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ACE-EIA Paper 13/2009
For advice

Environmental Impact Assessment Ordinance (Cap. 499)
Environmental Impact Assessment Report
Organic Waste Treatment Facilities, Phase I

PURPOSE

This paper presents the key findings and recommendations of the Environmental Impact Assessment (EIA) Report for the proposed Organic Waste Treatment Facilities (OWTF), Phase I (hereafter known as the Project), submitted under section 6(2) of the Environmental Impact Assessment Ordinance (EIAO) (Application No. EIA-176/2009). The Infrastructure Planning Group of the Environmental Protection Department (the applicant) and their consultants will present the report. Comments from the public and the Advisory Council on the Environment will be taken into account by the Director of Environmental Protection when she 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 of the EIA report.

NEED FOR THE PROJECT

3. "A Policy Framework for the Management of Municipal Solid Waste in Hong Kong (2005-2014)" published in December 2005 suggested, amongst other measures, the implementation of biological treatment facilities to treat source-separated biodegradable organic waste from the commercial and industrial establishments so as to turn them into useful products and to reduce landfill

disposal. The proposed OWTF can mitigate landfill space depletion, reduce leachate and landfill gas generation. Through the organic waste treatment process, valuable products such as composts and biogas can be generated.

DESCRIPTION OF THE PROJECT

4. The Project (as shown in the attached **figure**) is for construction and operation of organic waste treatment facilities at Siu Ho Wan on Lantau Island. The Project includes the following components: –

(i) Pre-treatment facilities – The incoming waste will be delivered by enclosed waste vehicles to the enclosed waste reception area and pre-treated using a trommel screen, overhead magnets and shredder, etc.

(ii) Anaerobic digestion process – The pre-treated material will be fed into the buffer tanks to start the hydrolysis stage of the anaerobic digestion.

(iii) Post-treatment of digestate – After digestion, the material from digesters will be pumped to dewatering facility and further treated by tunnel composting.

(iv) Energy recovery system – Cogeneration (Cogen) Units will be employed to convert the energy contained in the biogas to electricity and heat. A stand-by flare will be installed in the Project site only for emergency use; and

(v) Air and wastewater treatment facilities – A centralized air pollution control unit (CAPCU) will be provided to treat the vented air and to control odour emission. All the wastewater generated from the Project will be properly treated by the wastewater treatment unit before discharge.

5. The Project is classified as a designated project under Item G.4, Part I, Schedule 2 of EIAO: "*A waste disposal facility (excluding any refuse collection point), or waste disposal activity, for – (a) refuse; or (b) chemical, industrial or special wastes.*" The Project is designed at a capacity of handling 200 tonnes of organic waste each day.

CONSIDERATION OF ALTERNATIVE OPTIONS

6. The project proponent has identified a number of potential sites for the Project. They include Sha Ling Livestock Waste Composting Plant in Sheung Shui; EcoPark Phase II in Tuen Mun; Siu Ho Wan in North Lantau and Tseung Kwan O Area 137.

7. The proposed site in Siu Ho Wan is considered suitable for the Project because (i) there is no residential development in the vicinity, (ii) the land use is in line with the planning intention, (iii) infrastructure facilities (i.e. potential users of electricity generated from the Project) are found in the vicinity, and (iv) the site is accessible via Cheung Tung Road and Sham Fung Road adjacent to the North Lantau Highway.

SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT

8. The key environmental issues identified for this Project include air quality impact and hazard to life.

Air Quality

9. The CAPCU, Cogen Units and Flaring Gas System (for emergency use only) are the identified emission sources associated with the operation of the OWTF. Notwithstanding their small emission levels, cumulative impacts of the Project together with the operation of existing and planned/committed projects in the vicinity (in particular the Siu Ho Wan Sewage Treatment Works, North Lantau Refuse Transfer Station, and major existing and planned/committed air pollutant emission sources including the power plants and the Chek Lap Kok Airport emissions plus the regional wide emissions forming the background) are assessed. The predicted cumulative air quality levels, including nitrogen dioxide (NO_2), Respirable Suspended Particulates (RSP) and odour, at all identified air sensitive receptors (ASRs) are within the criteria stipulated in the Technical Memorandum on Environmental Impact Assessment Process (TM).

10. Despite the Project is enclosed and operated under negative pressure, the EIA study recommends the installation of a CAPCU for the purpose of treating the vented air and controlling odour emission. Commissioning tests will be conducted to confirm the CAPCU on its environmental performance. A stack

monitoring system will also be installed for the CAPCU and Cogen Units of the OWTF to ensure that the air emissions will be in compliance with the design emission limits as well as the established criteria.

Hazard to Life

11. The Project is located within the consultation zone of the Siu Ho Wan Water Treatment Works (SHWWTW). A hazard to life assessment has been carried out to evaluate the risks to construction workers and operational staff of the Project owing to the transport, storage and use of chlorine associated with the SHWWTW.

12. Quantitative risk assessments have confirmed that both the individual and societal risks from the SHWWTW on OWTF for both construction and operation phases are within the acceptable region and in compliance with the "As Low As Reasonable Practicable" (ALARP) principle upon implementation of the proposed mitigation measures respectively.

Other Environmental Impacts

13. Other environmental impacts including water quality, noise, waste management, visual and landscape have been addressed in the EIA report and concluded that, with the implementation of recommended mitigation measures, the Project would comply with relevant requirements in the TM. Diversion of 73,000 tonnes of organic waste annually to the facility will help reduce the generation of landfill gases. Biogas thus generated will be collected and used for power generation, which is estimated to be able to meet the electricity demand of some 2,000 households.

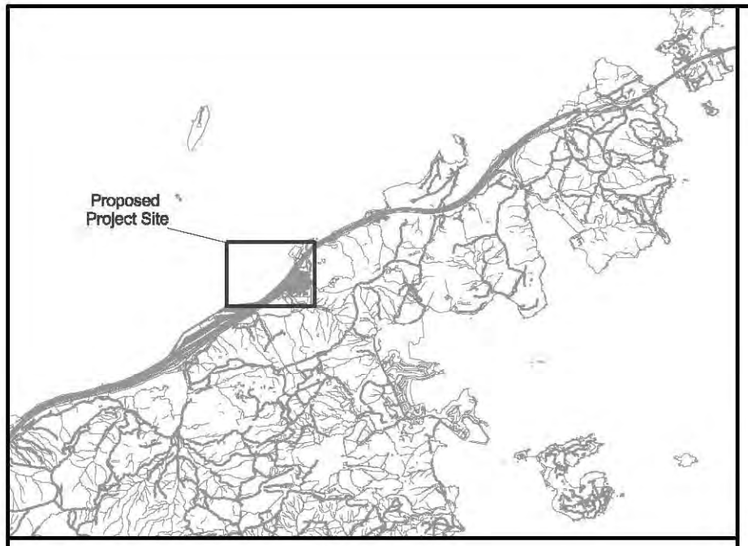
ENVIRONMENTAL MONITORING AND AUDIT

14. The EIA report includes an Environmental Monitoring and Audit (EM&A) Manual which recommends an EM&A programme during the construction and operation phases of the Project.

PUBLIC CONSULTATION

15. The applicant has made the EIA report, EM&A Manual and Executive Summary available for the public to comment under the EIAO from 29 December 2009 to 27 January 2010. Members will be briefed on any public comments received at the meeting.

December 2009
Environmental Assessment Division
Environmental Protection Department



KEY PLAN
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NORTH LANTAU
REFUSE TRANSFER
STATION

BUS DEPOTS

SIU HO WAN VEHICLE POUND
VEHICLE EXAMINATION CENTRE
AND WEIGH STATION

SIU HO WAN WATER
TREATMENT WORKS

SIU HO WAN SEWAGE
TREATMENT WORKS

LEGEND

PROJECT SITE

AECOM

AGREEMENT NO. CE 7/2008 (EP)
ORGANIC WASTE TREATMENT FACILITIES, PHASE I – FEASIBILITY STUDY

LOCATION PLAN OF PROPOSED OWTF PHASE I DEVELOPMENT

SCALE	A3 1:3700	DATE	OCT 2009
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JOB No.	60047803	Figure	REV –

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