Confirmed Minutes of the 77th Meeting of the Environmental Impact Assessment Subcommittee of the Advisory Council on the Environment held on 24 March 2003 at 4:00pm

Present:

Mr. Otto Poon (Chairman)
Prof. Ho Kin-chung (Deputy Chairman)
Mr. Peter Y C Lee
Mr. Lin Chaan-ming
Dr. Ng Cho-nam
Mrs. Mei Ng
Miss Alex Yau
Miss Petula Poon (Secretary)

Absent with Apology:
Prof. Wong Tze-wai

In Attendance:

Mr. Elvis Au	Assistant Director (Environmental Assessment & Noise), Environmental Protection Department (EPD)
Mr. C C Lay	Assistant Director (Conservation), Agricultural, Fisheries and Conservation Department (AFCD)
Mr. Eddie Cheng	Executive Officer (E), Environment, Transport and Works Bureau

In Attendance for Agenda Item 3:

Mr. C.M. Chung	Senior Engineer, Project Management Division, Drainage Services Department
Mr. S.C. Ma	Engineer, Project Management Division, Drainage Services Department
Mr. Doug McLearie	Director, MWH Hong Kong Limited (MWH)
Mr. Peter C.T. Lee	Principal Environmental Consultant, MWH
Ms Amy Cheung	Environmental Consultant, MWH
Mr. Kwok Hon Kai	Ecologist, Ecosystems Ltd.
Mr. Vincent Lai	Ecologist, Ecosystems Ltd.
Mr. To King Ho	Principal Environmental Protection Officer (Territory Assessment) (Atg), EPD
Mr. Tom Tam	Senior Environmental Protection Officer (Territory Assessment)4, EPD

In Attendance for Agenda Item 4:

Mr. Stephen P M Tam	Chief Production Officer, The Hong Kong and China Gas Company Limited (Towngas)
Mr. Joe Y H Wong	Gas Supply Planning Manager, Towngas
Mr. Burton C W Ng	Strategic Planning Manager, Towngas
Dr. Andrew Jackson	Managing Director, Environmental Resources Management
Dr. Robin Kennish	Technical Director, Environmental Resources Management
Dr. Helen Chiu	Senior Consultant, Environmental Resources Management
Mrs. Shirley Lee	Principal Environmental Protection Officer (Urban Assessment), EPD
Mr. Ken Wong	Senior Environmental Protection Officer (Urban Assessment)5, EPD
Mr. Alan Chan	Senior Marine Conservation Officer (East), AFCD

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Action

The Chairman expressed gratitude to Prof. Lam Kin-che, the former Subcommittee Chairman, for his excellent chairmanship in leading the Subcommittee in the past several years. He also said that the Subcommittee would continue its practice of sounding out Members on the nature of questions to be asked before the actual discussion with the project proponents. Also, as there were eight Members including himself in the Subcommittee, the Chairman suggested and Members agreed that the quorum of meetings should be four Members. In cases of voting, four votes (not including that of the Chairman) would be sufficient for reaching a decision.

Agenda Item 1: Confirmation of Minutes of 75th and 76th Meeting held on 4 November 2003 and 11 February 2003

2. Members confirmed the draft minutes without amendments.

Agenda Item 2: Matters Arising

Para. 3: Risk Assessment Report and Water Quality Assessment of Tung Wan Option

3. The Chairman informed Members that the above reports were circulated to them for consideration in December 2002 and the Council subsequently endorsed the reports in January 2003.

Action

Para. 4: Deteriorating Air Quality and the Third Comprehensive Transport Study

4. The Chairman informed the meeting the Secretariat had requested the Transport Branch of ETWB to update the full Council on the Third Comprehensive Transport Study and transport strategy. Arrangements would be made once the Transport Branch was ready.

Para. 12: Update on drainage projects near Lok Ma Chau

5. The Chairman reported that that the updated information had been sent to Members.

Para. 35: Progress Report on Shenzhen River Regulation Programme Stage II

6. The Chairman said that the Secretariat had contacted the Drainage Services Department (DSD) concerning the above progress report. DSD advised that the relevant works of the project had been completed and they were preparing a final progress report. The report would be sent to Members once available.

Agenda Item 3 : Environmental Impact Assessment Study for Upgrading and Expansion of San Wai Sewage Treatment Works and Expansion of Ha Tsuen Pumping Station
(ACE-EIA Paper 1/2003)

7. The Chairman welcomed the project proponent team to the meeting. Mr. C M Chung started off the presentation and Mr. Peter C T Lee introduced the EIA study of the project to Members.

Treatment level

8. In response to a Member's enquiry, Mr. C M Chung confirmed that disinfection would be adopted in phases 1 and 2 of the project.

9. A Member said that the Government was conducting trials on the Biological Aerated Filter (BAF) technology in the Stonecutter Island Sewage Treatment Works. Since the Chemically Enhanced Primary Treatment (CEPT) was less effective in removing bacteria, he asked whether some space would be reserved for adopting the BAF technology in the event that the Government decided to adopt that technology in future. In response, Mr. C M Chung said that based on the consultant's water quality analysis, CEPT with disinfection would be able to treat the effluent to the required standard. Mr. Peter C T Lee added that in addition to using CEPT, the effluent would be disinfected by using ultra violet light. Mr. Doug

McLearie supplemented that the Stonecutter Island Sewage Treatment Works used CEPT for treating the effluent and no disinfection was adopted. The upgraded Sewage Treatment Plant in San Wai would use disinfection in addition to CEPT.

10. A Member pointed out that the sewage treated by the Stonecutter Island Sewage Treatment Works had high salinity because of the use of seawater for flushing. The performance of CEPT in San Wai Sewage Treatment Plant might be different because the flushing water was mainly fresh water. Mr. McLearie said that the CEPT system was widely used in other countries and such data had been collected for the purpose of the current study. He reiterated that CEPT with disinfection would be able to treat effluent to the required standard.

11. A Member said that disinfection was not adopted by the Stonecutter Island Sewage Treatment Works because of cost implication. The water quality of the upgraded San Wai Sewage Treatment Plant should be closely monitored and space should be reserved in case disinfection was not effective and BAF was required instead. Mr. C M Chung said that the study which was based on actual data collected from the existing San Wai Sewage Treatment Plant should be reliable. The quality of the treated effluent would be closely monitored and remedial actions would be taken if it were below the required standards. Mr. Peter C T Lee supplemented that according to the assessment, the ultra violet disinfection system could remove 99.9% of E-Coli in the effluent.

Deep Bay

12. A Member pointed out that the effluent discharged by the Shenzhen side would have more impact on the water quality of Deep Bay and Lung Kwu Tan than the effluent discharged from Hong Kong side. The model should take into account the impact of development on the Shenzhen side. In response, Mr. Peter C T Lee explained that the assessment was based on the projected 2016 scenario, which had included the impacts from Shenzhen River and Pearl River.

13. A Member asked whether the treated effluent discharged into the Deep Bay would lead to a degradation of water quality. He said that the Deep Bay area produced a fair amount of seafood and he feared that the bacteria in the effluent might affect the food chain there. In response, Mr. Peter C T Lee explained that the treated effluent of the upgraded Sewage Treatment Plant would meet the performance criteria. The reduction in E.Coli level was an indicator of the improvement in water quality. Mr. Vincent Lai added that the project would lead to an improvement in the water quality in Deep Bay and waters near Northern Lantau Island and would be beneficial to aquatic life in those areas. Mr. C M Chung supplemented that

the project would upgrade the preliminary treatment in the existing San Wai Sewage Treatment Plant to chemically enhanced primary treatment (CEPT) with disinfection. Furthermore, the treated effluent would normally be discharged into Lung Kwu Tan instead of Deep Bay and such arrangement would minimize the impact on ecology.

Land contamination

14. A Member said that the expansion of the sewage treatment works would involve space previously used as open storage areas and vehicle workshops. She feared that the vehicle workshops might have land contamination problem. Mr. Peter C T Lee agreed that areas which were previously used as vehicle repair workshops might have land contamination problems. However, at present they could not gather soil samples from the sites concerned. Nonetheless, land contamination assessments would be conducted once those areas were resumed and any land contamination problem would be dealt with properly. He believed that the land contamination problem, if any, would be very localized and could be handled offsite without affecting the progress of the project.

Loss of the enhanced fishpond

15. A Member expressed concerns that the enhancement of the remaining fish pond in phase 1 but losing it in phase 2 might cause more disturbances to the environment than no enhancement at all. In response, Mr. Peter C T Lee explained that phase 2 of the project would largely depend on the programme and scale of the Hung Shui Kiu New Development Area (HSKNDA) and the enhanced fishpond might therefore last for some time. The implementation strategy for the enhancement of the pond would be reviewed once the HSKNDA was finalized. In addition, centralized ecological compensation areas under HSKNDA would be provided for the loss of habitats in the region, including the two fish ponds lost in the expansion work. In reply to the Member's enquiry, Mr. C M Chung said that phase 2 was tentatively scheduled to commence in 2007, but the actual starting date would rely on the progress of HSKNDA.

Impact during construction

16. A Member hoped that measures would be taken to reduce the noise and odour generated by the machinery of the project. In response, Mr. Peter C T Lee advised that the project proponent had carried out impact assessment on noise nuisance and the conclusion was that with the use of quiet plants and temporary noise barriers, the noise impact was within acceptable level. Also, construction work of the project would be restricted to daytime (7:00a.m. to 7:00p.m) to further reduce the impact.

Action

Energy consumption

17. In reply to a Member's enquiry, Mr. C M Chung said that there was no figure on energy consumption at hand but the expansion of the Sewage Treatment Plant from 164,000m^3 to 246,000m^3 of effluent per day and the upgrading of the treatment level would inevitably increase energy consumption.

Culvert alignment and material

18. In response to a Member's enquiry on the alignment of the culvert and the material to be used, Mr. C M Chung explained that to tie in with the development in HSKNDA, option 4 of the culvert alignment was tentatively chosen. The alignment would be reviewed if there were changes in the HSKNDA development. DSD attached great importance to sustainable development and would consider carefully the design and the material used when constructing the culvert.

Reusing treated effluent

19. A Member asked if the treated effluent would be reused in phase 2 of the project and whether space was available for that. In response, Mr. C M Chung pointed out that the issue of reuse of the treated effluent was a broad-term subject and Members' views would be taken into account together with other considerations, such as the prevalent policy and cost etc. Furthermore, whether the treated effluent could be reused for other purposes would also depend on the situations of individual treatment plants. The Chairman hoped that DSD would consider the suggestion and the Member suggested that the subject of total water management should be discussed at future meetings of the full Council. Secretariat

Conclusion

20. The Chairman thanked the presentation team and summarized the following points for their consideration-

(a) Disinfection would be used for both phase 1 and phase 2 of the project.
(b) There should be necessary precautions in the construction phase to reduce construction noise and odour.
(c) After land resumption, measures should be taken to address the land contamination problem, if any, before construction works took place.
(d) The Subcommittee requested to see the final routing of the emergency culvert once available.
(e) DSD should consider the reuse of the treated effluent as far as possible.

(f) Construction material should be sustainable as far as practicable.

The Subcommittee endorsed the EIA report without conditions.

Agenda Item 4: The Proposed Submarine Gas Pipeline from Cheng Tou Jiao Liquefied Natural Gas Receiving Terminal, Shenzhen to Tai Po Gas Production Plant, Hong Kong – EIA Study
(ACE-EIA Paper 2/2003)

21. The Chairman welcomed the presentation team. Mr. Stephen Tam started off the presentation and Dr. Robin Kennish presented the findings of the EIA study to Members.

Maintenance of the submarine pipelines

22. A Member enquired about the expected life span of the pipelines and the monitoring and maintenance measures that would be taken. In response, Mr. Joe Wong explained that the designed life for the pipelines was 50 years and a very good corrosion prevention system would be in place to protect them. An intelligent inspection gauge would be used in inspecting the internal conditions of the pipes on a regular basis and very minimal maintenance work would be required.

Red tide

23. A Member pointed out that Tolo Harbour was a red tide sensitive area and he was concerned about the possible occurrence of red tide in the area. In response, Dr. Kennish explained that they had conducted a water quality modelling with wet and dry seasons simulations of water quality conditions and which took into account the impacts from suspended sediments, the release of nutrients and its effects on water quality and the likelihood of algae bloom. According to the modelling results, the Water Qualities Objectives would not be exceeded as a result of the jetting and dredging operations and an algae bloom was unlikely. Past experience showed that red tides in the Tolo Harbour usually occurred in springtime. Hence, the jetting and dredging works would avoid as far as possible the sensitive period for red tide and minimize the impacts on the water quality. The Member said that according to a recent research, the organisms responsible for causing red tides would rest on sediment and the dumping of the sediment to other areas might result in the spreading of red tide. In response, Dr. Kennish clarified that the sediment of the dredging areas was reported to be uncontaminated. The sediment would likely be disposed of at South Cheung Chau or East Ninepin, depending on the timeframe of the dredging works. The mud dredged from the Shenzhen side would be disposed of at a designated marine borrow site near the Da Ya Bay coastline.

The Member suggested that the mud should be disposed of in the western part of Hong Kong water because the salinity of the seawater there was not favourable for the formation of red tide.

Water quality of fish culture zones

24. A Member expressed concern about the impact of the project on the water quality of the fish breeding zones in the area as the project involved dredging of mud. In response, Dr. Helen Chiu said that detailed water quality modelling had been conducted and factors such as the speed of the water current had been taken into account in the modelling. The result showed that the impact of the proposed construction methods would be acceptable to the environment. The duration of the jetting and dredging work would be very short and the speed of the operation would be confined to a very low level to limit its impact. Whenever possible the jetting and dredging work would avoid springtime. In addition, the routing of the pipelines was designed to avoid areas of high ecological value and fishery areas as far as possible.

25. In response to a Member's enquiry on the assessment figures on water quality, Dr. Kennish advised that the figures were shown in Tables 4.7- 4.9 of the EIA report. The model had assessed the level of the suspended solid, dissolved oxygen and nutrients for a variety of fish culture zones in the area. The background data from EPD was also compared with the result of the assessment and it was found that even without mitigation measures, the project could still comply with the water quality objectives. However, after consultation with the fishermen in the area, it was agreed that silt curtains would be used at the Tai Po Landing Point in the early phase of the jetting work to lower the impacts on water quality. The dredging work near Yim Tin Tsai fish culture zone involved only minor excavation work for landing the pipeline of the sea wall. The major dredging work in Hong Kong side was several kilometres away from any fish culture zone or areas of high ecological value. In reply to the Chairman's enquiry, Dr. Kennish confirmed that the project would not affect the coral in the project area and he quoted figures to show that the effect of the project would be well within the water quality objectives. Furthermore, he assured Members that a very strict monitoring and audit programme would be in place and the action limit level would be much more stringent than the water quality objectives so that early remedial action would be taken in the event that the impacts of the jetting and dredging works exceeded those predicted by the model.

26. A Member pointed out that the suspended solid data so given did not show the distance from the site and he enquired about the actions that would be taken in case the impact of the project exceeded the action limit level. In addition, he also pointed out that the noise generated by the dredging and jetting works underwater would be harmful to certain species

of fishes. In response, Dr. Kennish pointed out that the predicted maximum increase of the suspended solid in the fish culture zones was 2.7mg/l elevation above the background, which was very low when compared to the standard of 50mg/l. A detailed fishery impacts assessment in conjunction with the water quality assessment had been conducted and the result had been endorsed by AFCD. It was agreed that with the confined speed of the project, the distance of the jetting and dredging works from the sensitive areas and the short duration of those works, the impact on fishery would be acceptable. The same dredging method had been used in other areas and no fish kill had been observed.

Compensation for fishermen affected by the project

27. In reply to a Member's enquiry, Mr. Stephen Tam confirmed that they would compensate fishermen who suffered losses due to the project and would liaise with the Government regarding the compensation.

Jetting and dredging

28. A Member asked for the reason for using dredging in some areas and jetting in others and whether jetting would save costs and time. In response, Dr. Kennish explained that dredging would be faster and cheaper. However, dredging would involve off-site disposal of the dredged mud and hence its impact on water quality would be greater. On the other hand, sediments disturbed by jetting would settle rapidly back onto the seabed and the suspended solid elevations would be of shorter duration. Nonetheless, dredging was required for some sections of the pipelines which needed a wider trench for protection against accidental anchor drop and drag by seagoing vessels. A 5m wide trench covered with layers of armour rocks along the pipelines was needed and jetting could not achieve the width required. Dredging was therefore required for the section of the pipelines that crossed high intensity shipping areas in Mirs Bay and the section on the Shenzhen side.

29. In reply to a Member's questions, Dr. Kennish and Dr. Andrew Jackson elaborated that marine traffic figures and risk assessment were the two main factors that determined the use of jetting or dredging method. A specialist on marine traffic was responsible for gathering traffic data and the chance of likely damage to the pipelines was assessed according to the marine traffic. Each part of the pipelines was sectioned off to see if that part would need protection. On the other hand, since the pipelines would last for 50 years, traffic data provided by the Shenzhen side were used in modelling the worst-case scenario. Another Member queried whether the 5m trench was the minimum requirement. Dr. Kennish confirmed that 5m would be minimum for giving an appropriate base for avoiding damage arising from anchorage dragging. In reply to a Member's suggestion to

shorten the length of dredging on the Shenzhen side to reduce the impact on Tung Ping Chau, Dr. Kennish stressed that according to the requirement of the Shenzhen authority, the length could not be shortened. Dr. Jackson supplemented that there were special monitoring and audit in Tung Ping Chau to safeguard the water quality there.

30. A Member asked whether the proposed construction method was the cheapest and enquired about the feasibility of installing a tunnel for the pipelines by boring underneath the seabed. In response, Mr. Stephen Tam said that they had explored the option and the conclusion was that it was structurally not feasible. In fact, the proposed alignment of the pipelines had the least impacts on the environment and in deciding the alignment of the pipelines, safety and the environment were the main considerations rather than cost.

31. A Member asked whether the jetting and dredging methods had been tried out in other projects and whether the impacts were acceptable to the environment. In reply, Mr. Stephen Tam said that Towngas had laid a number of pipelines in Hong Kong waters but jetting was used for the first time. However, the method had been used around the world and its environmental impacts were acceptable. Dr. Jackson added that the method had been used in Hong Kong for other types of projects with good performance. A trial would be carried out in the early stage of the project to ensure that the technique would perform up to the required standard. The Member asked whether the project proponent would inform the Subcommittee if there were changes to the dredging and jetting works. In response, Dr. Kennish advised that the Environment Permit would be quite detailed in specifying the areas where dredging or jetting would be used and they would need to give full justifications to EPD if variations were needed. The methods as well as the areas concerned had been considered carefully and variations would not be likely.

EIA for the section of the pipelines in Mainland waters and environmental monitoring

32. A Member asked if the project proponent had consulted the Shenzhen side for using the dredging method and who would be responsible for monitoring the works outside Hong Kong. Another Member requested Towngas to ensure that there would be a close liaison between the contractor in the Mainland and the EM&A team in Hong Kong. In response, Dr. Helen Chiu said that Towngas had appointed a qualified consultant in the Mainland to undertake the EIA study for the project. The draft report was submitted to the State Oceanic Administration in late November last year and an evaluation meeting was held in mid January 2003. The EIA report was being amended and was likely to be finalized in early April. As regards the monitoring works, Dr. Kennish said that Towngas would have overall control

of the contractors as well as the monitoring and auditing work of the whole project. When dredging works on the Mainland side were within 1 km of the HKSAR water boundary, the independent environmental checker in Hong Kong would be notified and the environmental team would start the water quality and coral monitoring work at Tung Ping Chau.

Coral sensitive receiver at Fung Wong Fat

33. A Member asked whether Table 4.8 of the EIA report reflected the worst case scenario with concurrent dredging works on the Shenzhen and Hong Kong side taking place at the same time and whether dredging could avoid massive hypoxia that might lead to coral death. In response, Dr. Kennish confirmed that the dredging and jetting works were modelled simultaneously and the figures were given in Table 4.8 of the EIA report. The EPD-approved water quality model for Mirs Bay and Tolo Channel had been used for the modelling work and the model included stratification term specifically for the wet seasons because the chance of hypoxia occurring would be higher in wet seasons. It was predicted that WQO would not be exceeded along the sensitive regions. In addition, the level of dissolved oxygen defined in the environmental monitoring and audit programme for triggering the reduction of working rates would be more stringent that the WQO.

34. A Member pointed out that according to Table 4.7 of the EIA report, the elevation of the suspended sediment concentrations was as high as 8.73 mg L^{-1} above ambient in wet season at Fung Wong Fat which had one of the most abundantly covered coral areas. She therefore requested the use of silt curtains during jetting operation as a precautionary measure. Mr. Stephen Tam agreed to consider the suggestion and would revert to the Council later. Dr. Kennish added that the silt curtain could be installed at Fung Wong Fat but not around the jetting machine because the machine was moving. Towngas

Using liquefied natural gas as fuel

35. A Member pointed out that liquefied natural gas (LNG) was cleaner than naphtha and asked whether the company would consider providing LNG to customers directly instead of using LNG to produce towngas. In response, Mr. Stephen Tam said that the company would not switch to LNG because they were not sure of its reliability.

Conclusion

36. The Chairman suggested and Members agreed to endorse the report without conditions and the Chairman drew the project proponent's attention to the following points-

Action

(a) To ensure close liaison with the contractors across the border to maintain the standard.
(b) To dispose dredged mud in the western waters of Hong Kong.
(c) To take precautionary measures such as the installation of silt curtain to prevent elevation of suspended solid at Fung Wong Fat.
(d) Implement the EM&A effectively.

Agenda Item 5: Any Other Business

37. No item was discussed under AOB.

Agenda Item 6: Date of Next Meeting

38. Members agreed to re-schedule the next meeting to 29 April 2003 since some of them would not be available on 22 April which was the Earth Day.

EIA Subcommittee Secretariat
March 2002