

**Project 09/2005 – Development of a novel and low-cost membrane bioreactor
(MBR) for treating Hong Kong village sewage**

Purpose

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

Background

2. The funding requested by this project is \$818,685 for the staff cost of employing two Research Assistants for 12 months (\$372,000) and 12 student helpers for the sampling work (\$43,200), the equipment cost for the pilot plant (\$249,000), the traveling expenses for the site visits and sample delivery (\$33,500), the consumables cost (\$82,000) and contingency (\$38,985). The project is expected to last for 12 months.

3. The principal investigator (PI) proposes to develop a novel and low-cost MBR system for treating village sewage by using recycled non-woven materials as the membrane. The use of cheap membrane built from recycled non-woven materials with normal aeration strength enables development of an inexpensive, easy-to-operate, low-cost and small-scale MBR system suitable for use in village developments in Hong Kong. The PI pointed out that the energy consumption of the proposed MBR would be much lower than existing MBR system.

4. The Environmental Protection Department (EPD) and two external expert assessors have reviewed the proposal. The EPD considers the proposal worthy of support.

5. Assessor 1 supports the proposal as it uses recycled non-woven materials to reuse waste for productive purposes and reduce costs of the treatment process. The Assessor also points out that if the system performs well, the proposed membranes could be manufactured on a commercial basis. Assessor 2 also supports the proposal and comments that it is a practical proposal to improve aquatic environment by using a reliable small scale dispersed wastewater treatment technology with a new concept. If the

experiments confirm the usefulness of the proposed scheme, there will be drastic improvement of wastewater treatment in suburban and rural areas in Hong Kong.

6. Regarding the budget of project, the “Guide to Application for the Fund” stipulates that requests for funding support for contingency items will be considered on a case-by-case basis. The PI has included in the budget 5% of the total estimated cost (\$779,700) as contingency cost which amounts to \$38,985. The PI explained that contingency budget was required for a long term field pilot trial because of unexpected accidents such as damage of equipment by rain storms.

Advice sought

7. 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
August 2006**