For discussion
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Legislative Council
Panel on Environmental Affairs

Outlying Islands Sewerage Stage 1 Phase 1C
- Upgrading of Siu Ho Wan Sewage Treatment Plant

Purpose

This paper seeks Members' support for a proposal to seek Finance Committee's approval to upgrade part of Public Works Project Item 208DS, namely Outlying Islands sewerage stage 1 phase 1C - upgrading of Siu Ho Wan sewage treatment plant, to Category A at an estimated cost of $794.4 million in money-of-the-day (MOD) prices for carrying out improvement and extension works at Siu Ho Wan sewage treatment plant.

Background

2. The Outlying Islands Sewerage Master Plan (SMP) is one of 16 SMPs developed by the Administration to identify the sewerage infrastructure necessary for meeting population demand and improving water quality in coastal waters. The Outlying Islands SMP study was completed in December 1994 and the provision of sewerage facilities and improvement works identified for Cheung Chau, Mui Wo, Siu Ho Wan, Yung Shue Wan and Ngong Ping are being carried out in stages. The upgrading of Siu Ho Wan sewage treatment plant was one of the works identified in the SMP study.

Project Scope and Nature

3. The part of the project proposed for upgrading to Category A comprises the following works at the Siu Ho Wan sewage treatment plant -

(a) construction of one detritor at inlet works;

(b) construction of six primary sedimentation tanks together with sludge pumping gallery;

(c) construction of disinfection facilities with associated effluent pumping station;

(d) construction of sludge dewatering facilities including sludge dewatering house, sludge buffer tanks and return liquor pumping station;

(e) construction of associated buildings and structures including one chemical building, one administration building and structures such as store, electricity supply sub-station, washwater pumping station, gatehouse etc. and the provision of building services;

(f) construction of associated road works, drainage works, pipeworks and landscaping works;

(g) provision and installation of ancillary equipment for the treatment plant including power supply, electrical switchgears, transformers, and control and data acquisition system; and

(h) environmental mitigation measures.

Justifications

Expanding the capacity

4. At present, the Tung Chung, Tai Ho and Penny's Bay areas are being served by a preliminary sewage treatment plant at Siu Ho Wan with a design capacity of 120,000 cubic metres per day. The present daily sewage flow from Tung Chung and Tai Ho is around 20,000 cubic metres. We anticipate that the daily sewage flow will gradually increase to about 50,000 cubic metres in 2005 due to the gradual occupation of new residential properties in the Tung Chung and Tai Ho areas. Upon the opening of the theme park in mid 2005, the daily sewage flow will jump to about 70,000 cubic metres. We anticipate that the daily sewage flow will reach the design capacity of the plant of 120,000 cubic metres in 2008 and will further increase to 180,000 cubic metres in 2011. To cope with future flow demands and to protect water quality in the receiving water bodies, we propose to increase the design capacity of the plant by 50% to 180,000 cubic metres per day.

5. We are now carrying out the "Outlying Islands Sewerage Master Plan stage 2 review". The review will investigate the need to further expand Siu Ho Wan sewage treatment plant to cope with increasing demand for sewage treatment facilities after year 2011. The review will be completed at the end of 2000. Provision for further extension has been allowed for in the present project. The proposed works will not be rendered redundant in any way in the event that future expansion is considered necessary under the stage 2 review.

Upgrading treatment level

6. Although earlier studies confirmed that upgrading the sewage treatment plant from preliminary treatment to primary treatment level would be adequate for meeting the discharge standard, we propose to further upgrade the treatment level to include chemical treatment and disinfection. Chemical treatment will reduce

Biochemical Oxygen Demand and suspended solid levels substantially. Disinfection is a precautionary measure to protect the marine environment and aquatic life including the Chinese White Dolphins living within the North Western Water Control Zone. The Advisory Council on the Environment (ACE) supported the proposal at its meetings held on 20 October 1997 and 27 April 1998.

7. If we do not proceed with the proposed upgrading works, the existing Siu Ho Wan sewage treatment plant will not be able to handle the increasing amount of sewage generated from the Tung Chung, Tai Ho and Penny's Bay areas. The quantity of pollutants discharged into the North Western Water Control Zone will increase and its water quality will deteriorate. This will have an adverse effect on the flora and fauna, including the Chinese White Dolphins of the receiving water bodies.

8. We plan to start the construction works in February 2001 for completion in August 2004. We estimate that the project will create some 230 new jobs comprising 40 at professional/technical level and 190 at the operation level during construction stage.

Financial Implications

9. The estimated capital cost of the proposed works is $794.4 million in MOD prices. We estimate the additional annual recurrent expenditure for maintenance work to be $50.7 million. The increase in recurrent costs is mainly due to increase in consumables and maintenance works required for the operation and maintenance of the sewage treatment works, such as electricity, chemicals and sludge disposal.

10. Based on the current level of expenditure on operation and maintenance of sewerage facilities, the proposed works by itself will lead to an increase in the recurrent cost of providing sewage services by about 4.6% in real terms which will need to be taken into account in determining sewage charges.

Public Consultation

11. We presented the proposal on the sewerage extension and improvement works proposed under the SMP study to the Islands District Board on 24 April 1995. The Board supported the proposal. After completing the preliminary design, we consulted the Islands Provisional District Board (IsPDB) on 23 February 1998. The IsPDB supported the implementation of the works.

Environmental Implications

12. The proposed upgrading works is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). We completed the EIA study for stage 1 phase 1 of the Outlying Islands sewerage in October 1997. The EIA study concluded that the environmental impact of the proposed upgrading

works could be controlled within the established standards and guidelines through the implementation of mitigation measures. The EIA report was endorsed by ACE in October 1997.

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