

For discussion  
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**Legislative Council  
Panel on Environmental Affairs**

**Sha Tin Sewage Treatment Works Stage III Extension**

**Introduction**

This paper seeks Members' support for a proposal to seek Finance Committee's approval to upgrade Public Works Project Item 276DS to Category A at an estimated cost of \$2,425 million in money-of-the-day (MOD) prices for undertaking the Sha Tin Sewage Treatment Works (STSTW) Stage III Extension.

**Project Scope and Nature**

2. The scope of the project comprises the following -
  - (a) construction of inlet works including one aerated grit channel, two sets of de-gritting equipment, two flume channels and one fine screen;
  - (b) construction of 10 primary sedimentation tanks and the associated sludge pumping stations;
  - (c) construction of 10 aeration tanks, one air blower house and the associated drainage pumping stations;
  - (d) construction of 20 final sedimentation tanks and the associated sludge pumping stations;
  - (e) construction of ultra-violet disinfection facilities;

- (f) construction of sludge treatment facilities including six digestion tanks, one boiler house, one sludge dewatering house and the associated facilities and the extension of the existing sludge thickening house;
- (g) construction of one laboratory building including necessary equipment, office and the associated stores;
- (h) laying of pipelines;
- (i) modification of 12 existing aeration tanks and 24 existing final sedimentation tanks;
- (j) ancillary works including power supply system, control systems, building services installations, fire services installation, lifting appliances, cabling works, road works, process commissioning and site safety measures etc.;
- (k) interim measures such as temporary modification of the existing aeration tanks to improve the performance of the treatment processes; and
- (l) environmental mitigation measures.

### **Justifications**

3. Due to rapid developments in Sha Tin and Ma On Shan areas in recent years, STSTW has reached its design capacity in handling sewage flows generated in the areas since late 1995. While Drainage Services Department has been carrying out various interim measures to enhance the plant efficiency and, hence, the effluent quality, the plant is still experiencing occasional difficulties in meeting the discharge standards, particularly during the winter months and peak flow periods. To

completely resolve the capacity problem, it is necessary to carry out extension works to STSTW to increase its treatment capacity.

4. Moreover, the residential population in Sha Tin and Ma On Shan areas is anticipated to increase from the existing 630,000 to 830,000 by the year 2011. We forecast that the daily sewage flow from residential, commercial, industrial and other developments in these areas will increase by some 40% to 340,000 cubic metres per day by 2011. It is thus necessary to build in extra capacity for STSTW to cater for additional sewage flow generated by these future developments.

5. We intend to start the construction of the proposed extension works in March 2001 for completion in mid 2008. In order to bring early relief to capacity problem during peak flow periods, we plan to commission phase 1 of the proposed extension works in 2004 so that the plant will be able to handle the anticipated amount of sewage generated by that time. We will also carry out interim measures such as temporary modification work to the existing aeration tanks to improve the performance of the plant prior to the commissioning of the phase 1 works in 2004.

6. We have adopted an advanced activated sludge process with nutrient removal in the design of the proposed extension works. The treatment process will thus be more flexible in responding to climatic conditions and in minimising the adverse effect of salt water flushing. Furthermore, by using compact rectangular treatment units, we are able to achieve a substantial increase in the treatment capacity with the limited land available. To further protect the quality of the receiving water bodies, we will also upgrade the treatment process of STSTW to improve the ammonia nitrogen removal capacity of the plant and include a disinfection system to reduce the *E. Coli*. level in the effluent.

7. If we do not implement the proposed extension works, the quality of the effluent discharged by STSTW will deteriorate. The sub-standard effluent will pollute the receiving water bodies and their Water Quality Objectives will not be complied with. In addition, an inadequate sewage treatment system would limit the future development of Sha Tin and Ma On Shan areas.

8. We estimate that the project will create some 440 new jobs, totalling 22,800 man-months, comprising 80 professional/technical staff and 360 labourers during the construction period.

### **Financial Implications**

9. We estimate the capital cost of the proposed works to be \$2,425 million in MOD prices. The additional annual recurrent expenditure is estimated to be \$87.87M. The increase in recurrent costs is mainly due to an 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 would lead to a 7.9% increase in the recurrent expenditure of provision of sewage services. This will be taken into account in determining sewage charges.

### **Public Consultation**

11. On 2 March 2000, we consulted the Health and Environment Committee of the Sha Tin District Council on the proposed works. Members supported the proposed works.

### **Environmental Implications**

12. The project is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Chapter 499) and an Environmental Permit is required for the construction and operation of the project. In November 1999, the EIA report for the project was approved under the EIA Ordinance. We shall implement the measures recommended in the EIA report of the project.

Environment and Food Bureau  
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