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**ACE-EIA Paper 4/2005**  
*For Advice*

**Environmental Impact Assessment Ordinance (Cap. 499)**  
**Environmental Impact Assessment Report**  
**New Contaminated Mud Marine Disposal Facility**  
**at Airport East/East Sha Chau Area**

**Purpose**

This paper presents the key findings and recommendations set out in the Environmental Impact Assessment (EIA) report entitled “Detailed Site Selection Study for a Proposed Contaminated Mud Disposal Facility within the Airport East/East of Sha Chau Area”, submitted under Section 6(2) of the Environmental Impact Assessment Ordinance (EIAO). Representative(s) of the project proponent, Civil Engineering and Development Department (CEDD), and their consultants will make a presentation. The Director of Environmental Protection will take into account comments from the public and the ACE when he makes the decision on the approval of the EIA report under the EIAO.

**Advice Sought**

2. Members' views are sought on the findings and recommendations set out in the EIA report.

**Background**

3. The “Strategic Assessment and Site Selection Study for Contaminated Mud Disposal” conducted in 1999 recommended that a Contained Aquatic Disposal facility (CAD) at Airport East could be an intermediate measure to handle contaminated mud requiring disposal in Hong Kong up to 2010. The study report was presented to the EIA Subcommittee on 9 July 2001 and the ACE on 23 July 2001. The ACE concluded that the Council had no objection to the proponent's proceeding with the EIA study for the proposed site and option but the proponent should keep all sites and options open as far as practicable and speed up the study on the long-term strategy.

4. This EIA report has identified alternative sites and disposal options within the Airport East and the East of Sha Chau areas for the new contaminated mud disposal facility and to select and assess the environmental acceptability of the preferred option.

## **Need for the Project**

5. CEDD predicted that a minimum of 8 million cubic metres of contaminated mud will require disposal up to 2015. As the capacity of the existing Contaminated Mud Pit (CMP) IV at East of Sha Chau will be exhausted by early 2009, a new disposal facility is therefore required.

## **Description of Project**

6. The project is to construct and operate a new contaminated mud marine disposal facility in a series of purposed-built pits with capacity to handle a maximum of 8Mm<sup>3</sup> of contaminated mud from 2009 to 2015. The works comprise the following:

- (i) Dredging of a series of seabed pits within the selected location;
- (ii) Backfilling each dredged pit with contaminated mud that requires Type 2 disposal in accordance with the Environment, Transport and Works Bureau Technical Circular No. 34/2002; and
- (iii) Capping each backfilled pit with uncontaminated mud to isolate the contaminated infill from the surrounding marine environment.

7. The project is a designated project under Item C.10, Schedule 2 of the EIAO, i.e. "a marine dumping area" and Item C.12, i.e. "a dredging operation exceeding 500,000 m<sup>3</sup>".

## **Consideration of Disposal Options and Alternative Sites**

8. The CAD and the Confined Disposal Facility (CDF) options were considered in the EIA report. The report concluded that as compared to CDF, CAD was preferred having regard to the following considerations:

- (i) There is a long-term operation experience with the existing CAD facility at East of Sha Chau since 1992;
- (ii) Track records of monitoring and related studies indicate that there are no unacceptable adverse environmental impacts associated with the operation of CAD in Hong Kong waters; and
- (iii) CDF is nearshore or island containment structure consisting of a perimeter dike within which the contaminated mud is placed. There are environmental impacts of creating a permanent artificial island and greater environmental control over contaminant pathway with higher costs as the contaminated material is placed into an area wholly confined by the perimeter dike.

9. Through a detailed site selection, CEDD identified two possible sites in the North Lantau area for locating the new facility – the remaining portion of the existing contaminated mud pits at East of Sha Chau (ESC facility) and the South Brothers at East of the Airport (SB facility) respectively as indicated in **Figure 1**. Sequential construction and operation of the pits have been used to develop scenarios for sediment transport modelling, assessing marine traffic issues and identifying key environmental issues for water quality, ecology, fisheries, human health, noise and heritage assessments.

10. The assessment concluded that both sites would be environmentally acceptable. Nevertheless, ESC facility is considered as more preferable because the SB facility is closer to Tai Ho Bay and there will be a number of concurrent proposed projects in the North Lantau, including the Logistics Park and the Hong Kong-Zhuhai-Macao Bridge, between 2008-2010. Therefore, the ESC facility is recommended in the EIA report.

11. The SB facility may still be required, should the capacity at ESC facility be reached earlier than anticipated, or one or more pits of the ESC facility not being available due to other constraints. If the SB facility were to be required, then the EIA would be reviewed and assessed for its relevance prior to any work being conducted.

### **Specific Environmental Aspects to Highlight**

#### *Water Quality Impacts*

12. The construction and operation of the disposal facility will cause dispersion of suspended solid and leaching of heavy metal contaminants. By adopting the working rates at the existing mud pits, i.e. the dredging rate does not exceed 100,000 cubic metres per week and backfilling and capping rates do not exceed 26,700 cubic metres per day, the EIA report predicts that water quality impacts arising from the construction and operation of the ESC facility should meet the Water Quality Objectives at the specific sensitive receivers.

#### *Ecological Impacts*

13. The main concern is the potential impact to Chinese White Dolphins which are frequented in the water bodies of the North Lantau area.

14. Construction of the new ESC facility will result in a loss of approximately 106 ha of soft bottom seabed and consequently impacted indirectly to the marine mammals through loss of food supply. However, a review of the long term monitoring data of benthos in and around the capped pits at East of Sha Chau has demonstrated that capping works would reinstate the seabed and hydrodynamic regime within a short period of time and there is no evidence of impact or unacceptable risk to Chinese White Dolphins from disposal operations.

### *Health Impacts to Human and Marine Mammals*

15. Bioaccumulation of toxic substances (including polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs) and heavy metals) in both human and marine mammals associated with consumption of seafood and fisheries resources is a potential concern.

16. The EIA report predicts that the carcinogenic risk and the hazard to health were assessed to be below the acceptability criteria associated with consumption of seafood. A review of long time monitoring data has shown no evidence of adverse impacts or increased risks of harm to Chinese White Dolphins.

### **Environmental Monitoring and Audit (EM&A)**

17. An EM&A programme covering both the construction and operation stages is recommended in the EIA. Implementation of the EM&A programme will be included as an Environmental Permit condition.

### **Consultation**

18. The EIA report is now subject to public inspection under the EIAO. CEDD has made the EIA report, EM&A Manual and the Executive Summary available for public inspection on 27 May 2005. Members will be briefed about any comments received from the public at the meeting.