Confirmed Minutes of the 164th Meeting of the Advisory Council on the Environment held on 12 October 2009 at 2:30 pm

Present:

Prof LAM Kin-che, SBS, JP (Chairman)
Prof Paul LAM, JP (Deputy Chairman)
Ms Teresa AU
Dr Dorothy CHAN, BBS
Prof CHAU Kwai-cheong
Mr Michael JEBSEN, BBS
Mr Edwin LAU, MH
Prof Joseph LEE
Mr Michael LEE
Dr MAN Chi-sum, JP
Mr TSANG Kam-lam
Prof WONG Ming-hung
Mr Simon WONG, JP
Dr YAU Wing-kwong
Mr Carlson K S CHAN (Secretary)

Absent with Apologies:

Mr Oscar CHOW
Ms Betty HO
Dr Alfred TAM
Prof Ignatius YU

In Attendance:

Ms Anissa WONG, JP	Permanent Secretary for the Environment
Mr C C LAY	Assistant Director (Conservation), Agriculture, Fisheries and Conservation Department (AFCD)
Mr P Y TAM	Assistant Director/Technical Services, Planning Department
Ms Esther LI	Acting Principal Information Officer, Environmental Protection Department (EPD)
Ms Josephine CHEUNG	Chief Executive Officer (CBD), EPD
Ms Loletta LAU	Executive Officer (CBD), EPD

In Attendance for Agenda Item 3

Mr C W TSE, JP	Assistant Director (Environmental Assessment), EPD
Mr Sam WONG	Principal Environmental Protection Officer (Regional Assessment), EPD
Mr Terence TSANG	Senior Environmental Protection Officer (Regional Assessment)1, EPD
Mr Ken WONG	Senior Environmental Protection Officer (Cross Boundary)2, EPD
Mr Joseph SHAM	Assistant Director (Country & Marine Parks), AFCD
Mr Dick CHOI	Senior Marine Conservation Officer/West, AFCD
Mr Cary HO	Senior Nature Conservation Officer/South, AFCD
Mr CHENG Ting-ning, JP	Project Manager/HZMB HK, Highways Department (HyD)
Mr TAM Hon-choi	Chief Engineer/HZMB, HyD
Mr BOK Kwok-ming	Chief Engineer/HKBCF, HyD
Mr LIU Ho-hoi	Chief Engineer/NWNT, HyD
Mr Alex KONG	Director, Ove Arup and Partners HK Ltd. (Arup)
Mr Franki CHIU	Associate Director, Arup
Mr Samuel KWAN	Associate, Arup
Mr Vincent LAI	Aquatic Ecologist, Arup
Mr Eddie TSANG	Design Manager, Arup
Mr Conrad NG	Technical Director, AECOM Asia Co. Ltd. (AECOM)
Ms Helen COCHRANE	Director, AECOM
Mr Y H HUI	Senior Environmental Scientist, AECOM

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Action

Agenda Item 1 : Confirmation of the draft minutes of the 163rd meeting held on 14 September 2009

The draft minutes were confirmed without amendment.

Agenda Item 2 : Matters arising from the minutes of the 163rd meeting held on 14 September 2009

2. There were no matters arising from the minutes of the last meeting.

Action

Agenda Item 3 : Report on the 110th EIA Subcommittee meeting
(ACE Paper 16/2009)

Internal Discussion Session

3. The Chairman informed Members that the Environmental Impact Assessment (EIA) Subcommittee had discussed the following three EIA reports related to the Hong Kong-Zhuhai-Macao Bridge (HZMB) project at its meeting on 21 September 2009 –

(a) HZMB Hong Kong Link Road (HKLR);
(b) HZMB Hong Kong Boundary Crossing Facilities (HKBCF); and
(c) Tuen Mun-Chek Lap Kok Link (TMCLKL).

The EIA Subcommittee considered the EIA reports in detail and agreed that the project proponent be requested to provide supplementary information. The Subcommittee also proposed some conditions should the EIA reports be endorsed. After considering the supplementary information provided by the project proponent, the Subcommittee was in general ready to endorse the EIA reports. A few Members expressed reservation on specific issues. The Subcommittee recommended that the project proponent be invited to attend the full Council meeting to address any outstanding issue and concern.

4. The Chairman informed Members that agenda item 3 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. Internal Discussion Sessions of agenda item 3 and all other sessions of the meeting would remain closed.

5. The Chairman informed Members that a Member had declared interest before the meeting that her company was involved in the public engagement exercise of the subject EIA studies. To avoid any possible conflict

of interest, she had abstained from the Subcommittee meeting and would also abstain from the full Council meeting.

6. The Chairman informed Members that the public inspection period of the three EIA reports was from 14 August 2009 to 12 September 2009. Public comments received by the Environmental Protection Department (EPD) were circulated to EIA Subcommittee Members before the Subcommittee meeting for reference.

7. The Chairman informed Members that three sets of submissions directly addressed or copied to the Council had been circulated to Subcommittee Members before the Subcommittee meeting for information. After the Subcommittee meeting, eight submissions had been received. All the submissions had been circulated to Members before the meeting for information. As one of the submissions was received shortly before the meeting, it was also tabled for Members' information.

8. The Chairman of the EIA Subcommittee reported on the deliberations and considerations of the Subcommittee. He pointed out that as there were some outstanding issues and concerns which some Members would like to clarify, the project proponent was requested to provide supplementary information. The supplementary information was circulated to Subcommittee Members before the full Council meeting and was incorporated in Annex C and Annex D of the paper. The major outstanding issues were –

(a) air quality impact on local sensitive receivers;
(b) consideration of the impact of ozone on local sensitive receivers;
(c) potential impact of alignment Option A for the middle section of HKLR on sensitive receivers in the North Lantau, in particular Sham Wat, Sha Lo Wan, Hau Hok Wan and San Tau.

9. The Chairman of the EIA Subcommittee informed Members that after issuing of the paper, a Member also gave some comments and sought clarifications on the supplementary information provided by the project proponent. The key aspects were –

(a) effectiveness of watering and dust suppressing measures;
(b) background air quality in Tuen Mun; and

(c) comparison between alignments Option A (viaduct) and Option C (tunnel) for the middle section of HKLR in terms of air quality and marine ecology.

The project proponent's written response to the Member's questions had been circulated to all Members before the meeting for information.

10. After discussion, the meeting agreed to focus the discussion on the alignment options of the middle section of HKLR, impact on marine ecology and air quality impact.

11. In view of the fact that the three EIA reports were inter-related and the project proponent of the three projects was the same party, i.e. the Highways Department, the meeting agreed to combine the Presentation Session and Question-and-Answer Session for the three reports to facilitate consideration of the projects.

(The project proponent team joined the meeting at this juncture.)

Presentation Session (Open Session)

12. Mr Cheng Ting-ning introduced the background of the projects and key outstanding issues and concerns of the EIA Subcommittee. Mr Alex Kong, Mr Franki Chiu and Ms Helen Cochrane briefed Members on the details of the supplementary information.

Question-and-Answer Session (Open Session)

Alignment options for the middle section of HKLR

13. After considering the supplementary information and explanations given by the project proponent, Members confirmed that they had no further questions to raise on the aspect of alignment options for the middle section of HKLR.

Impact on marine ecology

14. The Chairman asked whether the assessment had taken into account the cumulative impacts of the HZMB project, including sections outside Hong Kong territory, on the marine ecology, in particular the Chinese White Dolphins (CWD), within Hong Kong waters. Mr Alex Kong confirmed that the EIAs undertaken in Hong Kong had taken into account the environmental impacts of both the HZMB Main Section outside Hong Kong territory and the section within Hong Kong. The assessment of impact on marine ecology within Hong Kong waters had taken into account the construction of the entire Bridge. Mr Cheng Ting-ning added that a detailed survey and impact assessment had also been conducted by the Mainland side to assess the impacts of the whole HZMB project on CWD habitat. There would be a comprehensive package of measures taken by the Mainland side and Hong Kong to mitigate the cumulative impacts of the project on CWD in the Pearl River Delta (PRD) region in a holistic manner.

15. Upon a Member's enquiry about the details of the assessment, Mr Alex Kong explained that the sensitive receivers in the EIA studies were the marine habitat in Hong Kong waters and the sources of impacts included projects within and outside Hong Kong waters. For example, the water quality modeling included the sediment plume caused by the construction of the Main Bridge, artificial islands and tunnel outside Hong Kong waters. Water quality parameters, such as suspended solids and dissolved oxygen had been assessed and were found to be in compliance with the Water Quality Objectives.

16. A Member enquired about the impact of the projects on CWD habitat during the construction phase and monitoring measures in view of the uncertainties in the construction process. Mr Cheng Ting-ning assured Members that a series of mitigation measures, including silt curtains, avoidance of percussive piling, dolphin exclusion zone and dolphin monitoring programmes, would be implemented during the construction phase to ensure that the water quality would not deteriorate and to minimize the disturbance to the CWD.

17. A Member considered that dredging was the most disturbing construction activities for CWD and enquired about the proposed dredging method. Mr Cheng Ting-ning explained that closed-grab dredging would be used with fully-enclosed silt curtains to ensure minimal impact on CWD and

marine species. For piling works, a steel casing would be sunk into the seabed for grabbing the sediments within the casing to ensure that no sediment would be spilled over. Upon the Chairman's enquiry, Mr Cheng said that the dredging works would start in around the forth quarter of 2010.

18. Mr Cheng Ting-ning highlighted that thorough assessment had been conducted on the impact of the projects on CWD. The major active area of CWD was the western waters of the Airport Island. The proposed location of HKBCF in the water adjacent to the north-eastern side of the Airport Island was the option which would cause the least impact on CWD habitat. Recognizing that there would be a loss of sea area due to reclamation, the Government had committed to designating the Brothers Islands as a marine park with a view to enhancing the CWD habitat. A study, taking about nine months, would be conducted immediately after the completion of major marine construction activities, in particular the seawall construction, in around 2013 to provide information for mapping out the boundary of the proposed marine park. It was anticipated that the statutory and administrative procedures for the designation would be completed by 2015.

19. A Member enquired about measures to align the timing of the designation of the marine park with the commencement of the construction works. Mr Cheng Ting-ning highlighted that during the construction phase, a series of mitigation measures would be adopted to minimize impact on CWD. The purpose of designating the marine park was to compensate the loss of sea area due to reclamation. They would expedite the process of designation as far as practicable.

20. A Member asked the possibility of advancing the preparation work for designating the marine park by starting the study as early as possible rather than waiting until the completion of marine construction activities in 2013. Another Member also urged the project proponent to advance the designation of the marine park as early as possible as he considered that the marine park was not only a compensatory but also a mitigation measure to provide an escape for CWD during the construction phase.

21. Mr Cheng Ting-ning explained that they had seriously considered the possibility of speeding up the process of designation. Immediately after the commencement of construction works, they would carry out a desk-top study to

review available survey data in parallel with on-site monitoring of CWD. The designation of a marine park required the support of scientific and robust survey data as objections were expected from the affected parties. For the collection of more realistic and updated data on the post-construction stage, the earliest timing of the study would be immediately after the completion of seawall construction. If the study started too early, the data might be affected by the on-going marine construction activities which would affect its validity and reliability.

22. A Member suggested commencing the study before the completion of marine construction activities to collect more baseline information. Mr Cheng Ting-ning noted Members' request for advancing the designation of the marine park. He explained that while monitoring would be conducted before and during the construction phase, a detailed study after completion of marine construction activities would be necessary to provide comprehensive data. To address Members' concern, he undertook to bring forward the study by starting the study before the construction phase to collect baseline information and during the construction phase to find out possible impact of the projects on CWD. After completion of marine construction activities, a further study would be conducted to verify and reconfirm the accuracy and integrity of the data. This would help expedite the completion of the study.

23. A Member suggested drawing reference to the data collected by the Agriculture, Fisheries and Conservation Department (AFCD) in the past years. As CWD were mobile species and there was no boundary in their movement, it would be difficult to forecast how they would be benefited from the designation of a certain marine park. Mr Cheng Ting-ning agreed that CWD and marine species were very mobile and thus a longer period of on-site monitoring and study, in particular after the completion of the marine construction activities, was required to collect sufficient and updated information to map out the optimal location and scale of the marine park.

24. A Member asked about measures to be taken in case the study result showed that the number of CWD around the Brothers Islands was not as high as expected and whether consideration would be given to enhance the area biologically to provide a favourable habitat for the CWD. Mr Cheng Ting-ning explained that the designation of a marine park would have to rely on extensive scientific and robust data collected from the past as well as during and after the construction. The data was essential for mapping out the optimal scale of the

marine park. They would consider the feasibility of biologically enhancing the habitat if necessary.

25. In reply to the Chairman's enquiry about the size of the proposed marine park, Mr Cheng Ting-ning said that the actual size of the marine park would depend on the findings of the study. Based on the current estimation, the size would not be less than the reclamation area proposed for the HKBCF and TMCLKL projects.

26. The Chairman noted that the reclamation area proposed by the HKBCF and TMCLKL projects would be about 174 ha. Upon his enquiry, Mr Joseph Sham said that the size of marine parks for protection of marine mammals, including the existing Sha Chau and Lung Kwu Chau Marine Park and the two proposed marine parks in Fan Lau and Soko Islands ranged from 600 ha to 1,200 ha. Mr Cheng Ting-ning explained that the purpose of the proposed marine park was to provide a favourable environment to enhance CWD conservation.

27. A Member said that as the HZMB was a cross boundary project, a joint monitoring body on CWD across the border should be set up to facilitate the exchange of information and coordination of actions to ensure effective implementation of monitoring and mitigation measures throughout the long construction period. Mr Cheng Ting-ning explained that there was very close communication between Hong Kong and the Mainland on the project, especially on monitoring programmes of CWD. As shown in the Executive Summary of the EIA report of the Main Bridge conducted by the Mainland, the Mainland side would carry out an equally effective monitoring system for CWD. The Highways Department would continue to maintain close dialogue with the Mainland side to ensure adopting the best practices to protect the CWD. Upon the request of the Member, Mr Cheng undertook to raise the proposal of setting up a joint monitoring body for the Mainland Authority's consideration. The Chairman said that the joint effort on the PRD Regional Air Quality Monitoring Network was a good example to be followed.

28. A Member enquired about the impact of the projects on Horseshoe Crabs, Finless Porpoises and Romer's Tree Frogs. Mr Vincent Lai explained that the soft shore along the Airport Channel was the nursery ground for Horseshoe Crabs. Access to the area would not be obstructed during or after completion of

the projects and thus the nursery ground would not be affected by the construction and operation of the projects. There would be sufficient habitat in the open sea for the adult Horseshoe Crabs. For Finless Porpoises, the project sites were outside the distribution range of this species, which mainly concentrated in the southern and eastern Hong Kong waters. The projects would not affect the habitat of Finless Porpoises. For Romer's Tree Frogs, there was a remnant population in the northern side of Scenic Hill on the Airport Island. The alignment of HKLR at the Scenic Hill would be in the form of a tunnel and the tunnel portal would be located at the outer side of Scenic Hill. The habitat of Romer's Tree Frogs would not be affected.

29. A Member asked whether a contingency plan would be put in place to cope with the situation of possible spillage of dangerous goods carried by vehicles which might affect the marine habitat. Mr Alex Kong said that reference could be made to the Shenzhen Western Corridor project for which an Emergency Response Plan had been drawn up and was submitted to the Council and EPD two months before the operation of the road.

Air quality impact

30. Regarding the level of Total Suspended Particulates (TSP) in Tuen Mun during the construction phase of TMCLKL, Mr Cheng Ting-ning pointed out that the contribution of TSP from the project was insignificant and the exceedance was due to the high background TSP level. To address the concern of Members as well as the public, they would take further measures to help reduce the ambient TSP level. They had identified three pieces of bared government land near the construction site. Hydroseeding or paving would be carried out on these areas during the construction phase of TMCLKL to help reduce the background TSP level.

31. A Member asked about the quantitative relationship between source loading of dust and effectiveness of watering on dust suppression. Ms Helen Cochrane explained that the source loading of dust in the sites had been taken into account in the assessment. The unmitigated source levels used in the model were taken from the information of the US Environmental Protection Agency (USEPA). The mitigation measure of watering was applied to the modeling results.

32. A Member enquired about consistency of approach in obtaining the background TSP level for assessment. He noted that the TSP level in Yuen Long Air Quality Monitoring Station was used in the EIA report on TMCLKL but some other EIAs used an average of several monitoring stations. Ms Helen Cochrane explained that the information on background data would be much dictated by the location of the EPD air quality monitoring stations. For the current EIA, the data from Yuen Long was used as it was the closest monitoring station to the construction site. This would provide the most representative data for assessment of worst-case scenario. As for other EIAs, an average of data from two or more monitoring stations might be used as the site might be located in between the stations.

33. A Member asked the practicability of having water trucks moving around the construction site to conduct 8 to 12 times of watering a day. He noted that there was some chemical dust suppression method adopted in overseas projects. Ms Helen Cochrane explained that sufficient manpower resources would be deployed to ensure the effectiveness of watering as a mitigation measure. For larger construction area, water truck drainage system would be used. Mr Cheng Ting-ning thanked for the suggestion of using the relatively new technology of chemical dust suppression method. He undertook to look into the practicability and effectiveness of applying the method to the TMCLKL project.

34. A Member noted that there was concern about the TSP level in Tuen Mun. He asked whether there would be monitoring mechanisms to ensure that actions, such as scaling down or stoppage of works for a temporary period, would be taken if the TSP level exceeded a certain level. Mr Cheng Ting-ning explained that air quality monitoring stations would be set up for the projects in Tung Chung, Tuen Mun and Lantau to closely monitor the air quality level in the vicinity of the construction sites. In reply to the Chairman's enquiry, Ms Helen Cochrane said that there would be two monitoring stations in Tuen Mun and monitoring would be on a weekly basis. Upon the Chairman's request, Mr Cheng Ting-ning undertook to step up the air quality monitoring programme in Tuen Mun to address the residents' concern.

35. A Member noted that the exceedance of TSP level predicted by the EIA was on an annual average basis. Ms Helen Cochrane confirmed that there was no exceedance of TSP in terms of 1-hour and 24-hour average. The TSP

contribution of the project was very low and the exceedance of annual TSP level was due to the high background level. In terms of monitoring and immediate response action, the 1-hour and 24-hour TSP levels would be closely monitored and appropriate actions would be taken.

36. A Member enquired about the monitoring of TSP during the operation phase. Mr Alex Kong explained that TSP mainly referred to construction dust due to construction activities. It was not a parameter for air quality assessment during the operation phase.

37. Regarding the issue of ozone (O_3), a Member queried the rationale of not assessing the O_3 level especially in Tung Chung where the problem was serious. Mr Cheng Ting-ning and Mr Alex Kong explained that the approach in assessing air quality impact in the current EIA reports was consistent with other approved EIA reports on highway infrastructure and road projects. As pointed out in the EIA reports and supplementary information, vehicles would not generate O_3 directly but would however generate nitrogen oxides (NO_x) and a smaller amount of Volatile Organic Compound (VOC). The formation of O_3 was a regional problem and involved a complex interaction between a large number of chemical substances such as NO_x and VOC. Unlike nitrogen dioxide (NO_2), the O_3 formation by photochemical reaction would take several hours and O_3 recorded locally, such as in Tung Chung, could be attributed to NO_x and VOC emissions from places afar. Mr Franki Chiu added that NO_x generated from vehicles would quickly react with O_3 in the background to form NO_2. NO_2 was therefore the key pollutant assessed in the EIA reports. Nonetheless, O_3 was not ignored in the assessment. The predicted O_3 level had already been assessed in the modeling of background air quality and the effect of O_3 in the generation of NO_2 had been taken into consideration in the assessment.

38. The Chairman asked whether the increased traffic flow during the operation phase would worsen the O_3 problem of Tung Chung. A Member also asked the situation in Tuen Mun. Mr Cheng Ting-ning and Mr Alex Kong confirmed that it would not. Mr Franki Chiu highlighted that the O_3 concentration, no matter in Tung Chung, Tuen Mun or other places such as Shatin and Tap Mun, should be considered in a regional context. The levels of NO_2 and VOC attributed by the project in the regional context were insignificant. Mr Bok Kwok-ming added that since NO_x would quickly react with O_3 to form NO_2. NO_2 was the key parameter for air quality impact assessment in road

projects and the EIA findings showed that the level of NO_2 under the worst-case scenario was in compliance with the criteria.

39. A Member asked whether it would be possible to estimate the level of increase in the O_3 level in quantifiable terms, though it would be very insignificant, due to the increased generation of NO_x and VOC arising from the projects. Mr Franki Chiu explained that all relevant chemical processes of different air pollutants had been taken into account in the air quality modeling. It should be noted that O_3 could not be assessed for local sensitive receivers individually as it was a regional problem. The emission inventory of O_3 in the PRD was used as the background for assessment in different areas. Mr Alex Kong added that as NO_x would quickly react with O_3 in the background to form NO_2, the project would not generate any extra contribution to O_3 formation in Tung Chung.

40. A Member noted that NO_x generated from the projects would constitute about 0.09% of the regional total and 0.6% of local emissions. He considered that notwithstanding the small contribution against the regional context, there would still be adverse impact on local sensitive receivers in Tung Chung and Tuen Mun. He noted from some research papers that even very low concentration of O_3 would have very damaging effect on human health especially children and the elderly.

41. A Member asked whether the estimation of hourly O_3 level in Tung Chung area in Year 2031 (average concentration of 62 $\mu g/m^3$) stated in paragraph 4.3 of Annex C3 of the paper was based on the estimated contribution from the road project plus the background level. Mr Franki Chiu explained that the estimation was based on data including the regional VOC emission inventory together with other related pollutants such as NO_x and the meteorological data such as sunshine, wind direction and temperature. While O_3 was not a parameter for assessment in road projects, the information was provided for reference only. Upon the Member's enquiry as to whether this concentration of 62$\mu g/m^3$ would meet the hourly criterion for O_3 in the Air Quality Objectives (AQOs), Mr Chiu stated that it would indeed meet the hourly criterion of 240$\mu g/m^3$ in the AQOs.

42. Mr C W Tse pointed out that it was an international practice that the local effect of O_3 would not be assessed in road projects. A major reason was that O_3 was determined by the interaction of air pollutants in a regional context

rather than contributed by a local project. More importantly, vehicular emissions would reduce the local O_3 level instead of increasing it. The NO emitted by vehicles would react with O_3 to form NO_2. Thus, it would reduce the O_3 level in the local context. Mr Cheng Ting-ning said that this explained why no extra O_3 would be generated from the road projects and why NO_2, rather than O_3, was used as the key parameter for assessing air quality impact. The findings of the EIA showed that the NO_2 level fully complied with the criteria.

43. Regarding the basic assumptions for air quality assessment, a Member enquired about the reliability of the assumption on the use of 50% natural gas for power generation by Year 2031 and asked whether there would be any impact on the air quality modeling result in case the assumption could not be realized. Mr Cheng Ting-ning explained that the two power companies had stated in their annual reports that utilization of natural gas would be increased to 50% by early next decade. The worst-case scenario for air quality impact assessment was the assessment year 2031. There was a long buffer time of over 15 years for the power companies to achieve the target. The assumption was considered reasonable and conservative. The EIA findings would not be affected so long as the assumption was realized before 2031.

(The project proponent team left the meeting at this juncture.)

Internal Discussion Session

44. The Chairman highlighted that the recommendations of the Council on the EIA reports had to be based on justified grounds having regard to the environmental impacts of the projects, findings of the EIA reports and information provided to the Council.

Alignment options for the middle section of HKLR

45. Upon the Chairman's enquiry, all Members confirmed that they had no outstanding concern or query on the issue of alignment options for the middle section of HKLR. The meeting agreed to the finding of the EIA that alignment Option A (viaduct) was a preferred option over alignment Option C (tunnel) from the environmental and ecological point of view.

Impact on marine ecology

46. Regarding the impact of the projects on marine ecology, Members agreed that they were satisfied with the explanations given by the project proponent in respect of the assessment of cumulative impacts of the HZMB project, including sections outside and within Hong Kong territory, on the marine ecology within Hong Kong waters.

47. Regarding the disturbance of the projects to CWD during the construction phase, Members noted that the project proponent had proposed a package of mitigation measures, such as silt curtains, dolphin exclusion zone, dolphin monitoring programme and joint monitoring with the Mainland side. A Member suggested confining the working area in order to minimize potential impact on CWD. A Member supported the suggestion. Another Member suggested employing the Marine Exclusion Zones for the protection of marine habitat during the construction period. Monitoring in the zone could be strengthened to ensure that the CWD could have a habitat with minimal disturbance during the construction period.

48. Mr C C Lay explained that there would be difficulty to designate a Marine Exclusion Zone for the purpose of protecting the CWD. The Marine Exclusion Zones were designated by the Marine Department for particular purposes such as traffic control. One of the mitigation measures proposed by the project proponent was the setting up a dolphin exclusion zone and construction works would stop immediately in case any dolphin moved close to the construction site.

49. In respect of impact of the projects on marine species during the construction period, Mr C C Lay referred to previous construction works in the area, such as the Airport Island which was of a much larger scale. The mitigation measures proposed for the current EIA reports were more stringent than those proposed for the Airport project. The potential temporary impact of the projects on CWD during the construction period had been adequately addressed in the EIA reports. A Member agreed that the proposed mitigation measures for the piling works were adequate.

50. Members were satisfied with the mitigation and monitoring measures recommended in the EIA reports for the protection of CWD during the

construction phase.

51. Regarding the designation of the proposed marine park, the Chairman considered that the key considerations were the timing and size of the marine park. With available data on CWD, taking 12 months to conduct the desk-top survey and another nine months to conduct the study after completion of marine construction activities was relatively long.

52. A Member considered that there should be room for advancing the designation of the marine park. Rather than starting the study after the marine construction activities, the study should be initiated as early as possible. There were available data on the distribution of CWD based on previous research, though further data had to be collected during and after construction. Another Member considered that as CWD would prefer a habitat with least disturbance and they were relatively mobile, there was no need to wait for the completion of the project before the designation of the marine park.

53. A Member said that any assessment of the distribution of CWD depended very much on the research undertaken. It was observed that the available data on distribution of CWD had close relationship with the frequency and coverage of survey effort. There was still much uncertainty on where the CWD lived.

54. Mr Joseph Sham said that the Government was committed to the designation of the marine park at Brothers and the details had yet to be confirmed. Research findings showed that the area of Brothers Islands was a favourable habitat for CWD. There was already a Marine Exclusion Zone around the East Brother Island and vessels were not allowed to enter the zone. Moreover, with the support given by the Country and Marine Parks Board, actions were being taken to speed up the designation of Sokos Island and Fan Lau in Western Lantau as marine parks by 2011. These two marine parks would provide a favourable habitat for CWD and other marine species during the construction phase of the projects. While monitoring on CWD had been conducted for about 10 years by AFCD, it was necessary for the project proponent to conduct dolphin surveys before, during and after the construction works as CWD was a relatively mobile species. The study would provide useful data to support the designation of the marine park.

55. A Member said the size of the marine park would be a questionable issue. Instead of compensating the loss of habitat in terms of the reclamation area, a much larger size would be required as relocating the CWD would be a subtle and complicated process. He urged the Council to give careful consideration to avoid accepting assumptions and mitigation measures in a piece-meal manner which would not fulfill the objective of maintaining sustainability of the marine habitat.

56. A Member suggested requiring the project proponent to set out a minimum size of the marine park based on the principle of compensation. Another Member suggested nailing down a size of the marine park, such as three times of the size of the reclamation area, pending the findings of the study.

57. Mr C C Lay explained that there was difficulty for AFCD to advise on the minimum size of the proposed marine park at this stage without sufficient scientific data. On the temporary impact of the project on CWD during the construction phase, a package of mitigation measures had been proposed. The objective of the marine park was for enhancement of marine habitat during the operation phase. To ensure that the marine park would serve its purpose, the Council might consider requesting the project proponent to submit a detailed plan, including the proposed size and management regime, with scientific data to the Council for comments and advice.

58. A Member said that the Council had to be careful in avoiding recommendations which were too vague and too defensive as the general public would expect a firm view from the Council on more concrete proposals for the protection of CWD. There was also a proposal of designating Tai O as a marine park which would help protect the CWD during the construction phase of the projects. If a detailed plan on the marine park was requested from the project proponent, it should be submitted to the Council prior to the commencement of construction works.

59. A Member asked how the survey data could help determine the size of the marine park. Mr Joseph Sham explained that the survey data would help map out the pattern of sightings around the Brothers Islands to facilitate the drawing of the boundary and size of the marine park. Mr C C Lay added that while there were available data on the distribution of CWD in Hong Kong waters, it was important to gather more scientific and up-to-date research data on the

impact of the projects, in particular after construction of the seawall. The survey result would not only provide information in mapping out the boundary of the marine park, but also facilitate consideration of measures to enhance the management regime of the marine park for protection of CWD.

60. A Member considered that it was necessary to allow some flexibility in mapping out the boundary and size of the marine park. If the Council were to propose a certain ratio or size of the marine park at this stage, its decision had to be based on some scientific information.

61. In reply to the Chairman's enquiry, Mr C C Lay explained that there was no fixed ratio of compensation for terrestrial habitat under the EIA mechanism. For compensation on the number of trees such as woodlands, it was a usual practice for the project proponent to recommend a certain ratio of compensation. For compensation of habitat loss, it was necessary to address the functional loss and there was difficulty in arriving at a ratio of compensation.

62. The Chairman suggested and Members agreed that the project proponent should be requested to submit the proposal and detailed plan, including the proposed size and management plan, of the proposed marine park in the Brothers Islands, in consultation with the AFCD, to the Council for comments and advice before the commencement of construction works.

Air quality impact

63. On the TSP level in Tuen Mun during the construction phase of the TMCLKL, Members noted that the project proponent had committed to the additional mitigation measure of hydroseeding some of the off-site space, which was government land near the construction site, to help reduce the background TSP contribution.

64. Two Members suggested and Members agreed to include an additional condition that the project proponent should increase the frequency of monitoring of TSP level, in consultation with the EPD, to ensure that appropriate mitigation measures, including stoppage of works if necessary, would be taken to mitigate any upsurge of TSP level.

65. Regarding the assessment of impact of the projects on O_3, a Member

considered that NO_x emitted from the vehicles could also mix with O_2 to form O_3 and thus might increase the local O_3 level. Mr C W Tse clarified that the main NO_x generated from vehicles would be in the form of N_2O and NO, which would quickly react with the O_3 in the background to form NO_2. In the vicinity of road networks, the O_3 level would be reduced rather than increased by vehicular emissions. It was shown by the fact that the O_3 level in urban area was much lower than that in suburban area, such as Tap Mun. Despite the absence of traffic flow in Tap Mun, the O_3 level was relatively high. It was an international practice that local impact on O_3 was not assessed in road projects.

66. In reply to a Member's enquiry, Mr C W Tse elaborated that vehicular emissions would increase NO_2 level and thus an assessment on the impact of the projects on NO_2 was required in the EIAs. The EIA findings were that the resultant NO_2 levels would fully comply with the AQOs. The Member considered that while the contribution of the increased traffic flow would be insignificant in terms of regional total, it would have more impact on the local sensitive receivers. He registered his objection to this approach of assessment.

67. A Member said that while recognizing the complex process of O_3 formation, the high O_3 level in Tung Chung and Tuen Mun as well as in the territory was a serious problem and it should be addressed in the EIA reports. He registered his reservation on this aspect.

68. Regarding the basic assumptions on air quality assessment adopted by the EIAs, the Chairman suggested that the Council must be satisfied that the basic assumptions were reasonable and practicable. Likewise, the Authority should also be satisfied with the assumptions as the materialization of some of the assumptions was outside the control of the project proponent.

69. A Member considered that there was contradiction in the assessment of future air quality based on assumptions of future scenarios against a set of prevailing AQOs. As the air quality modeling was based on assumptions and reliability of the assumptions was very important. Another Member said that he could not see the logic of comparing the predicted air quality level in the future with a set of prevailing AQOs.

70. The Chairman said that it was an established approach stipulated in the EIA Ordinance and Technical Memorandum on EIA Process to consider

whether the predicted air quality level would comply with the prevailing standards. It was also a common practice that a reference year was adopted for air quality impact assessment when the road infrastructure was in full capacity.

71. A Member said that he noticed that there was an overall dropping trend of the pollutant levels in the region. There was also a commitment of the Guangdong Provincial Government to using more natural gas for power generation by the construction of a natural gas pipeline. Nonetheless, there seemed to be some uncertainty on the assumption of using 50% natural gas for power generation in Hong Kong.

72. Mr C W Tse said that the EPD had examined in detail the assumptions adopted in the EIA studies before they considered that the EIA reports were suitable for public inspection. For assumptions related to the PRD emissions, the assumptions were based on official documents published by the Guangdong side. The assumptions were on the conservative side. A substantial buffer was allowed as they only assumed implementation of the planned emission reduction measures up to 2015 for the assessment year of 2031. Furthermore, the Guangdong side would certainly continue to undertake further emission control measures in the run up to 2031. As regards the assumption of using 50% natural gas for power generation in Hong Kong by 2031, given that the Government had prohibited the construction of new coal-fired power generation units since 1997 and many of the existing coal-fired units would reach the end of useful life in the coming 10 to 15 years and had to be replaced with gas-fired units, the assumption was considered reasonable and could even be on the conservative side.

73. A Member was concerned about the increasing number of vehicles in the Mainland due to economic growth and thus would increase the number of vehicles travelling to Hong Kong. Moreover, the fuel standard of the Mainland was lower than that of Hong Kong. There was still uncertainty on whether they could pick up the fuel standard before completion of the project. Another Member said that she understood that there was a prevailing policy on controlling the volume of traffic and traffic mix entering Hong Kong.

74. A Member considered that the assumptions were based on justified grounds. Nonetheless, he was concerned about the implementation of the assumptions. He noted from the press recently that the Mainland was only able

to achieve the emission reduction targets for the first time last year. A monitoring mechanism had to be put in place to keep track of the implementation of the assumptions.

75. A Member considered that while it was difficult to predict whether the assumptions could be materialized, the modeling had built in a safety buffer. He believed that these assumptions could be achieved. Another Member said that with her experience in engaging in traffic forecasts, she noted that the predictions usually built in a certain range of buffer, especially for large-scale infrastructure projects.

76. A Member said that he was hesitant to agree to the assumptions and predictions. Another Member registered his reservation on the assumptions. A Member said that the Council should be careful in the consideration of time buffer of the assumptions. He also highlighted that there were also procedural issues which the Subcommittee had dealt with, including the comments on short timeframe for the public to give comments and provision of only the English version of the EIA reports.

77. All other Members confirmed that they were satisfied with the explanations on the assumptions from the scientific perspective. A Member added that predications would have uncertainties and he considered that the uncertainties in the assessment were within the safe margin. The Chairman concluded that it was the majority view that the assumptions adopted for air quality assessment were considered reasonable and acceptable.

78. The Chairman concluded that the Council endorsed the three EIA reports with the conditions set out in paragraph 24 of the paper recommended by the EIA Subcommittee with an amendment to the condition under paragraph 24 B(b) of the paper for the EIA report on HKBCF, i.e. "the project proponent should submit the proposal and detailed plan, including the proposed size and management plan, of the proposed marine park in the Brothers Islands, in consultation with AFCD, to the Council for comments and advice before the commencement of construction works". Moreover, an additional condition would be included under the EIA report on TMCLKL, i.e. "the project proponent should increase the frequency of monitoring of TSP level, in consultation with EPD, to ensure that appropriate mitigation measures, including stoppage of works if necessary, would be taken to mitigate any upsurge of TSP level."

Action

Agenda Item 4 : Review of Air Quality Objectives
(ACE Paper 13/2009)

79. The meeting agreed to defer the discussion of agenda item 4 to the next meeting.

Agenda Item 5 : Any other business

Tentative items for discussion at the next meeting

80. The agenda was being compiled. Members would be informed in due course.

Agenda Item 6 : Date of next meeting

81. The next meeting was scheduled for 9 November 2009.

ACE Secretariat
October 2009