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For advice

**Environmental Impact Assessment Ordinance (Cap. 499)
Environmental Impact Assessment Report
Providing Sufficient Water Depth for
Kwai Tsing Container Basin and its Approach Channel**

PURPOSE

This paper summarises the key findings and recommendations of the Environmental Impact Assessment (EIA) report for “Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel” (hereafter known as “the Project”), submitted under section 6(2) of the Environmental Impact Assessment Ordinance (EIAO) (Application No. EIA-183/2010). The Civil Engineering and Development Department (the applicant) and their consultants will make a presentation at the EIA Subcommittee meeting if necessary.

ADVICE SOUGHT

2. Members’ views are sought on the findings and recommendations of the EIA report.

NEED FOR THE PROJECT

3. The Kwai Tsing Container Basin and its approach channel (KTCB&AC) are currently maintained at depths of about -15.2 m to -15.5 m below the Chart Datum. However, ultra-large container ships (ULCS) have a maximum draft of 15.5 m. Given the global trend of increasing use of ULCS, it is necessary to increase the depth at the existing KTCB&AC. Otherwise, the efficiency and reputation of Kwai Tsing Container Port (KTCP) will be hampered. ULCS will also need to make alternative arrangements including diversion to Shenzhen and other regional ports.

4. It is necessary to dredge KTCB&AC to meet the draft requirement of ULCS in order to maintain the competitiveness of KTCP as a regional hub port, and to increase the import and export capacity of Hong Kong.

DESCRIPTION OF THE PROJECT

5. The Project area is about 446 hectares in size. The location is shown in **Figure 1**. It involves the dredging of approximately 4.4 million cubic metres (Mm^3) of sediment from the seabed of KTCB&AC. In addition, the Tsing Yi Submarine Sewage Outfall and the disused Kwai Chung Submarine Sewage Outfall in the Northern Fairway will be modified and demolished respectively. The Project is also within 100 m from Water Services Department's (WSD) Tsing Yi Seawater Flushing Intake. The dredging operation plans to start in 2011 and complete in 2013. 24-hour work is proposed with a maximum of three grab dredgers operating at any one time.

6. The Project is classified as a designated project under both items C.12 and C.12 (b) of Part I, Schedule 2 of the EIAO, i.e. "A dredging operation exceeding 500,000 m^3 ", and "A dredging operation which is less than 100 m from a seawater intake point".

CONSIDERATION OF ALTERNATIVE OPTIONS

7. KTCP is the only container port in Hong Kong. Dredging at

KTCB&AC, which serves nine existing container terminals, is thus necessary for enabling ULCS. Alternative dredging scenarios and methods have been carefully considered with a view to reducing the environmental impacts to a minimum. The recommended option is to use grab dredgers. Although grab dredger operates slower than other types of dredger, it generates the least sediment plume. Only one cutter suction dredger will be used for excavation of small amount of hard materials at northern tip of the Project.

VIEWS OF THE DIRECTOR AND RELEVANT AUTHORITIES

8. The Director of Environmental Protection (DEP), in conjunction with relevant authorities, consider that the EIA report meets the requirements of the EIA Study Brief and the Technical Memorandum on EIA Process (TM). Comments from the public and the Advisory Council on Environment will be taken into account in deciding on the approval of the EIA report under the EIAO.

SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT

Water Quality Impact

9. The key environmental issue of the Project is water quality. Its impacts on sensitive receivers during construction and operation have been thoroughly assessed. Key sensitive receivers identified include fish culture zones (FCZs), bathing beaches, coral communities, WSD's flushing water intakes, and Electrical & Mechanical Services Department's cooling and flushing water intakes. Locations of sensitive receivers are shown in **Figure 2**.

10. Suspended solids (SS), Ammoniacal Nitrogen (NH₃-N) and Unionised Ammonia (UIA) are identified to be the critical water quality parameters. The EIA report recommends mitigation measures including a well spaced out dredging plan, types of dredger (mainly grab dredger, and a cutter suction dredger for hard materials), number of dredgers (a maximum of three at any one time) at prescribed dredging rate and locations, installation of silt curtains and screens around dredgers and water intakes.

11. A hotspot (approximately 1% of the Project area) at the northeastern corner of the Project, shown in **Figure 1**, is identified to have the chance of reaching very high Ammoniacal Nitrogen value in elutriate at more than 20 mg/L. Dredging at the hotspot may lead to UIA values exceeding the Water Quality Objectives (WQO). The EIA report recommends that dredging at this hotspot will not commence until a field trial or alternative confirmatory method with appropriate dredging rate is identified to be capable of controlling the release of NH₃-N and UIA to within WQO.

12. With the implementation of mitigation measures recommended in the EIA report, the concentrations of SS, dissolved oxygen and UIA during construction stage will comply with the WQO. The water modeling results show that the predicted increase in total inorganic nitrogen (TIN) due to the Project at all water sensitive receivers is insignificant, i.e. less than 0.002 mg/L. The EIA report also notes that the ambient concentrations of TIN at two beaches, i.e. Lo So Shing (B9) and Hung Shing Yeh (B10) already exceed the WQO but they are not due to the Project.

Marine Ecological and Fisheries Impact

13. According to past records, the KTCB&AC are not major areas for fishery operations. The marine ecological impact assessment finds that the ecological resources for these areas are relatively low, thus the potential impacts on marine ecology and fisheries due to loss of fishing grounds are insignificant and temporary. The Project area is also outside the distribution range of both Chinese White Dolphin and Finless Porpoise.

14. According to the water quality modeling results, the predicted sediment plume with the use of grab dredger will be confined to the dredging area and the deposition rate of SS is within acceptable level for all coral sites. The EIA report also finds that the two nearest FCZs i.e. Ma Wan FCZ and Lo Tik Wan FCZ are over 5 km and 4 km from their nearest dredging boundaries respectively. With the implementation of the mitigation measures recommended in the EIA report to control water quality impacts, no specific marine ecology or fisheries mitigation measures are considered necessary for the Project.

15. Potential impacts on marine ecology and fisheries during the operation

phase are predicted to be negligible given the small scale of maintenance dredging at irregular intervals.

Waste Management

16. The total volume of dredged sediment to be disposed of is estimated to be 4.4 Mm³, making up of 1.8 Mm³ Category L sediment suitable for Type 1 Open Sea Disposal; 1.1 Mm³ of Category Mp sediment suitable for Type 1 Open Sea Disposal (Dedicated Sites); and 1.5 Mm³ of Categories Mf and H sediment that required Confined Marine Disposal. For maintenance dredging an average of 30,000 m³ per annum would be conducted at irregular intervals whenever necessary.

17. Given the large quantity of sediment to be disposed of, the EIA report recommends that the Project should only commence after obtaining confirmation from Marine Fill Committee (MFC) on disposal options. In addition, the applicant will arrange for marine sediment disposal in accordance with requirements of the Dumping at Sea Ordinance.

Hazard to Life

18. Part of the proposed dredging area is within the consultation zones of two potentially hazardous installations (PHIs), i.e. the Exxon Mobil Tsing Yi East Terminal for liquefied petroleum gas (LPG) and oil at Tsing Yi Town Lot No. 46RP, and the China Resources Petrochemicals Co. Ltd. (now Sinopec) LPG and oil depot at Tsing Yi Town Lot No. 127. Quantitative risk assessment results indicate that the risk posed by the two PHIs to construction workers is in compliance with the risk guideline under the TM.

Other Environmental Impacts

19. Other potential environmental impacts including air, noise, cultural heritage, and landscape & visual are found to be insignificant. This is because the sensitive receivers are far away from the Project area and the dredging work is conducted under water.

ENVIRONMENTAL MONITORING AND AUDIT

20. The EIA report includes an Environmental Monitoring and Audit (EM&A) Manual which recommends an EM&A programme during construction stage. Key EM&A requirements include monitoring of marine water quality in the project areas and at the four fish culture zones during the course of dredging.

PUBLIC CONSULTATION

21. The applicant has made the EIA report, EM&A Manual and Executive Summary available for public inspection under the EIAO from 28 July 2010 to 26 August 2010. Members will be informed of any public comments received by the Environmental Protection Department.

August 2010

Environmental Assessment Division

Environmental Protection Department