

**Project 24/2004 – Optimization of the Upgrading of the Stonecutters' Island
Sewage Treatment Works (SCISTW) Using Activated
Sewage Modelling**

Purpose

This paper seeks Members' advice on funding the captioned application for ECF submitted by the Hong Kong University of Science and Technology.

Background

2. The funding requested by this project is \$3,003,086.00 for the staff cost of employing one Senior Research Assistant (\$639,600.00), one Research Assistant (\$358,176.00) and some student helpers (\$286,200.00); the equipment cost for the modeling work and pilot plant (\$1,167,310.00), the transportation for site work (\$46,800.00) and the consumables for the biokinetic study (\$90,000.00), the influent characterization analysis (\$60,000.00), and pilot plant studies (\$355,000.00). The project is expected to last for 24 months.

3. The objectives of the study are as follows:

- a) To develop flexible model simulation platform(s) suitable for various applications of the Biological Nutrient Removal (BNR) process for Hong Kong sewage treatment;
- b) To characterise both raw sewage and Chemically Enhanced Primary Treatment (CEPT) effluents of the SCISTW, such as the alkalinity, easily and slowly biodegradable Chemical Oxygen Demand (COD) and organic nitrogen;
- c) To carry out the pilot plant trials and determine the key kinetic parameters for CEPT effluents;
- d) To identify the optimal process for the biotreatment of CEPT effluents;
- e) To verify the proposed process through pilot trials at the SCISTW.

4. The proposal has been examined by the Environmental Protection Department (EPD), the Drainage Services Department (DSD) and two external expert assessors. Both EPD and DSD consider the project worthy of support. EPD supports the proposal as it would help provide useful data and information for the planning of biological facilities for Stage 2B of the Harbour Area Treatment Scheme (HATS). In view of the project proposal being useful to the HATS Stage 2B project, DSD also supports the proposal and agreed to monitor the progress of work of the PI.

5. In respect of the assessments by the two external expert assessors, Assessor 1 supports the need of a modeling process for the proposed upgrading of the SCISTW and considers that the proposed modeling has high potential to be adopted if the lab-scale research can take full considerations of all variables and parameters of real situation with knowledge from expertise. Assessor 1 opines that if the activated sludge treatment can be integrated into Hong Kong's wastewater treatment system successfully, the quality of the final effluent discharging into the natural environment can be highly enhanced. Assessor 2 considers that the proposal mainly benefits DSD and ECF may not be the appropriate channel to provide funding for projects directly or indirectly benefit government department.

Advice sought

6. Members are invited to advise whether the application for ECF should be supported as detailed in paragraphs 2 to 3 above and if supported, the exact amount of fund to be recommended to the ECF Committee for approval.

Secretariat, ECF Research Projects Vetting Subcommittee
May 2005