

**Legislative Council
Panel on Environmental Affairs**

Review of the Strategic Sewage Disposal Scheme

Purpose

This paper sets out the expected timetable and the Administration's plans for the process for conducting the review of the Strategic Sewage Disposal Scheme (SSDS) for Members' information.

Background

2. In October 1999, taking account both of the rate of progress with the tunnelling work for Stage I of the SSDS and of continuing public questions on a number of aspects of the system, including the adequacy of the treatment to be provided and its cost effectiveness, the Administration decided that, before seeking funds for further stages, an independent review should be conducted. The review is to consider the experience with Stage I works, the present plans for later stages, and alternative proposals, so as to make recommendations on the future direction of the Strategy. A background note on the SSDS is at Annex.

3. We consulted Members on the composition of the review panel and the scope of the review on 28 October, 25 November and 20 December 1999. At the meeting on 20 December 1999, Members agreed to the broad composition of the panel and the scope of the review and the Administration was requested to proceed with the appointment of the panel.

4. We have since then secured funding approval for the review, as well as the Engineering and Associated Consultants Selection Board's approval on the terms of appointment of the review panel. Concurrently, we prepared a digest of information about present and projected sewage loads, environmental conditions, and other information relevant to planning of sewage systems for the main urban area. The digest will be made available to the public as well as to the review panel. In setting up the review, the following principles are considered to be fundamental:

- The process should be open and participatory. The public will be given full access to all the background information prepared for the review panel. All who wish to make a submission to the review panel will be welcome to do so either in writing or verbally during a public forum. All

written submissions received, including any submission which may be made by the Administration, will be forwarded to the review panel for consideration and, unless objected to by the submission proponents, will be published ; and

- The review panel will be drawn from experts of high professional standing in sewage treatment, tunnelling, economics and environmental assessment, so that it can take a comprehensive view of the current scheme and alternative proposals.

The Review Process

5. In the light of the principles described in paragraph 4, we have drawn up the following time-table for the review:

10 April	Formal commencement of the process. The digest of information as described in paragraph 4 above will be made available to the public.
10 April – 10 June	Period for members of the public and the Administration to submit written views/proposals to the review panel.
April/May	First visit by overseas members of the review panel to join with the local members to get to know each other, discuss procedures, conduct site visits, make initial contacts, and meet Advisory Council on the Environment (ACE) and LegCo EA Panel.
June/July	Second visit of overseas members. The review panel will conduct a public forum to receive verbal submissions. A moderator, who is not a member of the review panel or of the Administration, will preside over the forum.
August – October	The review panel to consider the submissions received, review alternative options, and prepare its recommendations. Further meetings and visits will take place if the panel members consider them necessary.

30 October and shortly thereafter	The review panel to submit their recommendations to the Administration. They will be invited to brief ACE and the LegCo EA Panel.
December and January	Public consultation on the way forward.

Composition of the Review Panel

6. The review panel will comprise international and local experts in wastewater treatment, marine biology, tunnelling and financial analysis. Specifically, it will be made up of:

- 3 international wastewater treatment experts including 1 expert in biological nutrient removal processes nominated by the International Water Association and 2 who participated in the review of the SSDS conducted in 1994/95
- 1 international tunnelling expert
- 1 local expert in marine biology nominated by The Marine Biological Association of Hong Kong
- 1 local engineer nominated by the Hong Kong Institution of Engineers
- 1 local expert in financial analysis

The panel will be asked to nominate one of their number to chair their own meetings and compile their report.

Terms of Reference of the Review

7. The terms of reference have been drafted to give the review panel full scope to consider alternative proposals. The review panel will be requested to:

- (a) review proposals for further developments of SSDS based on the experience gained from Stage I;
- (b) review alternative options for the sewage strategy presented by members of public or the Administration, in terms of environmental benefits, engineering feasibility, cost-effectiveness, economic and systems sustainability, and time required; and
- (c) make recommendations on the most sustainable way forward for development of the sewage system for the main urban area.

In carrying out the above tasks, the review panel will attend meetings as necessary and present findings.

8. The review panel will also be asked to advise the Administration as soon as possible if, after assessing experience with Stage I, there is any strong likelihood that its recommendations may have significant impact upon the remaining Stage I works currently in progress, to the extent that it would be necessary to consider stopping or altering these works.

Secretariat for the Review Panel

9. A secretariat will be established from which the public and interested parties can seek information, and a website will be set up from which the digest of technical information can be obtained. The secretariat will also serve as the focal point to receive submissions and forward them to the review panel.

10. Members are invited to note the progress made since the last discussion.

Environment and Food Bureau
April 2000

Annex

An Outline of Progress with the Strategic Sewage Disposal Scheme

The Strategic Sewage Disposal Scheme was conceived in the 1980's as a means of replacing the present unacceptable discharges of sewage from the main urban area into the central harbour after receiving preliminary treatment by:

- Collection of all discharges from the main urban areas
- Centralized treatment
- Discharge of the treated effluent through an outfall in oceanic waters south of Hong Kong

2. As originally projected, the scheme was to consist of two treatment plants, providing primary treatment supplemented with lime dosing. Several means for conveying the sewage from the catchment areas to the treatment plants and to the outfall were considered. Deep tunnels were selected because the greater geotechnical problems in construction were considered to be offset by reduced engineering complexity, reduced operational risks and reduced interference with other urban infrastructure.

3. The scheme was divided into four stages:

- Stage I collecting sewage from the urban areas of Kowloon, Tsuen Wan, Tseung Kwan O and the northeastern part of Hong Kong Island for primary treatment at Stonecutters Island Sewage Treatment Works (SCISTW).
- Stage II comprising an effluent transfer system to an outfall south of Hong Kong.
- Stage III/IV collecting sewage from the north and south-western parts of Hong Kong for treatment at Mount Davies before adding to the oceanic outfall.

4. Following review in 1995, the scheme was revised:

- The treatment system at SCISTW to be upgraded to a chemical process using ferric chloride
- Stages III/IV to be diverted to convey the sewage to SCISTW
- Stage II to undergo further EIA assessment of the outfall location and treatment level

Present Position

5. Stage I of SSDS comprises a treatment plant at Stonecutter's Island,

pumping and screening stations and seven deep tunnels with a total length of 25.3 km. One tunnel, the interim outfall tunnel, 1.7 km in length, has already been completed and is now in operation. The SCISTW is also in operation and is currently treating about 320,000 cubic metres of sewage daily. This represents 25% of the total design flow from the whole SSDS Stage I catchment. Since the SCISTW was put into operation in May 1997, the performance of the chemical treatment process using ferric chloride is satisfactory. Over 80% suspended solids and 70% biochemical oxygen demand on average are removed from the raw sewage against the respective target removal rate of 75% and 35%.

6. To date, 19.4 km (82%) of the six sewage collection tunnels have been excavated. Two tunnels have been bored through and are being lined. We expect to complete excavation of the remaining 4.2 km during this year and to commission the whole sewage collection system in 2001. The progress of the tunnelling works as at 19 March 2000 is as follows:

Tunnel	Length of Tunnel (m)	Excavation completed up to end 12/1999	Excavation completed in this quarter	Total Excavation completed to 19.3.2000
Western Tunnels				
Tunnel from Kwai Chung to Tsing Yi	779	779 (100%)	N/A	779 (100 %)
Tunnel from Tsing Yi to Stonecutters Island	3580	2669 (75%)	82 (2%)	2751 (77%)
Eastern Tunnels				
Tunnel from Tseung Kwan O to Kwun Tong	5332	5332 (100%)	N/A	5332 (100%)
Tunnel from Chai Wan to Kwun Tong	4830	2662 (55%)	745 (16%)	3407 (71%)
Tunnel from Kwun Tong to To Kwa Wan	3572	2536 (71%)	763 (21%)	3299 (92%)
Tunnel from To Kwa Wan to Stonecutters Island	5495	2857 (52%)	939 (17%)	3796 (69%)

The tunneling progress as at 19 March 2000 is shown on the attached drawing No. DSS/99/001R.

7. An EIA study for Stage II was commissioned in May 1996. The first phase of the study has recommended that the outfall be located in the southeast of Lamma Island, and that the treatment process should be further upgraded. In addition, a disinfection process should be added at the time of constructing the Stage II tunnels and land reserved should biological nutrient removal processes need to be added in future. The LegCo EA Panel and ACE were consulted on the study findings in September 1998.

8. The second phase of the study, which involved a detailed site specific EIA for the construction and operation phases of the selected option, has been completed. We will take into consideration the recommendations of the review panel before deciding whether to consult the public and the ACE on this EIA study report, or whether any additional EIA work is required. The data gathered in the study will be made available to the review panel and public.