(c) Mechanism to ensure timely phasing out of aircrafts as assumed in the projection;
(d) Explanation on the lower nitrogen dioxide (NO_2) levels in the Tung Chung/Sha Lo Wan areas as compared with the assessment result in the HZMB projects;
(e) Assessment of corresponding impacts for the Tsuen Wan/Ting Kau/Siu Lam/Tuen Mun areas;
(f) Scenario testing of the South runway planned to be at standby mode after midnight at 1% use;
(g) Commitment or understanding with the Civil Aviation Department (CAD) and the Mainland civil aviation authorities on putting the South runway on midnight standby mode;
(h) Assessment done for the 3RS project other than relying on the Noise Exposure Forecast (NEF) calculation methodology;
(i) Quantitative measures for environmental monitoring and audit (EM&A) purposes other than using NEF for noise modelling;
(j) Reports of noise exceedances beyond 70 decibel (dB(A)) in the Ma Wan/Tsing Yi/Tsing Lung Tau/Siu Lam areas between 2300 and 0700;
(k) Potential impacts on residents in Ma Wan, Tsuen Wan and Tuen Mun by shifting the runway operation northwards under the 3RS operation; and
(l) Information on the net health impact on the Hong Kong population with and without the 3RS project, particularly for those under the new flight path under the 3RS operation.

46. AAHK presentation team had responded to the above questions and concerns which were summarized as follows –

- Latest emission data and forecast on future ATM, emission reduction plans adopted in Hong Kong, as well as emission reduction targets already agreed and announced by the Hong Kong Government and the Guangdong Provincial Government, had been taken into account for the air quality impact assessment based on conservative assumptions.
- The acceptable air quality in Sha Lo Wan under the 2031 scenario during the 3RS operation, including a predicted decrease in annual concentration of NO_2 when compared with the 2RS scenario, were attributable to the planned design to put the existing South runway on standby mode in night time and shifting of dominant aircraft departure to the Centre runway to help move the pollutants further away from north Lantau.
- The global trend on continuous improvement on engine technology and more stringent emission limits as the international aviation standards had been factored in the air quality assessment, taking into account available information

on engine specifications and input from engine manufacturers obtained through International Air Transport Association (IATA).

- Validity of the relevant assumptions, recommended measures and the input data (including the operation mode with the 3RS) had been confirmed by CAD and supported with information from the relevant international authorities e.g. Federal Aviation Administration, IATA and International Civil Aviation Organization (ICAO).
- A comprehensive plan to rationalize flight routes and use of air space over the Pearl River Delta (PRD) region has been devised under the Tripartite Working Group among the civil aviation authorities of the Mainland, Hong Kong and Macau. The Tripartite Working Group aimed at implementing all enhancement measures by 2020.
- The driving force for aircraft replacement included safety, pressure to reduce operating costs and maintenance, high fuel prices, increased utilization of aircrafts and passenger preference for new aircrafts. These were very practicable and realistic factors that would encourage fleet replacement by airlines.
- IATA survey findings indicated the worldwide trend of the current average aircraft operational age by type at 20-25 years. The information was consistent with those collected from airlines operating at HKIA. Indeed, home-based carriers had already announced their plans on fleet replacement and use of new aircrafts in near future which were more environmentally friendly.
- Annual review in the recommended EM&A programme, including fleet mix review, would allow a regular review of the latest situation of noisy aircraft phasing-out programme, and permit consideration of the need and possibility to introduce additional measures/initiatives to facilitate the further reduction of aircraft noise.
- More conservative assumption had been adopted in the 3RS EIA report with respect to emission sources in the PRD region than that assumed in the HZMB projects. However, relative to contribution from vehicular emissions in the proximity, the effect was not expected to be significant since the emission sources in the PRD region were located at great distances away from the air sensitive receivers.
- Vehicular emissions of nitrogen oxides (NOx) in Lantau in the 3RS EIA assessment at 50%-80% lower than that of HZMB EIA assessment could be explained by :-
  (a) further tightening of vehicle emission standards i.e., Euro VI emission standard expected to be introduced as described in the Government's Clean Air Plan for Hong Kong, since the Euro V emission standard had taken effect for newly registered vehicles from June 2012;
  (b) subsidy for replacement of catalytic converters on light petroleum gas (LPG)/petrol taxis and LPG light buses; and
  (c) mandatory retirement of pre-Euro IV diesel commercial vehicles in phases.
- No operational air quality assessment for the Tsuen Wan/Ting Kau/Siu Lam/ Tuen Mun areas (except for an area in Tap Shek Kok) had been conducted as those areas were outside the 5-km study area based on the EIA Study Brief requirements.
- NEF was the assessment criteria for aircraft noise as stipulated in the Technical Memorandum on EIA Process (EIA-TM). Aircraft noise in terms of NEF

represented cumulative noise for average-annual daily conditions rather than any individual/single event. The noise modelling run for 2030 and 2032 had put the South runway to be used for 1% of the total yearly night period (2300 to 0700), which had taken into account special operational requirements, such as recovering from major operational disruption due to inclement weather, e.g. typhoon. It was not appropriate to model the 1% use of the South runway under a separate scenario.

- The South runway standby was not related to discussions on the Mainland airspace. CAD had already confirmed the feasibility of the mode of operation which was within Hong Kong's own air traffic control.
- There would be a three-tier process on the recommended EM&A programme :-
  (a) verification of the actual operation data by the end of the first year of the operation of the proposed 3RS with that predicted in the EIA report;
  (b) annual review report based on actual operation data and available aircraft noise monitoring data recorded at CAD's Aircraft Noise and Flight Track Monitoring System (ANFTMS) so collected; and
  (c) a five-year noise contour report to be undertaken to quantitatively monitor and audit aircraft noise upon the 3RS operation.
- Noise level recorded by CAD monitoring stations was instantaneous noise level.
- Some of the planned noise mitigation measures for the 3RS, including the implementation of a preferential runway use programme when wind conditions allowed and the use of the new arrival Track 6 during west flow direction would help reduce the percentage of flight movements near/over Ma Wan. On this basis, the populated areas in Ma Wan, Tsuen Wan and Tuen Mun were not covered by the NEF 25 contour, i.e. no noise sensitive uses/developments would be situated within the NEF 25 contour.
- CAD would implement a series of direct noise mitigation measures to reduce aircraft noise under the existing airport operation; these mitigation measures included banning Marginally Compliant Chapter 3 (MCC3) aircraft for landings and take-offs at HKIA during night time (2300 to 0700) since end March 2014, and to extend the prohibited period to cover the whole day for the existing 2RS operation from late October 2014. As part of the proposed EM&A programme on aircraft noise, AAHK would review and analyze the available aircraft noise monitoring data measured by CAD's ANFTMS.
- The aircraft noise health impact assessment (HIA) focused on comparing the changes in health impact between the operation of the 3RS and the 2RS in 2030, i.e. the year of "worst operation mode" that represented the maximum total aircraft noise emission.
- The key self-reported health effects of annoyance and sleep disturbance were assessed based on the noise matrices of L_{den} and L_{night}. The two matrices were commonly used for the evaluation of annoyance and disturbance to sleep based on relevant guidelines and other literatures such as that issued by the World Health Organization and the European Environment Agency. There was no established evidence linking cardiovascular disease with noise impacts.
- Noise sensitive populations in 2030 had been identified and considered collectively as the assessment area for a quantitative comparison of the "with" and "without" 3RS scenarios.
- Aircraft noise mitigation measures had been recommended to minimize the

impact to densely populated areas.

- There would be an overall decrease in the affected populations with the implementation of the proposed mitigation measures which included putting the south runway on standby mode at night time.

47. In response to requests from Members for elaboration on the modelling assumptions adopted in the EIA report and their validity in assessing aircraft noise and the associated health impacts, Mr Hans Dorries said the methodologies adopted in the aircraft noise modelling were based on ICAO Doc 9911 and SAE AIR 1845 which were internationally accepted standards for generating noise contours for airports. The calculation methodology described in ICAO Doc 9911 had been validated for decades and was internationally accepted by ICAO members. Part of the methodology involved using the aircraft noise and performance database recommended in ICAO 9911. The database was an integral part of the Integrated Noise Model which was the computer software used to develop the noise contours. In addition, the aircraft noise and performance database had been validated through many agencies which certified aircraft engines for noise performance. The aircraft noise performance database would be updated when new certification data became available. According to ICAO 9911, it would not be appropriate to validate actual measurement with the model as the aim of the modelling was to develop an annual average contour to identify the area with long-term noise exposure rather than calculating specific noise measurement or noise level at specific locations. In view of Members' concern, the Chairperson suggested AAHK to provide further details on the worst case scenarios in the event that the assumptions adopted did not turn out as predicted in the EIA report.

48. As regards Members' questions on how the airport runways, under both the 2RS and the 3RS operation, could be fully utilized and the assessments on air quality and aircraft noise be maintained within the levels as predicted in the EIA report, Mr Peter Lee advised that even in the existing 2RS operation, one of the runways would need to be closed for conducting regular inspection and maintenance from about 1 am to 7 am. In the future 3RS operation, the general operating hours would be as below –

Three operating runways:	0800 - 2300
Two operating runways:	2300 - 0100
One operating runway:	0100 - 0700
Two operating runways:	0700 - 0800

Taking into account the operational need to keep one of the runways for maintenance on a rotational basis and the assumption that the South runway would be assigned at night-time standby mode, the 3RS runway capacity could increase from 420 000 ATM to 620 000 ATM per year. The 1% night-time use of the South runway had been incorporated in the projection of NEF which was an annual daily average prediction.

49. Regarding the monitoring work of the 3RS, Mr Peter Lee explained that NEF was the planning criteria adopted in the EIA-TM for aircraft noise assessment. For the purpose of confirming that the actual aircraft noise performance complied with the NEF 25 Contour predicted in the EIA report, they would update the NEF contour with the actual operational data after a full year of operation of the new Third

Runway, i.e. 2021, and thereafter once every five years. In fact, it was a common practice to produce impact contours using actual operational data for comparison with predicted results for EM&A purposes.

50. On the questions of whether NEF contours could be converted to other measurable parameters for assessing the aircraft noise impact of the 3RS, Prof Wong Tze-wai pointed out that there was no local standard or internationally accepted level of aircraft noise on health impact. The essence of the HIA conducted with the unit in dB(A) was to compare the level of annoyance and self-reported sleep disturbance under the two scenarios (i.e. 2RS vs. 3RS operation) and identify any incremental impact on the noise sensitive receivers. Based on the assessment result, there was an overall reduction in the affected population though certain areas might be more affected under the 3RS operation.

51. Prof Wong Tze-wai further explained that the matrices of L_{den} and L_{night} were used for assessing the exposure-response relationships on annoyance and self-reported sleep disturbance respectively. Making reference to similar European studies, the assessment aimed to estimate the number of population affected under different noise levels under average exposure. L_{den} was the noise matrix used for assessing annoyance to the population and referred to the average noise energy level in the day time and night time in which the evening hours and the night-time hours carried higher weights, whereas L_{night} was the noise matrix for self-reported sleep disturbance which referred to the night time mean level which was restricted to certain hours. Both matrices were internationally accepted for assessment of this kind. While the contours of NEF and L_{den} and L_{night} for HIA on aircraft noise shared the same input data and forecast, they were two different sets of matrices with different outputs of assessments and were not directly related.

52. Referring to the complaint from a resident of Park Island in Ma Wan on aircraft noise which was anticipated to aggravate under the proposed 3RS operation, Mr Peter Lee advised that they had been closely liaising with CAD and Park Island residents to address their concerns. Banning the landings/take-offs of MCC3 aircrafts since March 2014 in the night time and further extending the restriction to whole day in October 2014 was one of the measures to address the noise problem at source. Further, under the proposed 3RS operation, the preferential runway use programme, together with the use of the new arrival Track 6 during west flow direction, would help reduce flight movements near Ma Wan. This would help alleviate the noise problem on Park Island residents. AAHK would continue engaging neighbouring sensitive receivers such as organising airport visits and sharing the benefits and improvements on aircraft technology.

53. As regards Members' concern on whether AAHK had been over-optimistic on the effectiveness on the policy initiatives and measures in improving air quality in both Hong Kong and across the border, Mr Peter Lee confirmed that they had adopted a conservative approach in assessing air quality improvement before giving their estimation in the EIA report.

54. Members were concerned that areas including Ma Wan, Tsing Yi and Tsing

Lung Tau had recorded noise exceedances beyond 70 dB(A) between 2300 to 0700. Shifting the runway operation to further north would affect more sensitive receivers in the populated areas in Tseun Wan and Tuen Mun. Concerns were also raised on the HIA on noise-related disease. Questions were further made on the credibility of the data in the EIA report as the noise level recorded in the report were all below 70 dB(A) without cases of exceedance and that the HIA assessment adopting a self-reporting mechanism were all with positive results.

55. Prof Wong Tze-wai said that there was a lack of overall consistency in findings or reported studies, even often with statistically insignificant results linking cardiovascular disease with aircraft noise impacts. Assessment in the EIA report concluded that there was a net reduction of the affected population under the 3RS operation when compared with the 2RS scenario. This could be explained in the difference in the future demographic distribution in Tung Chung and the Siu Lam/Tuen Mun areas. He pointed out that in the absence of local study concerning the health impact of aircraft noise, the HIA in the EIA report was based on overseas studies, including the self-reporting approach which was internationally accepted. Prof Wong also explained that the aircraft noise levels recorded by the CAD monitoring stations were instantaneous noise levels in dB(A) which could not be directly compared to L_{den} and L_{night} matrices as illustrated in the EIA report. He reiterated that the instantaneous data collected from CAD was not directly comparable to the data in the L_{den} and L_{night} matrices adopted in the EIA report.

56. A Member helped explain that the prevailing NEF contours were produced based on historic data and was not a predictive model with assumptions for a future-year scenario. For the present 3RS EIA study, AAHK took the scenario in 2011 whereby the actual full year operation data together with other aircraft data in the year were inputted in the model to produce the NEF contours for the 2011 scenario. NEF contours for other future years were to be based on the predicted parameters.

57. As regards the noise concern from villagers in Sha Lo Wan and San Tau, Mr Peter Lee advised with the 3RS in operation, the flight movements would be shifted northwards on the basis of the proposed measure of putting the South runway on standby mode at night time and the aircraft noise impact in north Lantau would be reduced. They were having close discussions with the affected villagers and would reflect their views to the relevant departments/authorities for follow up.

58. On the question regarding any risk analysis conducted for unforeseen circumstances during the construction phase, Mr Eric Ching advised that risk analysis in relation to hazard to life had been conducted to provide quantitative risk assessment for all the fuel supply facilities. AAHK would develop action and limit levels and the associated event action plans for CWDs, air, noise, water quality and waste monitoring for implementation in the relevant EM&A programme to ensure timely response and appropriate follow-up actions.

59. The Chairperson thanked AAHK for the presentation and their answers to the questions raised. The meeting would resume on 13 August 2014 to cover other

environmental issues covered in the EIA report.

[The project proponent team left the meeting at this juncture.]

Internal Discussion Session (Closed Session)

CWDs and the proposed marine park

60. Mr K F Tang confirmed that according to the EIA-TM, on-site mitigation measures had to be considered and exhausted before instituting off-site mitigation measures. He also advised that there was no specified timing on the designation process of marine park.

61. A Member remarked that AAHK had no authority over the designation of marine park and the Government had to make a public commitment for the purpose. A Member was concerned that the designation of the proposed 2 400-ha marine park could fail or be deferred especially in view of the strong objections from the concerned fishermen over the loss of fishing grounds arising from the 3RS project. She considered that the proposed marine park was not a good mitigation measure in view of the uncertainties of the designation work including timing and location. She pointed out that Fan Lau was the preferred alternative site for a marine park before commencement of the 3RS construction.

62. The Chairperson summarized Members' views as follows –

(i) AAHK should explore the feasibility of designating an additional marine park off-site near Fan Lau and Soko Islands before or during the construction phase of the 3RS;
(ii) AAHK should explore the feasibility of designating part or parts of the proposed marine park during the construction phase;
(iii) AAHK should provide further information on the speed limits and routings of the SkyPier HSFs going through Urmston Road during the 3RS in view of the proposed diversion of HSF routes in the area;
(iv) AAHK should endeavour to provide further information on the performance of the PRE CWD National Nature Reserve; and
(v) AAHK should provide a comparison of all the environmental benefits and dis-benefits with and without the 3RS project in respect of marine ecology, air and noise impacts.

Egretry

63. The Chairperson summarized Members' views that the daylighting location should be as far away from the egretry as practicable. AAHK should provide a plan on the pipeline layout and daylighting location after site investigations, with indication of the minimum distance from the closest point of the pipeline to the latest boundary of the egretry for assessment of the possible impact.

Fisheries

64. A Member considered that AAHK must address the concerns over compensation for the loss of fishing grounds during the construction phase, justify their estimation of the economic loss for the affected fishermen, propose mitigation measures for species of conservation value, and provide concrete evidence to justify the effectiveness of the proposed marine park, deployment of ARs etc. for enhancing fisheries resources in the area.

Corals

65. Members suggested AAHK should develop a Coral Translocation Plan to include information of coral colonies to be translocated, the recipient areas and monitoring after the translocation.

Air quality and noise impacts

66. A Member was concerned about the validity of the air and noise modelling adopted in the EIA report and how the assessment results could be verified. He would accept the assumptions if they were based on international trend/standards/ practices and supported by local regulatory authority, e.g. CAD on the assumption on aircraft substitution trend. Another Member remarked that on air quality assessment, data at ambient level, aviation trend and emission from the airport itself should be taken into account when analysing the worst case scenario.

67. Mr K F Tang reminded Members that they might have to consider the implication of imposing certain "aggressive/vigorous" conditions to the EP which the project proponent, AAHK in the present case, might have to apply for variation of the EP at a later stage. He then invited Dr Kenneth Leung to explain to Members on how the worst case scenario was derived and assessed in the EIA report, as well as the kind of supplementary information that could be provided by AAHK for Members' further deliberation.

68. Dr Kenneth Leung advised Members on the following –

(i) The worst case scenario was year 2031 with the highest emission generated by the airport operation, taking into account all the activities given rise from the increase of over 620 000 ATM per year and all the assumed improvements in aircraft mix and engine types. The key difference between the 2RS and 3RS scenarios was the spatial distribution of the emission, the increase in ATM and the relevant increase in emission due to the increase in ATM. There was no linear relationship between increase in ATM and the emission increase as there would be emission improvement due to the replacement of older aircraft and use of newer aircraft engine;

(ii) The Pollutants in the Atmosphere and their Transport over Hong Kong (PATH) model was used as the background air quality due to emissions in Hong Kong and the PRD. AAHK had taken into account that all the emission control policies agreed by both the Hong Kong and Mainland Governments that would

be implemented by 2021 as pledged; and

(iii) While the same modelling methodology was adopted in the HZMB and the 3RS studies, the one for the 3RS was more robust in that it split up the runway emissions into the actual physical locations and simulated the impacts of the landings and take-offs in every hour on the sensitive receivers. The difference of emission estimates, e.g. the predicted NO_2 concentration in Tung Chung could be explained in that the PATH result of the 3RS project had provided detailed breakdowns of the sources such as the airport itself, background emission and proximity infrastructure, i.e. road network, whereas the modelling result for the HZMB projects only provided a cumulative assessment result with major contribution by proximity infrastructure. The Government's vehicle emission control programme would result in substantial reduction in emission as predicted in the 3RS EIA study.

69. Mr Andrew Lai said that the Clean Air Plan announced by the Government in 2013 was targeted to handle the major air pollution sources in Hong Kong, i.e. vehicles, power plants and marine vessels. Aircrafts were not a major source of air pollution. The improvement measures in the Clean Air Plan were implemented independent of and separated from the 3RS project. The air improvement measures under the 3RS to be brought by AAHK would give added-on benefits in enhancing the overall air quality environment in the area. In the EIA report, AAHK had proposed initiatives that complied with the prevailing regulations and requirements including the Air Quality Objectives (AQOs). While the Government was committed to reviewing the AQOs every five years and aimed to further tighten up and enhance the AQOs where practicable, it would only be reasonable to require AAHK to work out the assessment with reference to the prevailing AQOs and not the new standards to be targeted in future.

70. The Chairperson summarized Members' views that AAHK was required to provide supplementary information on the following –

(i) Elaboration on the L_{den} and L_{night} matrices to facilitate Members' understanding on how the HIA on aircraft noise in relation to annoyance and sleep disturbance to noise sensitive receivers were assessed;
(ii) Assessment on the worst case scenario in respect of aircraft substitution trend and whether and how CAD could enforce aircraft fleet mix and the phasing-out programme assumed in the EIA report;
(iii) Noise impact assessment on the worst case scenario when the South runway was at standby mode after midnight at 1% use and relevant information on the quantitative measures which could monitor the impact on sensitive receivers under such situation; and
(iv) Future information to indicate how the noise impact in Ma Wan could be improved under the 3RS operation.

She remarked that not only in Hong Kong but the whole aviation industry worldwide was facing pressure for more stringent emission control and quieter and greener engine type of their aircraft fleet during the operation cycle of 20-25 years.

Action

Item 4: Date of next meeting

71. The meeting suggested that AAHK would be required to attend the EIASC meeting on 13 August 2014 (AM session) and another meeting session on 18 August 2014 to finalise Members recommendations on the 3RS EIA report.

EIA Subcommittee Secretariat
August 2014