

**EIA report on
Improvement Dredging for Lamma Power Station Navigation Channel**

**Summary of issues discussed by the Environmental Impact Assessment
Subcommittee at the meeting on 14 August 2017**

The Environmental Impact Assessment (EIA) Subcommittee (EIASC) discussed the EIA report on “Improvement Dredging for Lamma Power Station Navigation Channel” at the meeting on 14 August 2017. The issues discussed were summarized below.

Need of the Project

2. Members asked about the size and water depth requirement of vessels delivering coal to the Lamma Power Station (LPS). The project proponent advised that the vessels were around 70,000 to 90,000 metric tonnes (MT) with a draft up to 14.6 m. As stated in the Marine Department (MD) berthing guidelines, for vessels with a draft of 14.6 m, a 15% under-keel clearance should be added equating to a total required water depth of 16.79 m for all vessel berthing. Taking into account of the mean sea level at Lamma Island, a minimum seabed level of -15.65 mPD must be maintained at all times during vessel movement and berthing and a channel depth of -16.5 mPD was proposed to allow sufficient buffer for fulfilling the MD’s requirement on the minimum seabed level and avoiding the need for the widening of slopes.

3. In reply to Members’ enquiries on the possible changes to the future fuel mix and the possible change in the size of vessels, the project proponent advised that while the use of natural gas would be progressively increased, the use of coal was projected to account for 45% of the fuel mix in 2022 for HKE and therefore there was a need for the use and maintenance of the Channel in the foreseeable future. The Berthing Guidelines promulgated by the MD as well as the berth design at LPS limited the maximum capacity of vessels to 100,000 MT, which would have a maximum draft of 14.6m.

Water Quality Impact

4. In reply to Members’ questions concerning the dredging methods, the project proponent assured Members that regardless of the dredging approach used, no more than five dredgers would be operated concurrently, thereby limiting the affected area to no more than 20 hectares (ha) at any one time. The use of trailer suction hopper dredgers (TSHD) was associated with a lower dispersion of sediment plume as suspended solids (SS) were released nearer to the seabed. Alternatively, while the use of grab dredgers might lead to

SS release throughout the water column, it could enable more accurate dredging at isolated high spots and slopes along the Channel. Based on the water quality modelling results, the maximum permitted dredging rates had been identified for each type of dredger to minimize the negative impacts to the environment.

5. The first re-profiling of the Channel was estimated to generate up to 3.2 Mm³ of marine sediments. With recurrent dredging of localized high spots to be conducted about once every four years which would generate up to 0.9 Mm³ each time, re-profiling of the Channel with a dredging quantity of up to 2.9 Mm³ could be delayed to about every 10 or more years. In general, Members suggested that HKE conduct dredging more frequently with a view to reducing the need for re-profiling of the Channel.

6. Regarding Members' concern on the monitoring of water quality, the project proponent said that a water quality monitoring programme had been included in the Environmental Monitoring and Audit (EM&A) Manual which would measure various parameters such as dissolved oxygen (DO) and SS. Safeguards on water quality for recurrent dredging events were provided in the EM&A manual, including the re-establishment of baseline conditions of water quality parameters and reviewing of the locations of water sensitive receivers (WSRs). Furthermore, the baseline sediment quality conditions would be assessed prior to each dredging event, and the findings would be compared to that of the EIA for the recommendation of further analysis and/or undertaking of additional mitigation measures. Besides, mandatory reduction of maximum allowable dredging rates or temporary "stop-works" requirement would be imposed when exceedances were identified.

7. The project proponent added that a total of 16 water quality monitoring stations, including reference stations, control stations and those representing different types of sensitive receivers, were proposed for monitoring the water quality during the construction phase. Members considered that there was a need to have additional water quality monitoring stations at the project site boundary with a view to reducing the time lag for sediment plumes to reach the stations and expediting alleviation actions.

8. The project proponent explained that most of the monitoring stations would be installed near to WSRs. A temporary habitat loss in the project area would be assumed and precautionary measures had been proposed to minimize the potential impacts of the project on species of conservation concern. If necessary, additional water quality monitoring stations could be set up.

9. Regarding Members' suggestion to include contaminants of emerging concern as parameters of the sediment quality studies, the project proponent informed that the

Dumping at Sea Ordinance (DASO) had stipulated the sediment quality parameters and criteria for the classification of sediment via the promulgation of the Technical Circular (Works) No. 34/2002 (the Circular). All requirements stipulated in the Circular in its application for approval of dredging and marine disposal of sediment were fulfilled. The project proponent added that a new sediment quality study would be conducted in compliance with DASO before the commencement of works in 2019.

10. The project proponent confirmed that planned and committed projects in the vicinity of Lamma Island had been taken into account for assessment of cumulative water quality impact as mentioned in the EIA study.

Marine Ecological Impact

11. In response to Members' concern regarding the survey effort, the project proponent said that desktop literature review had been carried out to establish the preliminary baseline conditions and general ecological profile of the marine environment for the project. Soft-bottom benthic grab samplings, coral dive survey and intertidal survey had been conducted between 2014 and early 2016 to address the information gap identified during the review. While the coral dive survey had recorded more than 10 hard coral species along the rocky shores at the beaches, the coral cover was below 5%. At the sloping artificial seawalls along the LPS, only one hard coral species was recorded with coral cover below 1%. No rare or endangered coral species were recorded within or in the vicinity of the project area.

12. As Finless Porpoise was hard to be detected by vessel transect surveys, Members suggested HKE make reference to an overseas research which discovered via the installation of underwater passive acoustic monitoring (PAM) device that Finless Porpoises were active at the west Lamma waters, especially during the night time. Members considered it necessary to review the baseline information on Finless Porpoise before the commencement of works and consider deploying PAM device during the operation phase.

13. In reply to Members' question regarding the nesting records of Green Turtle at Sham Wan and inter-nesting locations, the project proponent said that the latest record of Green Turtle nesting was in 2012. While the occurrence of Green Turtles was considered to be scarce, precautionary measures had been taken to address the potential marine ecological impacts. In addition to the speed limit imposed on barges, the locations of ecological sensitive receivers would be reviewed before each dredging event and avoid the dredging works in zone(s) close to the hotspot of the concerned species if deemed necessary. Furthermore, barges travelling to and from the project site could avoid the

Sham Wan turtle nesting area.

Fisheries Impact Assessment

14. Considering that the fisheries impact assessment relied heavily on desktop literature review which included relevant fisheries baseline data presented in the comprehensive Port Survey 2006, Members remarked that the trawling ban introduced in 2012 could result in major changes in the fishing resources within the project area. Field surveys should be conducted to update the fisheries baseline information so as to enable comparison between the pre- and post-dredging conditions, and provide information for conducting analysis on the project impact and effectiveness of the mitigation measures. The project proponent agreed to conduct baseline study on fisheries prior to each dredging event.

Waste Management Impact Assessment

15. Members suggested that the project proponent should consider other alternatives, such as exploring the use of the dredged sediment by concurrent projects as fill materials.

Recommendations of the Subcommittee

16. Members suggested imposing a condition to review the maintenance dredging strategy of the Channel such that dredging would be conducted more frequently with a view to reducing the need for large scale dredging of the Channel during the operation phase. Should re-profiling of the Channel with estimated dredging quantity of 2.9Mm³ be required during the operation phase, the project proponent should devise a detailed plan with clear justification on why frequent small scale dredging was not feasible.

17. Members suggested imposing a condition to conduct marine ecological and fisheries baseline review before commencement of each dredging. The review should cover species of conservation concern including but not limited to Green Turtle and Finless Porpoise.

18. In relation to water quality impact, Members agreed that the project proponent should submit a plan to review the baseline sediment quality conditions before each dredging, including selected high spot dredging and re-profiling.

19. Members supported that the project proponent should be required to provide extra water quality monitoring stations adjacent to the project site boundary in addition to the proposed stations near to water quality sensitive receivers. The exact locations of the

additional monitoring stations and the relevant event action plan should be submitted to the DEP for approval before each dredging, including selected high spot dredging and re-profiling.

20. To minimize the impact of dredging to Finless Porpoise, Members agreed to recommend the project proponent to closely monitor the presence and movement of Finless Porpoise within the project area and avoid dredging operations in the night time and active seasons of the Finless Porpoise as far as practicable.

21. Member supported to recommend the project proponent to consider the use of TSHD for project areas not within nursery and/or spawning grounds with a view to minimizing the negative impacts due to disturbance of sediment.

22. The meeting also agreed to recommend the project proponent to explore the use of the dredged sediment generated from the project site for use by concurrent projects as fill materials as far as practicable.

23. Members agreed to recommend the project proponent to strengthen efforts on marine conservation with a view to preserving and enhancing the marine ecology within the project site.

24. Having regard to the findings of the EIA report and the information provided by the project proponent, the meeting recommended that the full Council endorse the EIA report with conditions and recommendations.

EIA Subcommittee Secretariat
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