Annex D

EIA reports on
"Liantang/Heung Yuen Wai Boundary Control Point and Associated Works"
and "Regulation of Shenzhen River Stage 4"

A summary of issues discussed by the EIA Subcommittee
at the meeting on 24 January 2011

The Environmental Impact Assessment (EIA) Subcommittee discussed the EIA reports on "Liantang/Heung Yuen Wai Boundary Control Point and Associated Works" (LT/HYW BCP) and "Regulation of Shenzhen River Stage 4" (SZ River) at its meeting on 24 January 2011. The issues discussed are summarized below.

Air quality impacts

LT/HYW BCP

2. On the basis of estimating the future traffic flow for conducting air quality assessment, the project proponent explained that projection of traffic flow was made for 15 years after operation of the project (i.e. 2018 to 2033) in accordance with the requirement in the EIA Study Brief. In conducting the traffic impact assessment, the development of the North East New Territories New Development Areas had been taken into account. In the air quality modelling, the anticipated worst emission level in 2018 together with the maximum traffic volume in 2033 were used to assess the impacts under a worst-case scenario and the cumulative impacts arising from vehicular emissions from the BCP on the Shenzhen side had also been accounted for. The modelling result showed that the levels of nitrogen dioxide (NO_2) and Respirable Suspended Particulates (RSP) at all air sensitive receivers (ASRs) would comply with the Air Quality Objectives (AQOs).

3. Some Members noted that the background levels of annual RSP and NO_2 of the connecting road during the operational phase were relatively high and the contribution of the project was only about 1 to 4 $\mu g/m^3$. The project proponent explained that the annual RSP and NO_2 referred to the average over the year which had offset fluctuations in weather conditions. In addition, assessment on hourly basis was also conducted. For example, the hourly NO_2 level at an ASR could reach as high as 229 $\mu g/m^3$ which was about 179 $\mu g/m^3$ higher than the background level of

50 μg/m^3. Nonetheless, the predicted level still complied with the AQO of 300 μg/m^3.

4. On the estimated maximum traffic flow of the connecting road to BCP, the project proponent explained that the estimated peak daily traffic flow was about 30,000 vehicles at the interchange with Fanling Highway. The estimation had already taken into account the impacts of future widening of Tolo Highway and Fanling Highway.

5. On the use of diesel fuel with different sulphur content by cross-boundary vehicles, the project proponent explained that cross-boundary vehicles had to be registered in Hong Kong and comply with local emission standards. The air quality modelling had taken into account the implementation programme of adopting more stringent emission standards for vehicles, vehicle population distribution, and changes in the traffic flows throughout 2018 to 2033. The air quality modelling was on the conservative side by taking into account the worst emission level in 2018 and maximum traffic volume in 2033.

6. Regarding the effectiveness of proposed mitigation measures for ASRs located very close to the work site (such as Tong Hang Village House 1 (TH1) at 0.5 m from project boundary), the project proponent explained that assessment of construction dust impacts on ASRs was modelled by a conservative approach. Under Tier 1 assessment, full-scale construction works with 100% active work areas were assumed. ASRs showing non-compliance under Tier 1 assessment were identified for Tier 2 assessment where the active work areas were assumed to be located closest to the ASRs. To ensure compliance with the Total Suspended Particulates (TSP) criteria, mitigation measures including water spraying of up to eight times a day for active construction areas and covering 80% of stockpiling areas with impervious sheeting were proposed. In addition, relevant requirements under the Air Pollution Control (Construction Dust) Regulation and good site practices for dust control would be implemented to minimize impacts on ASRs.

7. Regarding the RSP concentration at Nam Wa Po Village House 2 (NWP2), the project proponent confirmed that the predicted annual average RSP at NMP2 was 55 μg/m^3 which could just meet the criterion of 55 μg/m^3.

8. On the possibility of adopting the new set of AQOs under study for conducting the air quality impact assessment of the project, the Environmental Protection Department (EPD) advised that meeting the existing AQOs remained the statutory requirements under EIA Ordinance until a new set of AQOs was

promulgated to replace the existing AQOs.

9. A Member expressed reservation on the air quality assessment by making reference to the existing AQOs as the annual average RSP measured at NWP2 would probably exceed the criterion in case the new set of AQOs was adopted. Moreover, the lower fuel quality of cross-border vehicles seemed not taken into account. EPD advised that the air quality modelling of the project had adopted a conservative approach by taking on board the existing annual average RSP data at Tai Po. With anticipation of the improvement in air quality in the Mainland and Hong Kong, the final impact of the project was expected to be less than the predictions. Nonetheless, the modelling results showed that the increase in RSP level contributed by the project would meet the AQOs.

SZ River

10. On the potential odour impacts arising from the dredging works, the project proponent explained that sediment samples were taken along the study area of the Shenzhen River. It was found that the acid volatile sulphide (AVS) concentration in the sediment samples, which was related to potential odour strength, was even lower than that of treated sediments which would not generate odour. The anticipated odour problem associated with the project would be minimal.

11. On the adequacy of representation by collecting only eight samples (three of them were selected for AVS testing) from the 4.5 km long of the river section to be regulated, the project proponent explained that similar sediment analysis had been conducted in the planning and feasibility study of the project. The sediment sampling programme of the EIA study had taken account of the sampling locations and sediment analysis results of the planning and feasibility study. The additional sediment samples analysed during the EIA study were considered adequate for the purpose of the EIA as the characteristics of the sediments were similar to those collected in previous sampling analysis.

Ecological impacts

LT/HYW BCP

12. On the compensatory planting, the project proponent explained that encroachment upon the country park and fung shui woods had been avoided with extensive use of tunnels in the proposed road alignment. According to the tree survey

conducted, about 10,700 trees were identified within the project boundary, most of which were common species in Hong Kong. Among them, about 4,100 trees would be preserved by on-site retention or transplanting. The remaining 6,600 trees would require felling and none of them was registered Old and Valuable Tree. Given the large scale of the project, the number of trees to be felled was considered reasonable. To mitigate the loss of trees, compensatory planting of about 11,700 was recommended. Landscape trees would be planted along the alignment, on the open area adjacent to the Administration Building near Sha Tau Kok section and the slopes of tunnel portals.

13. As regards the impacts on *Aquilaria sinensis* which was classified as near threatened in the China Plant Red Data Book, the project proponent explained that among the approximate 110 *Aquilaria sinensis* found in the tree survey, about 85 of them would likely be affected. The principle of avoidance had been adopted to minimize impacts on the species. Despite their widespread distribution in Hong Kong, compensation measures for *Aquilaria sinensis* would not follow those adopted for common species. In the detailed design stage, another vegetation survey would be conducted before commencing the construction works to re-examine the possibility of retaining the affected *Aquilaria sinensis* on-site or transplanting them to the proposed woodland compensation area with a view to minimizing the number of trees required felling.

14. On the compensation ratio of *Aquilaria sinensis*, the project proponent explained that given its conservation importance in China, the compensation ratio proposed in the Woodland Compensation Plan would meet the compensation ratio of 3:1 (i.e. three seedlings to one individual trees to be affected but unable to be transplanted).

15. On the impacts of the project on *Aquilaria sinensis*, Agriculture, Fisheries and Conservation Department (AFCD) advised that while *Aquilaria sinensis* was a species of conservation importance in China, it was relatively widespread in the lowland forest in Hong Kong as it had relatively high ability in self-propagating and was widely cultivated for incense manufacturing in the past. As regards transplanting, affected trees located on hillside slope might not be suitable for transplanting due to anticipated low survival rate and difficulty in root ball preparation on uneven slope terrain. Healthy and young ones could be transplanted and seedlings could be planted in the future compensatory woodland.

16. On the timing of commencing the woodland compensatory works, the

project proponent explained that the works could start once the project commenced as the compensatory woodland would be in areas where no construction works would be carried out. As regards the time required for the compensatory woodland to reach maturity, it would take about 20 years for the establishment. Thus, a compensation ratio of 3:1 was proposed (i.e. the loss of 6.2 ha of woodland would be mitigated by the provision of 18.6 ha of Woodland Compensation Area) to offset the time lag required for establishment of the woodland.

17. On the location of Woodland Compensation Area, the project proponent explained that the affected woodland of 6.2 ha was at fragmented locations along the alignment. The proposed 18.2 ha of Woodland Compensation Area would provide ecological linkage to connect existing isolated woodlands, hence forming a contiguous woodland habitat which could provide higher ecological potential than patchy areas of the same size.

18. On the land use of the proposed Woodland Compensation Area, the project proponent explained that there was no land use zoning in the area and the whole area currently was government land. The wide coverage of hillside grassland and shrubland in the area made it a favourable site for compensatory planting. Moreover, the area was situated outside permitted burial ground. Designating the area for compensation could avoid potential conflict in terms of land use.

19. On the ecological monitoring of the compensation woodland, the project proponent explained that the Woodland Compensation Plan in the EIA report outlined the proposed scope, planting management and ecological monitoring of the woodland compensation area. The Plan would be further refined in the detailed design stage. Moreover, the woodland in Ha Heung Yuen would not be affected. It was included in the study area but not within the boundary of the project area.

20. On the maintenance period of the Woodland Compensation Area, the project proponent explained that a six-year ecological maintenance and monitoring programme covering both initial and enhancement planting phases was recommended. After the proposed ecological maintenance and monitoring programme, AFCD would take over the area for maintaining the ecological planting which would normally take nine years. Some members suggested that the project proponent could conduct a comprehensive study on the changes in the biodiversity of the Woodland Compensation Area, apart from monitoring the survival rate of trees in the Area.

21. On the estimated duration for establishing a compensatory woodland, AFCD advised that it took about three to five years for trees of pioneer species to establish. Under normal circumstances, the project proponent would maintain and monitor the compensatory woodland for one year before handing it over to AFCD for maintenance of about nine years. Under the current project, the project proponent offered a maintenance and monitoring period of six years which would be sufficient to ensure the proper establishment of the woodland. The proposed compensation ratio of 3:1 and the establishment of a contiguous woodland habitat by linking isolated pieces of woodlands would have beneficial impacts on the ecology.

22. On the rationale of locating the Wetland Compensation Area under the viaduct, the project proponent explained that sustainable water source was a major factor for successful establishment of a compensation wetland. The proposed Wetland Compensation Area was a low-lying area contiguous with the channel of River Ganges as main source of water supply. As the flow of the river channel was along the alignment of the viaduct, the proposed Wetland Compensation Area was linear in shape and a part of it would be under the viaduct. As 2.8 ha of land had been identified as suitable for establishing a compensatory wetland of 1.4 ha, there was flexibility in designing the layout plan by avoiding areas under the viaduct as far as possible. A conceptual plan, including guiding principles, key characters, preliminary layout and profile, was included in the EIA report. Details of the plan would be provided under a Habitat Creation and Management Plan during the detailed design stage. Performance of the mitigation habitats would be closely monitored during the operational phase to ensure successful establishment of the wetland.

23. On the rationale of targeting the Wetland Compensation Area for wetland associated insects and amphibians, the project proponent explained that the potentially affected wetlands were freshwater wetlands derived from abandoned farmlands. Freshwater wetland was generally considered as having ecological value for sustaining aquatic community such as amphibian and dragonfly species. The affected wetlands were seasonally dry and therefore not an optimal habitat for wetland-dependent birds. Based on the principle of like-for-like compensation under the Technical Memorandum on EIA Process (TM), the compensation wetland would be targeted for wetland communities in general such as wetland associated insects and amphibians. However, the habitats would not be limited to these species. Experience of the compensatory wetland for the West Rail project showed that while the wetland was targeted at water birds, amphibians and reptiles were also recorded.

24. On the wetland compensation, AFCD advised that the impact of the project on wetland was considered acceptable as the principle of avoidance was adopted by the project proponent. Moreover, only several pieces of fragmented freshwater wetland originated from agriculture land (affected areas each less than 1 ha in size) with an aggregate area of 1.4 ha were affected. Under Annex 8 of the TM, wetland habitat of less than 1 ha in size was not considered as important habitat. The proposed wetland compensation plan could adequately compensate for the impact of loss of wetland due to the project.

25. On the possibility of providing a compact and contiguous piece of land for compensating both the wetland and woodland for better ecological function, the project proponent confirmed that the proposed Wetland Compensation Area was a contiguous area along the River Ganges and its ecological function would at least be comparable to that of the existing fragmented wetland. The proposed Woodland Compensation Area was also a large piece of contiguous habitat providing ecological linkage to existing isolated pieces of woodlands.

26. Some Members noted that the project would generate some topsoil which was a type of rare resources found in Hong Kong and suggested the project proponent to submit a Topsoil Management Plan by setting out guidelines to the contractors on dredging and utilization of topsoil, such as for landscaping and planting purposes.

Water quality impacts

LT/HYW BCP

27. On the achievement of no net increase in pollutant loading of Deep Bay, the project proponent explained that the proposed sewage treatment plant would provide sewage treatment for the BCP and Chuk Yuen Village Resite. It was estimated that the pollutant loading of the treated effluent of the whole area would be lower than the baseline pollutant levels as the current sewage from Chuk Yuen Village was only treated by primitive septic tanks before discharging to Deep Bay. Thus, the requirement of no net increase in pollutant loading of Deep Bay could be achieved. To further reduce effluent and associated pollutants to Deep Bay, some of the treated effluent would be reused for irrigation of landscaping area. As regards the population of Chuk Yuen Village, the estimated population was around 400.

SZ River

28. Regarding the measures to ensure improvement in water quality upon the diversion and treatment of wastewater, the project proponent explained that the diversion of sewerage had been included in the water quality modellings. Through dry weather flow interception on the Shenzhen side, the sewage originally discharged into the Shenzhen River would be collected and diverted to the treatment plants in Shenzhen in order to improve the water quality. Water quality impact assessments showed that the suspended solids would be settled within a very short distance from the works area even under the maximum dredging rate, hence no adverse impacts on nearby water sensitive receivers were predicted.

Waste management

SZ River

29. On the transportation and disposal of contaminated sediments generated by the project, the project proponent explained that sediment samples were collected and tested in accordance with the stipulated requirements. Out of the estimated amount of 95,000 m^3 river sediments, about 27,000 m^3 would be Category L sediment with contaminated level not exceeding the Lower Chemical Exceedance Limits. The remaining contaminated sediments of Categories M and H would be disposed of at confined disposal facilities. Findings of elutriates tests showed that the levels of heavy metals and micro-organic pollutants of sediments to be dredged were below detection limits. The contaminated sediments would be dewatered and stored in enclosed containers. The filtrates resulted from dewatering would be sent to on-site sedimentation tanks before discharging back into the river. The dewatered sediments would be transported to Shekou Pier in Shenzhen for loading to barges for delivery to East Sha Chau mud pits. Throughout the shipping process, the barges would be closely monitored to prevent potential illegal dumping into the sea. Based on the experience of previous stages of SZ River regulation, the proposed disposal method of contaminated sediments would not cause adverse impacts on the surrounding marine environment.

30. On the possibility of using the planned Sludge Treatment Facilities (STF) to incinerate the contaminated sediments in view of the limited capacity of East Sha Chau mud pits, the project proponent explained that the STF would not be suitable for treatment of the contaminated sediments in view that the major contaminants were heavy metals. In addition, the contaminated sediments contained

mainly inert material and it would not be cost-effective to treat the contaminated sediments using the thermal treatment method.

31. On disposal of construction and demolition (C&D) materials and contaminated sediments generated by the project, the project proponent confirmed that the contaminated mud pit at East of Sha Chau had enough capacity to accommodate the contaminated sediments generated by the project and the public fill bank also had enough capacity for the small amount of surplus C&D materials generated from the advance works.

Cultural heritage

LT/HYW BCP

32. On the methodology for locating auger holes and test pits for the archaeological survey, the project proponent explained that literature review and field scan had been conducted to identify areas with higher archaeological potential within the project area. An archaeological survey proposal setting out the scope, strategy and programme of the survey was established and agreed with the Antiquities and Monuments Office (AMO). Field records of the survey were taken in accordance with AMO's Guidelines for Handling of Archaeological Finds and Archives.

33. Regarding the private land which could not be accessed during the archaeological survey, the project proponent explained that some test pits and auger holes were located in private lands where rights for access were not obtained for conducting the survey. Further archaeological survey at inaccessible private land areas would be conducted after land resumption. A report on the findings and further mitigation measure requirements, if necessary, would be submitted to the authorities for approval before commencing construction works.

34. On the potential impact on built heritage resources, the project proponent explained that about 100 built heritages were identified in the study area. However, only 13 grave sites, two built structures and one cultural/historical landscape feature would be affected by the project. Relocation or removal of these built heritages before commencement of construction works would be required. Photographic and cartographic records would be taken as required by the Antiquities and Monuments Ordinance. Liaison with the descendents of the graves would be carried out by the Lands Department to obtain agreement.

Cumulative impacts

35. Regarding the cumulative impacts arising from the LT/HYW BCP project and SZ River project on the Shenzhen side, the project proponent explained that information on the work schedule of the BCP project on the Shenzhen side was not available in the time of EIA study. As sensitive receivers nearest to the LT BCP on Shenzhen side, such as Tsung Yuen Ha and Chuk Yuen, were located a few hundred meters from the site, it was predicted that the construction phase impacts on them would be insignificant. As regards SZ River project, the assessment had included the regulation works on both Hong Kong and Shenzhen side. The cumulative impacts from the SZ River project had been incorporated into the EIA study of the LT/HYW BCP project.

36. Given the implementation of both projects on the Shenzhen and Hong Kong side, some Members were concerned about the responsibilities in monitoring and responding to exceedances of environmental standards during the construction phase. The project proponent explained that the project proponents of both projects had very close liaison in the planning stage and would maintain close collaboration during the construction phase. Under the Environmental Monitoring & Audit programmes, the Environmental Teams of both projects would liaise closely in conducting investigation on the source and cause of any exceedance and take appropriate mitigation measures or remedial actions in case of exceedances.

Conclusion

37. After discussion, the meeting agreed to recommend to the full Council that the two EIA reports could be endorsed with some proposed conditions. The meeting also agreed that there was no need to invite the project proponents to attend the full Council meeting.