

**Confirmed Minutes of the 111<sup>th</sup> Meeting of  
the Environmental Impact Assessment Subcommittee  
held on 19 October 2009 at 2:00 pm**

**Present:**

Prof Paul LAM, JP (Chairman)  
Mr TSANG Kam-lam (Deputy Chairman)  
Ms Betty HO  
Mr Edwin LAU, MH  
Prof Joseph LEE  
Dr MAN Chi-sum, JP  
Dr YAU Wing-kwong  
Ms Josephine CHEUNG (Secretary)

**Absent with Apologies:**

Ms Teresa AU  
Dr Dorothy CHAN, BBS  
Mr Michael LEE  
Mr Simon WONG, JP

**In Attendance:**

Mr C W TSE, JP	Assistant Director (Environmental Assessment), Environmental Protection Department (EPD)
Mr C C LAY	Assistant Director (Conservation), Agriculture, Fisheries and Conservation Department (AFCD)
Ms Loletta LAU	Executive Officer (CBD), EPD
Miss Kim KWAN	Executive Manager (CBD), EPD

**In Attendance for Agenda Item 3:**

Dr Ellen CHAN, JP	Assistant Director (Environmental Infrastructure), EPD
Mr Lawrence LAU	Principle Environmental Protection Officer (Waste Facilities), EPD
Mr H M WONG	Principle Environmental Protection Officer (Strategic Assessment), EPD
Mr Lawrence NGO	Senior Environmental Protection Officer (Strategic Assessment)2, EPD
Mr Y K CHAN	Senior Nature Conservation Officer (North), AFCD
Mr Alex KONG	Director, Ove Arup & Partners Hong Kong Ltd. (Arup)

Mr Franki CHIU  
Mr T N CHAN  
Miss YAU Mee-ling

Associate Director, Arup  
Senior Engineer, Arup  
Senior Plant Ecologist, Arup

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Action

**Agenda Item 1 : Confirmation of the draft minutes of the 110<sup>th</sup> meeting held on 21 September 2009**

The draft minutes were confirmed without amendment.

**Agenda Item 2 : Matters arising from the minutes of the 110<sup>th</sup> meeting held on 21 September 2009**

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

**Agenda Item 3 : EIA report on West New Territories Landfill Extensions (ACE-EIA Paper 12/2009)**

**Internal Discussion Session**

3. 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.

4. The Chairman informed Members that the Environmental Impact Assessment (EIA) report on “West New Territories (WENT) Landfill Extensions” was a designated project under “Schedule 2” of the EIA Ordinance. The public inspection period of the EIA report was from 25 August 2009 to 23 September 2009. Public comments received by the Environmental Protection Department (EPD) were circulated to EIA Subcommittee Members before the Subcommittee meeting for reference. Separately, the written response from the project proponent to some Members’ questions and comments was circulated to Subcommittee

Members before the Subcommittee meeting for information.

5. Members agreed that the discussion should focus on the ecological impact, landscape and visual impact, landfill gas, odour impact, air quality impact and cultural heritage.

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

**Presentation Session (Open Session)**

6. Dr Ellen Chan briefed Members on the background and purpose of the project. Mr Alex Kong briefed Members on the findings of the EIA study.

**Question-and-Answer Session (Open Session)**

***Ecological impact***

7. A Member enquired about the possibility of establishing a larger compensatory freshwater pond for the Little Grebes instead of having a total of 5 ha of little ponds. Mr Alex Kong explained that due to the moderate gradient of the terrain of the restored landfills, it was technically more feasible to construct several small ponds than one large pond. Miss Yau Mee-ling elaborated that with reference to literature review on local and overseas examples, it was found that Little Grebes would nest in ponds of size as small as 0.24 ha. Small ponds could be as attractive as large ponds for Little Grebes. With mitigation measures such as planting, the nesting distance of Little Grebes would be significantly reduced. The provision of ponds of 5 ha in total, each with at least 0.5 ha in size, would be sufficient as compensation for the loss of 5 ha of water bodies in terms of both area and function.

8. The Chairman and a Member enquired about the possibility of increasing the number of freshwater ponds to accommodate more Little Grebes in future. Mr Alex Kong indicated that there should be room for increasing the number of freshwater ponds if necessary. The Chairman enquired about the timing of establishing the freshwater ponds. Mr Kong explained that 3 ha of the ponds would be created in advance on the existing landfill after its restoration and the remaining 2 ha would be provided at the landfill extension site after its restoration. Dr Ellen Chan undertook to conduct a study in the stage of detailed design of the project to assess the possibility of increasing the number of ponds, enlarging their size and further advancing the timing of establishing the ponds with a view to

enhancing the Little Grebe habitats as far as practicable.

9. A Member enquired about the monitoring of Little Grebes during the transitional period between commencement of the project and completion of the freshwater ponds. Mr Alex Kong confirmed that the breeding activities of the Little Grebes would be closely monitored throughout the construction phase of the project, though the ash lagoons where the Little Grebes located would only be affected in the last phase of the project.

10. A Member noted that the EIA report proposed compensatory woodland planting of 21 ha for the loss of 3.76 ha of natural woodland and asked about the possibility of double-counting the compensatory woodland planting with compensatory planting originally planned for restoration of the existing landfill. Mr Lawrence Lau explained that restoration work in the existing landfill would not involve compensatory woodland planting but only general restoration with capping liners, soil cover and planting of shrubs and trees on top. Hence, there would not be any double-counting of compensatory woodland planting.

11. A Member enquired about the choice of species for compensatory woodland planting. Mr Alex Kong explained that the existing species of vegetation affected included both exotic and native species. Both types of species were recommended in the preliminary compensatory planting proposal. Exotic species, which were more suitable for soil with higher acidity, would be planted at an earlier stage and native species would be planted at a later stage.

12. A Member enquired about the selection criteria of compensatory woodland planting. Mr Alex Kong explained that a number of factors had to be taken into account in the selection of plant species, including the ability of the species to be established in the new environment, the size of the crown, the ecological nature of the trees such as whether the trees were aggressive. Trees with larger crown for amenity and carbon dioxide (CO<sub>2</sub>) absorption purposes, such as *Acacia* (相思樹), *Cinnamomum spp.* (樟屬) and *Ficus spp.* (榕屬), were recommended. The existing trees in the project site such as *Melaleuca quinquenevia* (白千層) with smaller crowns and *Leucaena leucocephala* (銀合歡) which were more aggressive species would not be recommended.

13. A Member asked about the successful experience of transplanting the Pitcher Plant. Miss Yau Mee-ling explained that there was successful experience

by the University of Hong Kong in adopting the nodal cutting method which was recommended for the current project. Reference would also be made to previous experience which was not very successful such as the transplantation of Pitcher Plant from Penny's Bay to Tai Tam. Various factors, such as planting season, site selection, propagation and transplanting practices, would be taken into account in the transplantation. Dr Ellen Chan added that to ensure high success rate, they would work closely with relevant experts to try out the nodal cutting method at an early stage before commencement of the project.

14. Mr C C Lay advised that for the transplantation of Pitcher Plant from Penny's Bay to Tai Tam, an initial survival rate of less than 50% was recorded. However, it was found in a recent site visit that the survived individual transplanted Pitcher Plant had dispersed into adjacent shrubland above the high watermark of the valleys.

#### ***Landscape and visual impact***

15. A Member noted that there would be compensatory planting of about 107,000 tree seedlings for the loss of about 6,000 trees. On the CO<sub>2</sub> absorption capability of the tree seedlings as compared with the loss of trees, Mr Alex Kong explained that the CO<sub>2</sub> absorption capability of a tree depended very much on the size of its crown which in turn depended on the size of its trunk. The larger the size of the trunk, the higher the CO<sub>2</sub> absorption capability. The aggregate trunk diameter of the 107,000 compensatory tree seedlings would be equivalent to that of 6,000 affected full grown trees and thus the CO<sub>2</sub> absorption capability would be comparable. Moreover, the CO<sub>2</sub> absorption capability of these tree seedlings would continue to increase as they grew up and the carbon absorption capability of trees varied with species.

16. A Member enquired about the surviving ability of young tree seedlings with trunk diameter of about 35 mm in the unfavourable environment of landfills. Mr Alex Kong explained that advice of the Agriculture, Fisheries and Conservation Department (AFCD) had been sought on this aspect. The depth of the soil for the tree seedlings would be at least 1 m. Experience in other projects showed that the surviving rate was very high. Dr Ellen Chan supplemented that based on surveys on the 6,000 affected trees, the number of large trees (trunk diameter more than 700 mm) was only 8 and the number of medium-sized trees (trunk diameter between 500 mm and 700 mm) was 23. Effort would be made to

transplant these some 30 trees as far as possible, in particular the large ones.

### ***Landfill Gas***

17. A Member enquired about the beneficial use of landfill gas (LFG) generated from the landfill extension site. Dr Ellen Chan explained that 60% of LFG from the existing landfill was utilized while 40% was flared. They were liaising closely with the utility companies, such as the Hong Kong and China Gas Company Ltd. (Towngas), to establish a LFG utilization scheme for both the existing WENT Landfill and its Extension with a view to fully utilizing the LFG. For the North East New Territories (NENT) Landfill, all LFG was piped by the Towngas to the Tai Po Plant and flaring was only necessary in emergency cases. As regards the South East New Territories (SENT) Landfill, they were in the final stage of discussion on the LFG utilization scheme. With confirmation of the scheme for SENT Landfill, effort would be made to kick-start the discussion of the scheme for the existing WENT Landfill and its Extension. The methodology to be employed for the utilization of LFG had to be worked out having regard to the situation of different landfills. It should be noted that air quality impact assessment in the current EIA was based on the worst-case scenario with no beneficial use of the LFG. With the setting up of the LFG utilization scheme, the Respirable Suspended Particulates contributed by the project would be reduced. A Member enquired about the choice of partner for the LFG utilization schemes. Dr Chan explained that they had approached various utility companies and so far Towngas was the only one which showed the greatest interest in the schemes.

18. A Member asked about the usage of the 60% of LFG at the existing WENT Landfill. Dr Ellen Chan explained that part of the LFG was converted to electricity for on-site use and part of it was used as fuel for the ammonia stripping plant of the leachate treatment system. If the LFG utilization scheme was established, the stripping plant could be upgraded to achieve a higher efficiency. The LFG extraction system could also operate at its full capacity to extract more LFG for beneficial use.

19. A Member enquired about the measures to reduce emission of methane from the 40% of LFG being flared from existing landfill. Mr Lawrence Lau explained that the flaring system operated at a very high temperature and the methane in LFG would be converted to water vapour and CO<sub>2</sub> and thus the effect of greenhouse gas caused by methane would be substantially reduced.

***Odour impact***

20. The Chairman enquired about the number of odour complaints arising from the existing WENT Landfill. Dr Ellen Chan indicated that four complaints were received in 2008 and 10 were received in 2009 and most of them were from villagers nearby. It should be noted that two tipping faces would be used under normal operation. The EIA recommended that in certain areas which were close to the sensitive receivers, only one tipping face with confined surface area would be used. This would minimize the odour impact on nearby villagers.

21. The Chairman enquired about the disposal of sewage sludge which was a significant source of odour. Mr Alex Kong explained that the Sludge Treatment Facilities would be up and running by the completion of the project. Thus, sewage sludge would be treated by the Sludge Treatment Facilities and would not be disposed of at the landfill. This would help reduce odour emission to a great extent.

22. A Member enquired about the new odour control measures to be implemented in the landfill extension site. Mr Alex Kong explained that three new measures would be implemented to step up odour control. Firstly, the EIA report recommended installation of ventilated cover with deodorizer for the leachate treatment plant. Secondly, sewage sludge would be treated by the Sludge Treatment Facilities instead of being disposed of at the landfill. Thirdly, the cover of tipping faces would be much improved. At the end of each working day, the active tipping faces would be covered with soil immediately. The only major odour source would be the active tipping faces at day time and tipping arrangement would be well controlled to minimize odour emission. With these three measures, the odour impact would be much less than that of the existing landfill.

23. A Member asked about the difference of tipping arrangement between the existing landfill site and the landfill extension site. Mr Lawrence Lau explained that the tipping face of the existing landfill was covered by waste on a daily basis whereas the tipping face of the landfill extension site would be covered with soil of 150 mm and the non-active tipping phase would be covered with soil of 300 mm to 600 mm or an impermeable liner on top which could prevent odour emission and also enhance LFG extraction.

24. The Chairman enquired about the contingency plan in the case of odour exceedance. Mr Alex Kong explained that with a comprehensive package of mitigation measures implemented, it would be very unlikely that odour emissions would exceed the criterion of 5 odour units (OU). In the assessment of the worst-case scenario in the EIA, the highest odour level recorded was only of 4.4 OU under the worst-case scenario with active tipping face closest to the air sensitive receivers operating under the most unfavourable wind direction. In the unlikely event of exceedance, tipping in an area closest to air sensitive receivers would be avoided under unfavourable wind conditions to ensure no odour exceedance.

25. A Member enquired about the use of deodorizing agents as a contingency measure for odour exceedance as in the case of SENT Landfill. Mr Lawrence Lau explained that the use of fixed or mobile deodorizers had not been taken into account in the assessment of the current project. Nonetheless, deodorizers would be made available for contingency use when needed.

26. A Member asked about the assessment of cumulative impacts of odour. Mr Alex Kong explained that the assessment had included the odour impacts from the Sludge Treatment Facilities, existing landfill site and landfill extension site. The odour assessment data shown in the EIA report were cumulative total and no exceedance was predicted.

### ***Air quality impact***

27. A Member enquired about the comparison of on-site monitoring data collected from the existing landfill against the background data obtained from the Yuen Long Air Quality Monitoring Station. Mr Frankie Chiu explained that according to the on-site monitoring data, the average 24-hour Total Suspended Particulates (TSP) concentration at the WENT Landfill from 1996 to 2006 ranged from 87 to 94  $\mu\text{g}/\text{m}^3$ , which was lower than the five-year annual average background level of Yuen Long (103  $\mu\text{g}/\text{m}^3$ ). Nonetheless, data of an EPD air quality monitoring station was more comprehensive and should be used for EIA study.

28. A Member noted that EPD air quality monitoring station was not available in Tuen Mun. Assessment of air quality impact for projects in Tuen Mun had to be based on the background data taken from the Yuen Long Air Quality Monitoring Station. In view of the large-scale construction projects in Tuen Mun, it

was suggested that EPD should set up an air quality monitoring station in Tuen Mun for reflection of more relevant and comprehensive data.

***Cultural heritage***

29. A Member enquired about the schedule of the full scale rescue excavation of Tsang Tsui Archaeological Site. Mr Alex Kong explained that construction works at the archaeological site would at a very late stage in around 2022. There would be sufficient time for planning the rescue excavation. The rescue works would not commence until the land acquisition process completed.

30. A Member enquired about the resumption of the nine graves identified in the construction site. Mr Alex Kong explained that only two of the graves were historic clan graves. They would try to identify the descendents and resume the graves according to the standard procedures. Mr Lawrence Lau added that the graves were found to belong to descendents in Yuen Long district. Assistance had been sought from the Yuen Long District Lands Office in locating the relevant descendents. In the course of site surveys, no rock with geological value was found in the site.

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

**Internal Discussion Session**

31. Having regard to the findings and recommendations of the EIA report and information provided by the project proponent, the meeting agreed to recommend to the full Council that the EIA report could be endorsed with the following proposed conditions -

- (a) prior to the commencement of construction of the project, the project proponent should submit a habitat creation, transplantation and management plan to the Director of Environmental Protection (DEP) for approval in consultation with the AFCD. The plan should at least include (i) increasing the number and size of the compensatory freshwater ponds to at least 8 ha and advancing the timing of establishing the ponds to no later than the first year of the commencement of construction of the project, and (ii) the

transplantation of Pitcher Plant (*Nepenthes mirabilis*), Bamboo Orchid (*Arundina graminifolia*), Incense Tree (*Aquilaria sinensis*) and other plants of conservation interest which would be affected by the project;

- (b) before the commencement of construction of the project, the project proponent should put in place a contingency plan for any possible exceedances of the action and limit levels of odour impact as stipulated in the Environmental Monitoring and Audit (EM&A) Manual. The contingency plan should include actions of relevant parties and mitigation measures to be taken such as reducing the number of tipping areas, moving tipping areas further away from concerned sensitive receivers and increasing the thickness of covering soil;
- (c) the project proponent should, in consultation with the DEP, double the frequency of monitoring of TSP level as stipulated in the EM&A Manual. Extra mitigation measures including stoppage of works if necessary, should be implemented when exceedances of TSP levels occur, so as to mitigate any upsurge of TSP levels; and
- (d) to enhance transparency and communication with the public, the project proponent should set up a Community Liaison Group involving relevant stakeholders and should take a proactive approach to disseminate information to the local community, promote community cooperation and participation and implement suitable local environmental enhancement works. All relevant information of the project, including the detailed design, the progress of construction and operation and environmental monitoring and audit results, should be provided to the Community Liaison Group. The project proponent should make the minutes of the Community Liaison Group meetings and all papers and documents available to the public.

32. The meeting also agreed to recommend to the EPD to consider setting up an air quality monitoring station in the Tuen Mun district as currently the background data for air quality impact assessment in the district has to be taken from other districts.

33. The meeting agreed that there was no need to invite the project proponent team to attend the full Council meeting.

**Agenda Item 4: Monthly updates of applications under the Environmental Impact Assessment Ordinance**

34. Members noted the updates.

**Agenda Item 5: Any other business**

Tentative items for discussion at the next meeting

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

**Agenda Item 6: Date of next meeting**

36. The next meeting was scheduled for 16 November 2009.

(Post meeting note: The meeting scheduled for 16 November 2009 was cancelled.)

**EIA Subcommittee Secretariat  
November 2009**