(ACE Paper 39/2004)
For advice

Report on the 90th Environmental Impact Assessment Subcommittee Meeting

Introduction

At its meeting held on 22 November 2004, the Environmental Impact Assessment (EIA) Subcommittee considered the strategic environmental assessment report on Territory-wide Implementation Study for Water-cooled Air Conditioning Systems in Hong Kong. Separately, the Subcommittee considered the EIA report on Siu Ho Wan Water Treatment Works (WTW) Extension by circulation. The majority of Members agreed that the report could be considered by the Subcommittee without a presentation by the project proponent and could be endorsed without condition.

Advice Sought

2. Members are requested to advise whether the EIA report on Siu Ho Wan Water Treatment Works (WTW) Extension could be endorsed without condition. Members are also invited to note the views of the Subcommittee on the strategic environmental assessment report on Territory-wide Implementation Study for Water-cooled Air Conditioning Systems in Hong Kong.

Views of the EIA Subcommittee

EIA report on Siu Ho Wan Water Treatment Works Extension
(ACE-EIA Paper 10/2004)

Need for the project

3. The existing Siu Ho Wan WTW and the associated raw water and treated water transfer and distribution systems provide treated water to the Hong Kong International Airport at Chek Lap Kok and the initial phases of North Lantau New Town and Discovery Bay. The systems have a capacity of providing treated water of 150,000 m^3/day. In order to cope with the water demands of the developments on North Lantau

new town, the north shore and north-east areas of Lantau and Discovery Bay, the Water Supplies Department has proposed extension works for the Siu Ho Wan WTW.

Description of the project

4. The project comprises the following-

(i) extension of the Siu Ho Wan WTW within the existing WTW site boundary from a capacity of 150,000 m^3/day to 300,000m^3 /day;
(ii) construction of Siu Ho Wan Raw Water Booster Pumping Station and the associated raw water mains, and E&M plants site;
(iii) demolition and reprovisioning of the Pui O Raw Water Pumping Station;
(iv) uprating of Pui O No. 2 Raw Water Pumping Station;
(v) laying of two sections of 2km long raw water mains at Pui O; and
(vi) all other associated civil, building, structural, piping, mechanical and electrical works.

Only the item in paragraph 4(i) above is classified as a designated project under the EIA Ordinance.

Declaration of interest

5. The Chairman declared interest as his company was a water treatment contractor.

Members' views and the conclusion of the Subcommittee

6. Having regard to the findings and the recommendations of the EIA report, Members agreed by circulation that the EIA report could be endorsed without condition. The Subcommittee endorsed Members' views and agreed to recommend the EIA report to the Council for endorsement without condition.

Strategic environmental assessment of Territory-wide Implementation Study for Water-cooled Air-Conditioning Systems in Hong Kong
(ACE-EIA Paper 11/2004)

Need for the study

7. Over 30% of the total electricity produced in Hong Kong is estimated to be consumed by air-conditioning systems. The increasing population and further economic

development will continue to increase the demand for air-conditioning. Water-cooled air-conditioning systems (WACS) are more energy efficient than their conventional air-conditioning counterparts. Wider adoption of WACS, especially in commercial buildings, is an effective measure to conserve energy and reduce greenhouse gas emission associated with electricity consumption.

8. At the meetings of the Legislative Council Panel on Environmental Affairs held in 2000, the Panel was informed that the Administration supported the findings and recommendations of the "Preliminary Phase Consultancy Study on Wider Use of WACS in Hong Kong". Subsequently, funding was approved for conducting this Study.

Description of the study

9. The Study aims to formulate plans, programmes and control requirements for the phased implementation of WACS in the territory. It has examined in detail the relevant environmental, health, regulatory, institutional, financial, technical and land administration issues in WACS implementation. It has also explored various technologies and three strategic WACS, namely the Centralised Piped Supply System for Cooling Towers (the Cooling Tower Scheme), the more energy-efficient District Cooling Scheme and Centralised Piped Supply System for Condenser Cooling (the Seawater Scheme).

Members' views

10. Members' views expressed during the meeting focused on whether seawater could be used for the Cooling Tower Scheme in view of the general shortage of fresh water in Pearl River Delta and the need to conserve water resource in Hong Kong; whether the temperature and the quality of seawater would be affected by seawater discharged from WACS; the general impact of WACS on the environment; whether the heat produced by WACS could be recovered for other use; how the recommendations of the Study would be implemented since there would not be EIA for individual WACS; the noise and visual impacts of WACS; and the uploading of the strategic environmental assessment report on EMSD and EPD websites.

Use of seawater (flushing water) for the Cooling Tower Scheme and District Cooling Scheme

11. On the viability of using seawater for the Cooling Tower Scheme, the project proponent explained that there were constraints in the supply of adequate seawater in the territory. It would be necessary to make capital investment in improving and extending the pipeline network of the flushing water supply system. Comparatively, there

would be adequate supply of fresh water. In addition, the Cooling Tower Scheme would emit moist air from the system. The high corrosive power of salty moist air would adversely affect structures and buildings in the vicinity, particularly metal fixtures such as windows and doors.

12. As regards the use of seawater for the District Cooling Scheme, the project proponent team explained that most District Cooling Systems in overseas countries used fresh water. In Hong Kong, seawater would be used for District Cooling System as far as possible but for areas which were far away from the sea, fresh water would have to be used.

13. As regards the loss of water from the Cooling Tower Scheme, the project proponent pointed out that the loss rate would be minimal, i.e. about 1% of recirculating cooling water or in the order of $1m^3$ of water for 1 m^2 of area per year.

The impact on seawater temperature

14. On the impact on seawater temperature, the project proponent team explained that despite an increase of 5º to 6ºC in seawater temperature at the outfall of the seawater discharge, and a slight increase of 1ºC in some localized water zones, according to the water quality modelling conducted during the Study, there would be no problem in complying with the water quality objectives in the territorial water. In marine sensitive areas such as Tolo Harbour, Deep Bay and the vicinity of fish culture zones, seawater discharge would be avoided. The project proponent also pointed out that depending on the quantity of seawater discharge, a discharge license would be required from the Director of Environmental Protection and hence subject to the control imposed by the Director.

General impact of WACS on the environment

15. On the general impact of WACS on the environment, the project proponent team explained that the conventional air-cooled air-conditioning systems consumed much electricity, and their impact on the environment was significant. While the WACS might also have impact, it was much less than that caused by conventional air conditioning systems.

The feasibility of recovering and using the heat produced by WACS

16. The project proponent team advised that as heat was produced during the operation of WACS, the study on the implementation of a pilot District Cooling Scheme in Wan Chai Waterfront would not rule out the feasibility of recovering the heat produced by

WACS for other use.

Implementation of the recommendations of the Study

17. On the implementation of the recommendations of the Study, the project proponent team advised that a consultant was appointed in September 2004 to draw up guidelines and other relevant requirements on the proper use of cooling towers for air-conditioning purposes. A task force had also been set up to steer the drafting of guidelines. At present, there was no plan to introduce statutory conditions for the implementation of WACS.

Noise and visual impacts of the Central Seawater Scheme and District Cooling Scheme

18. On the visual impact of the Central Seawater Scheme and District Cooling Scheme, the project proponent team explained that since the major chiller plants of the two Schemes were put underground, there was no visual impact as such. In fact, the replacement of conventional air-conditioning systems by the two Schemes would greatly improve the amenities of buildings in the territory. As for the District Cooling Scheme, buildings served by the Scheme were not required to install its own chiller plants, thereby eliminating noise and water dripping problems usually associated with conventional air-conditioning systems. Furthermore, the footprints of WACS would be smaller than those of conventional air-conditioning systems.

Uploading of the strategic environmental assessment report on EMSD and EPD webpages

19. The project proponent agreed to upload the strategic environmental assessment report on EMSD and EPD websites for the information of the pubic.

Conclusion

20. Having regard to the findings and recommendations of the Study, Members supported the proposed way forward of the Study.

EIA Subcommittee Secretariat
December 2004