

For discussion
On 27 June 2005

Legislative Council Panel on Environmental Affairs

Implementation Plan for the Harbour Area Treatment Scheme Stage 2

Purpose

The Harbour Area Treatment Scheme (HATS) is one of the most important environmental programmes undertaken in Hong Kong to improve the water quality of Victoria Harbour. It involves the implementation of an integrated sewerage system that will collect and treat all of our sewage from both sides of the harbour area in an efficient, effective and environmentally sustainable manner. The purpose of this paper is:

- (i) to provide Members with a comprehensive report on the views collected and the preferences expressed during the public consultation exercise for HATS Stage 2;
- (ii) to seek Members' support of a proposal to seek funding approval for about \$166 million from the Capital Works Reserve Fund to move forward with the time-critical next steps for HATS ; and
- (iii) to respond to some points raised by Members at the Panel meeting on 25 April 2005, when the Government's decision on HATS was reported.

Views Expressed during the Public Consultation for HATS Stage 2

2. The public consultation exercise for HATS Stage 2 was conducted from June to November in 2004. It is clear from the comments received that:

- (i) the community attaches high importance to cleaning up Victoria Harbour as a matter of priority;

- (ii) most people support the centralization of treatment of all the harbour area sewage at Stonecutters Island;
- (iii) while some would like to see both Stages 2A and 2B implemented in one go, the majority opinion is willing to accept a phased programme given the scale of the project, the financial implications, and uncertainty surrounding the future sewage flow build-up;
- (iv) there are divergent views on the need for disinfection, and in particular the use of the chlorination-dechlorination process; and
- (v) the community believes that it is worth paying higher sewage charges if the outcome is a cleaner harbour, though there are some concerns about the possible scale of such increases.

3. A full report on the views expressed during the five-month public consultation is attached at [Annex A](#). The report, and all the views submitted during the public consultation, have been posted on the Cleanharbour website (www.cleanharbour.gov.hk).

Government's Decision on the Way Forward

4. After considering the views collected, the Government informed Members at the Panel meeting on 25 April 2005 of the next steps in the implementation of HATS Stage 2. To briefly recapitulate, the Government's decision is:

- (i) Through a phased programme, to centralize the treatment of all the harbour area sewage at or near Stonecutters Island;
- (ii) To aim to complete the first phase, Stage 2A, in 2013/14; this phase would entail (a) construction of a tunnel conveyance system to transfer the currently untreated sewage from the northern and western shores of Hong Kong Island to Stonecutters Island, (b) expansion of the chemical treatment and other facilities at the existing Stonecutters Island Sewage Treatment Works (SCISTW) to cope with the sewage from Hong Kong Island and with projected future increases in sewage flows, and (c) provision of disinfection facilities;

- (iii) To aim to provide advance disinfection facilities by 2008/09 (the disinfection facilities will be further upgraded, as part of the Stage 2A works);
- (iv) For the second phase, Stage 2B, to construct a biological treatment facility at a site adjacent to the SCISTW; and
- (v) That construction of Stage 2, including the advance provision of disinfection, should be subject to acceptance by the community that the full recurrent costs of the scheme should be recovered through sewage charges; in the case of Stage 2B, an additional proviso is that the timing would also depend upon a review of trends in sewage flows and in water quality, to be conducted in 2010/11.

5. At the meeting on 25 April 2005, Members' initial reactions were that there was a need to look closely at the actual capacity requirements, given an apparently reduced rate of population increase in recent years, and that the proposals for changes to the sewage charging schemes would have to be considered very carefully. Members were also concerned whether the Government has an overall water management plan to encourage water conservation that would lead to less wastewater being generated. Members' concerns are addressed in the following three sections.

Total Water Management

6. To conserve our precious water resources and reduce pollution, the Government has been promoting a number of water conservation initiatives in the territory. Since 2000, the Government has permitted the use of valve-type toilet flushing apparatuses, including the dual-flushing system which can accommodate either a "full-flush" or a "half-flush" of the toilet depending on the need. The permitted maximum flushing volume was also reduced by 50% from 15 liters to 7.5 liters. The decision and the guidelines on how suppliers can apply for the pre-installation test records for their flushing systems was announced in October 2000. With experience accumulated over the years, the Government has incorporated the guidelines for the use of such systems into the Hong Kong Waterworks Standard Requirements. So far, over 40 valve-type flushing apparatuses have been found to be in compliance with test requirements. The comprehensive list of flushing systems that have passed our tests, as well as the relevant circulars and guidelines, have been uploaded to the WSD Homepage at

<http://www.wsd.gov.hk/en/html/plumb/index.htm> for easy reference by the general public and professionals.

7. Apart from promoting the new dual-flushing systems, the Government has been exploring alternative water resources such as reuse of treated effluent. The Ngong Ping Sewage Treatment Works, to be completed by August 2005, is the first tertiary sewage treatment plant in Hong Kong. The treated effluent would be used for both toilet flushing and controlled irrigation in the Ngong Ping area. We are also planning to carry out an effluent reuse demonstration scheme in the North District with a view to supplying treated effluent from the Shek Wu Hui Sewage Treatment Plant to some local residents, schools and communities for various uses including toilet flushing, unrestricted irrigation and water features. With the benefit of first-hand information from these pilot projects, the WSD is making preparations for a study to be commenced later this year aiming to map out a coherent engineering strategy on Total Water Management for Hong Kong.

8. Public education is one of the key elements in Total Water Management, and a new public education programme on water conservation has been launched since January this year.

Polluter-Pays Principle - Sewage Service Charges

9. The sewage service charging scheme was established in 1995. The Government's policy at the time, and since then, has been to subsidize the capital cost of providing sewage treatment services and to recover the operating cost in accordance with the polluter-pays principle.

10. The charges currently levied for provision of sewage services take the form of a Sewage Charge (SC) at the uniform rate of \$1.2 per cubic metre, which applies to all dischargers, and a Trade Effluent Surcharge (TES) which applies to 30 more polluting trades, including restaurants, laundries, and textiles manufacture. For domestic accounts, the SC for the first 12 cubic metres usage in the 4-month billing period is exempted. The unit rate of TES varies according to the strength of the effluent of the affected trades.

11. The SC and TES unit rates, currently aiming to recover 50% of the SC-related operational costs and 100% of the TES-related costs, have never been adjusted since the implementation of the scheme in 1995. In 2003/04, the Government recovered from SC payers \$405 million, equivalent to a recurrent cost

recovery rate of 44%. The revenue from TES amounted to \$173 million, representing a recovery rate of 69%.

12. According to the response from the public on their willingness to pay for sewage services in order to have a clean harbour, the Government decided to embark on a sewage strategy which aims at the objective that in the long term the operating costs of providing sewage services shall be fully recovered. For illustrative purposes, if we assume that full cost recovery would have to be achieved at the time of commissioning HATS Stage 2A in 2013/14, then the average household monthly sewage charge bill would have to rise from \$11 now, to about \$26 over the next eight years (at current prices).

13. The rough estimation above has taken into account all committed sewerage improvement works (both HATS and non-HATS). Despite the anticipated increase, the sewage service charge in Hong Kong would continue to be one of the lowest among the major cities worldwide and would continue to be so even after the completion HATS Stages 2A and 2B.

14. The existing policy target of recovering 100% of the costs of treating effluents of polluting trades is to be maintained. However we intend to conduct a review of the operation of the scheme to address the concerns of the trades, including whether the generic COD values are still appropriate now, and whether the procedure of reassessment can be simplified and the validity period lengthened. The review may affect the quantum of charges to be recovered. Thus it is not possible at this stage to project future increases in the rates of the TES in the same way as we have done for SC. It should be noted however, that since the recovery rate for TES is higher, being 69% in 2003/04 (as against 44% for the SC) the proportionate increase needed to achieve 100% recovery will not be as large as for SC.

Capacity Requirements of HATS

15. The most crucial next step for HATS is to transfer the Hong Kong Island sewage to Stonecutters Island for treatment, so that the continuing unacceptable pollution in the core central area of Victoria Harbour can be alleviated. This will entail constructing new deep tunnels similar to those employed for HATS Stage 1 as shown in [Annex B](#). As the tunnels will be found at great depths up to about 130 m below sea level and fully submerged with continuous sewage flows, it will be

impossible to enlarge them once they have been constructed to take additional flows if they are found to have been undersized. Given these facts it is necessary and prudent to take a long-term perspective on likely future growth in population. We will face higher risk of capacity constraints in future if the design capacity is to be trimmed down just because, at this moment in time, the population is growing more slowly than has hitherto been the case. Rather it is more prudent to design for the ultimate population that the HATS service area might accommodate. This is the approach that was taken for the HATS Environmental and Engineering Feasibility Studies (EEFS) which assumed a maximum development scenario accommodating a maximum population of about 6.3 million people. Furthermore it is worth noting that because of the nature of the deep tunnelling works under HATS which will have to be carried out in very congested space already, further reduction in the size of the tunnels would add difficulties to the construction and therefore would not result in any significant reduction in capital cost.

16. In addition to the tunnels it is necessary to consider the need to expand capacity at the SCISTW. The existing facilities at Stonecutters Island have been designed to cope with a flow of 1.7 million cubic metres per day. The combined flows in the HATS service area at the moment (i.e. Stages 1 and 2) amount to 1.85 million cubic metres a day. Thus the capacity is already insufficient. Our plan is to have Stage 2A completed in 2013/14 and, even with a low rate of projected population growth, a treatment capacity of 2.22 million cubic metres per day for a population of 5.3 million would be required by then. It should be noted that the population projections, flow projections and design capacity will be reviewed in the detailed design stage of the scheme.

Immediate Next Steps

17. In engineering terms, the main constraint on the completion of Stage 2A in 2013 is the construction of the deep tunnel system. Therefore we propose within this year to seek funding approval from the Public Works Sub-Committee (PWSC) of Finance Committee for allocation of about \$166 million (at September 2004 price level) to allow us to proceed with the most time-critical elements. These include the Stage 2A environmental impact assessment and design of the tunnel system, and the extensive ground investigations needed to ensure the design is optimized. The current implementation programme for HATS Stage 2A, which is dependent on the funding allocation and approval, and favourable outcome of the sewage charge review exercise, is shown in [Annex C](#).

18. Whilst the environmental feasibility of the HATS Stage 2A project has already been confirmed in previous studies, it is essential that an environmental impact assessment be conducted to examine in detail the potential environmental impacts that may arise during the construction and operation of the project and to propose appropriate mitigation measures to minimize any such impacts to acceptable levels. We plan to start the EIA study in March 2006 for completion in September 2007, concurrently with the site investigations and other planning and design work.

19. The HATS Stage 2A includes about 20 km of sewage conveyance tunnels to be constructed at great depths. Expert input is required for the planning and design of the tunnels. Besides, there is little existing information about the ground conditions at this depth. It is necessary to carry out an extensive programme of ground investigation at the early stage of the project to provide suitable information for the planning, design, tendering and construction of the tunnel works. Engineering consultants with suitable experience and expertise will be appointed to undertake the planning and design works as well as to advise on the ground investigation works. Early appointment of the consultants will allow sufficient time for carrying out the very complicated and interactive process of investigation, planning and design of the tunnel works. It is our plan to appoint the consultants by early 2006 to enable the commencement of construction by early 2009.

20. The breakdown of the funds requested is as follows:

EIA study	\$ 7 million
Site investigations	\$ 94 million
Design of the tunnel conveyance system	\$ 53 million
Contingencies	\$ 12 million

Total	\$166 million
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21. If funding approval for these time-critical items is not granted within this year it will not be possible to meet the committed time frame for the project.

Advice sought

22. Members are invited to:

- (i) note the results of the community consultation for HATS Stage 2, and the supplementary information provided in paragraphs six to sixteen above; and
- (ii) support the proposal to seek approval from the PWSC for the allocation of about \$166 million to allow the most time-critical elements of the project to proceed as soon as possible.

Environmental Protection Department
June 2005

**Report on the Public Consultation for
the Harbour Area Treatment Scheme Stage 2
(June 2005)**

Environmental Protection Department

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SECTION 1 INTRODUCTION

1.1 Purpose

1.1.1 The Harbour Area Treatment Scheme (HATS) is one of the most important environmental programmes undertaken in Hong Kong to improve the water quality of Victoria Harbour. It involves the implementation of an integrated sewerage system that will collect and treat all of our wastewater from both sides of the harbour area in an efficient, effective and environmentally sustainable manner.

1.1.2 This report presents the views of the community on the way forward for HATS Stage 2, received during the five-month public consultation period from 21 June to 20 November 2004, and the Government's responses.

1.2 Background

1.2.1 HATS Stage 1 was fully commissioned at the end of 2001. The system now collects about 1.4 million m³/d of sewage from urban Kowloon, Tseung Kwan O, and Kwai Tsing, and from Chai Wan and Shau Ki Wan on Hong Kong Island, for chemically-enhanced primary treatment (CEPT) at the Stonecutters Island Sewage Treatment Works (SCISTW). The treated effluent is discharged into the western harbour through a tunneled outfall. The system as a whole has brought significant improvements in water quality to much of the harbour. However, due to anticipated future population growth and the fact that 0.45 million m³ of sewage from the remainder of the HATS catchment (i.e. North Point, Wan Chai, Central, Sandy Bay, Wah Fu, Aberdeen and Ap Lei Chau on Hong Kong Island) is being discharged into the harbour every day without receiving the right level of treatment, it is likely that the water quality improvement brought about by HATS Stage 1 will not be sustained in the long term unless the HATS system is further improved in terms of capacity and treatment level. HATS Stage 2 is the infrastructure project proposed by the Government to rectify this deficiency. Its completion is expected to safeguard the environmental health of our harbour waters in the long term.

1.2.2 HATS Stage 2 has been formulated on the basis of four options proposed by a panel of international experts in a review of a previous scheme¹ conducted in 2000. The four options all featured deep tunnels for sewage transfer, a

¹ The old scheme was to provide chemically-enhanced primary treatment and disinfection to all the HATS sewage, and then transfer it to an area southeast of Lamma Island for deep sea disposal.

compact sewage treatment technology (i.e. biological aerated filters (BAF)), and short outfalls for discharge, but differed in the number of sewage treatment plants envisaged. The four options were described in our consultation document (“Consultation Document for the Harbour Area Treatment Scheme Stage 2”) and also on our dedicated website www.cleanharbour.gov.hk. Studies conducted over the last few years confirmed that all the options are feasible in environmental and engineering terms. But the most centralized option, i.e. Option A, which would treat all the sewage at or adjacent to Stonecutters Island, would be better than the other three options based on an evaluation against 24 criteria involving aspects of environmental impact, socio-economics, engineering feasibility and land use.

1.2.3 On this basis, the Government proposed that HATS Stage 2 should treat all the sewage at Stonecutters Island prior to discharge into the western harbour via the existing tunneled outfall. In light of the practical constraints in implementing such a large-scale project, the Government further proposed to split the project into two phases. The first phase, i.e. Stage 2A, would be to build deep tunnels to collect sewage from the remaining HATS catchment on Hong Kong Island for combined CEPT treatment and disinfection with the Stage 1 sewage at the SCISTW. In this step the SCISTW would be upgraded to provide for disinfection and increased CEPT capacity. The second phase, i.e. Stage 2B, would provide biological treatment to all the sewage at a site close to the SCISTW.

1.2.4 Since HATS Stage 2 will represent a major investment in tackling the harbour pollution problem over the long term, we considered it important to gain support from, and reach a consensus within, the community before making a final decision on the way forward for the project. We thus initiated a public consultation exercise in the second half of 2004 for this purpose.

SECTION 2 PUBLIC CONSULTATION PROCESS

2.1 Introduction

2.1.1 The Public Consultation for HATS Stage 2 (the Consultation) was launched on 21 June 2004. Through various activities such as meetings, briefings, and discussion forums, we aimed to provide the community with adequate opportunities to understand the proposals for HATS and be reasonably conversant with the issues when offering opinions and suggestions. To raise the public's awareness about our water environment, and increase the interest in HATS, we also launched a publicity and education programme.

2.1.2 The Government's recommendations and the key issues which we wished the public to focus on were set out in a Consultation Document, prepared in layman's terms and in both English and Chinese. It was supplemented by a package of brief technical notes, and an abridged pamphlet. These materials were widely distributed through different channels. Together with findings from studies which assessed the four options proposed by the panel of international experts, they were also uploaded to the Cleanharbour website (www.cleanharbour.gov.hk) for public viewing.

2.1.3. A list of activities undertaken during the Consultation, and the list of the information uploaded to the Cleanharbour website can be found at **Appendix A**.

2.2 Meetings with Advisory and Political Bodies

2.2.1 We attended meetings with the Environmental Affairs Panel of the Legislative Council (LegCo EA Panel), the Advisory Council on the Environment (ACE), different District Councils (DCs), and the Capture Fisheries, and Aquaculture Subcommittees of the Advisory Committee on Agriculture and Fisheries to brief members about our proposal for HATS, gather feedback, and answer questions.

2.3 Public Forums

2.3.1 A public forum was held on 6 November 2004 to allow members of the public to make presentations and offer views on HATS Stage 2.

2.4 Community Outreach

2.4.1 We also met with specific stakeholders such as green groups, professional bodies, and chambers of commerce who have shown a long-term interest in our environment, to brief them about our proposal and have in-depth discussions on various issues of concern.

2.5 Public Education, Roving Exhibitions, and Other Publicity Activities

2.5.1 A number of road shows and exhibitions were organized on weekends and holidays at strategic locations such as popular shopping malls and plazas to help raise the public's awareness about HATS. We also launched specially produced programmes on radio and television, and displayed publicity materials on key public transport systems to disseminate information about HATS.

2.6 Site Visits

2.6.1 A number of site visits to the Stonecutters Island Sewage Treatment Works were arranged for interested members of different DCs who wanted to understand more about HATS.

SECTION 3 INTERACTIONS WITH STAKEHOLDERS

3.1 Stakeholders Who Offered Views

3.1.1 The Consultation document and the Cleanharbour website promulgated dedicated channels, including email, telephone, facsimile and mail for collecting views and comments on HATS Stage 2.

3.1.2 The consultation process has helped solicit feedback from a broad spectrum of the community including political parties, Government's advisory bodies, District Councils in the harbour area, professional bodies, academia, community groups, and various business and trade organizations. Comments from some 46 of these major stakeholder groups and organizations were received and a further 81 written or electronic submissions were made by individual persons and firms. A full list of the stakeholders concerned is at **Appendix B**. A brief account of the stakeholders who provided feedback is as follows:

(a) **Political Parties**

Written comments were received from two political parties, namely the Democratic Alliance for Betterment of Hong Kong, and the Liberal Party. Their submissions have been posted on the Cleanharbour website.

(b) **Government's Advisory Bodies**

Advisory Council on the Environment (ACE) - ACE held meetings on 12 July, 6 September and 8 November 2004 to discuss the Government's proposals for HATS Stage 2. The meeting held on 6 September 2004 was open to the public. Individual members or representatives of relevant departments of local tertiary institutions and green groups were invited to offer views on issues such as phasing, centralization, disinfection, sludge handling, denitrification, and treatment technology to help ACE formulate its own position on HATS Stage 2. The records of the discussions at these meetings have been posted on the Cleanharbour website.

Monitoring Group for HATS - The Monitoring Group² for HATS was consulted before the main public consultation began, and their views on HATS Stage 2 had been taken into account in the Government's proposal. Members' views are shown in the Monitoring Group meeting minutes posted on the Cleanharbour website.

Harbour-front Enhancement Committee - The committee was briefed about the proposal on 4 November 2004. Members' views are shown in the relevant meeting notes posted on the Cleanharbour website.

Capture Fisheries and Aquaculture Sub-committees - The Capture Fisheries and Aquaculture Sub-committees of the Advisory Committee on Agriculture and Fisheries were briefed on 24 August and 29 July 2004 respectively about the proposal. Members' views are shown in excerpts of the relevant meeting notes posted on the Cleanharbour website.

(c) District Councils (DCs)

Seven DCs, namely Central & Western, Eastern, Sham Shui Po, Southern, Tsuen Wan, Wan Chai and Wong Tai Sin conducted meetings between July and September 2004 to specifically discuss the proposals for HATS Stage 2 and offer views. Members' views are shown in the relevant meeting notes posted on the Cleanharbour website.

(d) Academics

Altogether 12 academics from five local tertiary institutions and one overseas tertiary institution offered views through written submissions or orally in the ACE meeting held on 6 September 2004. Details of their views are contained in their own submissions or are contained in the notes of the 6 September 2004 ACE meeting, depending on

² The Monitoring Group was set up to increase transparency and monitor the progress of all studies and trials in relation to the way forward for the HATS conducted over the last few years. It was chaired by the then Secretary for the Environment and Food from 2001 to July 2002, and the Permanent Secretary for the Environment, Transport and Works from August 2002 to December 2003. The Group comprised three local members of the expert panel which conducted the review on HATS in 2000, four members of the Advisory Council on the Environment, three members of the public, the Director of Environmental Protection, and the Director of Drainage Services.

whether they were made in written form or orally. All these documents have been posted on the Cleanharbour website.

(e) Professional Bodies

Altogether seven professional bodies, that is the Hong Kong Institution of Engineers, the Chartered Institution of Water and Environmental Management Hong Kong, the Marine Biological Association of Hong Kong, the Hong Kong Institute of Planners, the Hong Kong Institute of Architects, the Hong Kong Institute of Surveyors, and the Association of Engineers in Society, offered views through written submissions or at the 6 September 2004 ACE meeting. Their written submissions, and details of their views as recorded in the notes of the 6 September 2004 ACE meeting, have been posted on the Cleanharbour website.

(f) Business and Trade Associations

Altogether eight business and trade associations, that is the Hong Kong Tourism Board, Business Environment Council, Federation of Hong Kong Industries, Hong Kong Cotton Spinners Association, Hong Kong Women Professionals & Entrepreneurs Association, Hong Kong Project Management Exchange Centre, Sustainable Development Committee of the Canadian Chamber of Commerce, and Environmental Committee of the Hong Kong General Chamber of Commerce offered views through submitted written submissions or private meetings. Details of their views are shown on the Cleanharbour website.

(g) Community Groups

Five green groups, namely the Friends of the Earth (HK), World Wide Fund for Nature Hong Kong, Hong Kong Marine Conservation Society, Green Student Council, and Conservancy Association tendered written submissions. Their submissions have been posted on the Cleanharbour website.

(h) Individual persons and firms

Views were also received from 81 individual persons and firms through mail, fax messages and emails, or oral presentations at the public hearing held on 6 November 2004. Details of their submissions and the verbatim record of the 6 November 2004 public hearing have been posted on the Cleanharbour website.

3.1.3 Apart from the above, views and comments were also received through other routes as follows:

(a) Legislative Council members (LegCo)

Members of the LegCo for the previous and present sessions were presented with our proposal on HATS Stage 2 and updated with the progress of the Consultation through EA Panel meetings on 28 June, 7 July and 18 November 2004 respectively. The Panel invited deputations to attend the meetings on both 7 July 2004 and 18 November 2004. Notes about the meetings are shown at LegCo's website at <http://www.legco.gov.hk/>.

(b) Other views or suggestions

There were a number of submissions on other environmental matters, or other general issues. For completeness, these submissions have also been posted on the Cleanharbour website for information.

3.1.4 We take this opportunity to thank all the groups, organizations, individual persons and firms who have been engaged in this process for their contribution to this consultation exercise.

SECTION 4 OVERVIEW OF KEY COMMENTS AND RESPONSES

4.1 General Feedback and Responses

4.1.1 Community's Views

4.1.1.1 The community has been positive about the water quality improvements brought about by HATS Stage 1. Most of the comments received (87% of the key stakeholder organizations and groups, and 77% of individual persons and firms) indicate support for the timely implementation of HATS Stage 2 in order to clean up the harbour, and restore this natural asset of Hong Kong to an environmentally healthier state. But there were other suggestions on how to do this, including the export of treated effluent to waters south of Lamma Island for disposal. Only a handful of respondents did not support HATS Stage 2 for reasons such as HATS alone being unable to resolve the problems caused by other sources of pollution (e.g. pollution from the Pearl River Delta, vessels, and harbour reclamation), competing priorities from other more urgent projects given the current fiscal constraint of the Government, and the possibility of a reduction in sewage generation due to possible reduction in population growth and industrial activities.

4.1.2 Government's Responses

4.1.2.1 We welcome the consensus reached by the community on the need to clean up the harbour, and are aware of the expectation that the Government should implement HATS Stage 2 as a high priority project.

4.1.2.2 After taking into account the community feedback received, and such issues as the practical constraints in pursuing HATS Stage 2, the uncertainty surrounding sewage flow build-up, and the Government's fiscal position, we propose to take a prudent approach by implementing the scheme in two phases, with the target of completing the basic sewage treatment facility (i.e. the first phase – “Stage 2A”) for the whole HATS catchment by 2013/14.

4.1.2.3 In Stage 2A, the preliminary treatment works around the northern and western shores of Hong Kong Island would be upgraded, and deep tunnels would be constructed to convey the currently untreated sewage from Hong Kong Island to the Stonecutters Island Sewage Treatment Works (SCISTW) for combined chemically-

enhanced primary treatment (CEPT) and disinfection together with sewage from the HATS Stage 1 catchment. In this respect, a new disinfection facility, and an expanded CEPT facility would be built within the vacant land on the existing site of the SCISTW. To bring early improvement to the water quality both in the harbour and at the Tsuen Wan Beaches, we propose to advance part of the disinfection facility for completion in 2008/09, subject to the full recurrent cost being recovered from the community in line with the polluter-pays principle.

4.1.2.4 The second phase, or Stage 2B, which is to provide biological treatment to the sewage, is to start tentatively after completion of Stage 2A in 2013/14, subject to a review to be carried out in 2010/11. The latter would take into account the then project readiness, actual sewage flow build-up, and water quality trends, and would also be subject to full recurrent cost being recovered from the community in line with the polluter-pays principle.

4.1.2.5 More detailed elaboration of (i) the choice for the development option; (ii) the adoption of a phased development strategy; and (iii) the recurrent cost recovery through adjustment of sewage charges in line with the polluter-pays principle are provided below.

4.1.2.6 We are also aware that the community is concerned about (i) possible further loss of our harbour if reclamation were to be pursued to provide land for accommodating any new facilities for HATS Stage 2; and (ii) the potential impact of cross-boundary pollution on the effectiveness of HATS Stage 2. These two issues are also addressed in more detail below.

4.2 Feedback on Specific Issues and Responses

4.2.1 To help us implement HATS Stage 2, in our Consultation Document we specifically invited the community to offer views in response to the following questions:

- (a) Do you agree with the preferred option, i.e. Option A – centralized treatment at Stonecutters Island?
- (b) Do you agree that Stage 2 should be implemented in two phases, i.e. HATS Stage 2A and Stage 2B?

- (c) Do you agree that protecting the water quality of Victoria Harbour is essential and that it is worth you paying higher sewage charges in line with the polluter-pays principle?

4.2.2 Besides views on these key questions, the feedback also covered issues such as “Is Disinfection Needed?”, “Concerns on Chlorination”, “Choice of Biological Treatment Technology”, “Sludge Handling”, “Public-Private Partnership”, and “Alternative Option for HATS”. All these issues are addressed in this section.

4.2.3 Preferred Option

4.2.3.1 Community’s Views

4.2.3.1.1 Some 33 key organizations and groups and 26 individuals indicated their views on a preferred option, and 64% and 73% respectively favoured Option A, i.e. the option to centralize all the treatment facilities at Stonecutters Island proposed by the Government. Option B (involving a second treatment plant at Lamma Island to treat Hong Kong Island sewage) was the option with the second highest level of support. Options C and D (involving treatment plants at Sandy bay and North Point for treating Hong Kong Island sewage) were generally not favoured due to their proximity to residential areas, and the higher costs. Those preferring Option B argued that Option A was poorer in system resiliency, natural dilution of the discharged effluent, and sustainability, while Option B, being more decentralized, would help reduce system risks. Option A supporters opined that the presence of more sensitive receivers in the proximity of the discharge point for the satellite plant at Lamma Island, higher demand for environmental monitoring, and higher cost were shortcomings for Option B. In general, it was also evident from the submissions that the “Not-in-my-backyard” (NIMBY) sentiment was quite strong such that options with satellite plants were clearly not favoured in districts where the satellite plants would be located.

4.2.3.2 Government’s Responses

4.2.3.2.1 The submissions indicate that a preference for options offering a certain degree of decentralization was largely due to a perceived greater flexibility in risk sharing, and site-specific merits such as better dilution of effluent.

4.2.3.2.2 However, any merits offered by decentralization need to be evaluated alongside other equally important factors such as cost, potential impacts to the environment, operational risks, and the concerns of local residents. The latter is particularly important when considering the risks of not successfully completing the project within the required time frame. Resolution of local concerns is likely to take considerable time with no guarantee of success, and this would undermine the goal of proceeding quickly to bring about urgently-needed further improvement in harbour water quality. On the other hand, land is readily available within the existing Stonecutters Island Sewage Treatment Works for the development of all the basic sewage treatment facilities needed by Stage 2A.

4.2.3.2.3 On balance, we would propose to adopt Option A which is to treat all the sewage at Stonecutters Island. This is in line with the views expressed by the majority of the stakeholders. We believe that through proper engineering design, provision of sufficient stand-by units and back-up systems, provision of adequate training to plant operators, and proper implementation of the operation and maintenance programmes, any potential risks associated with centralized treatment at SCISTW can be adequately mitigated. This was also the view held by the panel of international experts who proposed the four options in the review of HATS conducted in 2000.

4.2.4 Phased Implementation

4.2.4.1 Community's Views

4.2.4.1.1 Some 31 key organizations and groups and 18 individuals indicated their views on the phasing proposal, and 68% and 50% respectively supported the Government's proposal to implement HATS Stage 2 in two phases. Among these respondents, a significant proportion (about 23%) indicated they would like the Government to show greater commitment to Stage 2B by setting a clear timetable for it. Also, some respondents (around 31% of all those which offered views on the phasing approach) pressed for the implementation of HATS Stage 2 in one go so that the harbour pollution could be minimized as soon as possible. As an alternative, some proposed to pursue the phasing approach by providing biological treatment at an early stage, but then phasing the provision of additional capacity as sewage flows build up.

4.2.4.2 Government's Responses

4.2.4.2.1 Taking into account stakeholders' views, in particular, the expectation to give a commitment to implement Stage 2B, the practical constraints of implementing an infrastructure project of such a large scale, and our fiscal position, we consider it sensible and prudent to implement HATS Stage 2 in two phases, i.e. Stage 2A, and 2B, as stated above in the response under "General Feedback on HATS Stage 2".

4.2.4.2.2 We note that there have been requests to implement the project in one go, and we believe that such requests were largely made on water quality grounds. In fact, scientific evidence from the trials and studies conducted over the last few years indicates that the commissioning of Stage 2A would lead to compliance with the key water quality objectives throughout most of the harbour, and facilitate the re-opening of the Tsuen Wan beaches. Additionally, the CEPT process to be adopted for Stage 2A is currently being practised at the Stonecutters Island Sewage Treatment Works and is on average achieving 80% of the performance of a biological treatment works.

4.2.4.2.3 While Stage 2B would be implemented in the second phase, we would continue to monitor the harbour water quality, and sewage flow build-up, and make adequate advance preparation such as land reservation, conduct of the EIA, and site investigations. This is to ensure that the project would be implemented when the situation warrants.

4.2.5 Polluter-Pays Principle and Cost

4.2.5.1 Community's Views

4.2.5.1.1 Some 19 key organizations and groups and 24 individuals indicated their views on the polluter pays principle, and 74% and 88% respectively supported using the principle as a basis to adjust sewage charges. However, even among these respondents, many of them considered it important for the Government to take into account affordability in adjusting sewage charges and to consult the public extensively beforehand.

4.2.5.1.2 However, those who were concerned about the potential increase in sewage charges argued that trades such as restaurants which produced significant amounts of more polluted sewage might be seriously affected. They requested the Government to give more information about the expected sewage charge levels and to further consult the affected parties later.

4.2.5.1.3 There was also a concern about how to achieve fairness in sharing the burden. Some considered that people not residing in the HATS catchment should not be subject to such increases. It was suggested that the overall affordability of the community should be looked at before making any decision to increase the sewage charges.

4.2.5.2 Government's Responses

4.2.5.2.1 We welcome the fact that the majority of the views expressed on this subject were in support of the use of the polluter-pays principle as the basis for adjusting sewage charges, with a view to recovering the recurrent costs of the provision of sewage services.

4.2.5.2.2 The principle would help encourage people to conserve water and produce less sewage in the long term, and is in line with the global trend to conserve the scarce water resources of the earth. In addition, as a matter of fact, the development of HATS would represent a very major fiscal commitment³ for the Government and hence for the whole community. The sewage charges would provide funds for accelerating the improvement of our sewerage infrastructure, and relieving the Government's long-term fiscal burden in subsidizing sewage services. With no or insufficient sewage charges, the costs would have to be funded principally by taxpayers' money. This would defeat the objective of establishing a fair system through the application of the polluter-pays principle, and cause possible delay in improving our sewerage infrastructure. It is thus the Government's intention to fully recover the recurrent costs for the provision of sewage services through sewage charges in the long term.

³ The HATS annual recurrent cost is \$0.32 billion for Stage 1 only, and it would increase to \$0.76 billion and \$1.48 billion respectively when Stage 2A and 2B come into operation.

4.2.5.2.3 To implement the recurrent cost recovery proposal, the existing charging policy for both the Sewage Charge⁴ and Trade Effluent Surcharge⁵ would be reviewed this year, taking into account the financial implications arising from HATS Stage 2 in accordance with the polluter-pays principle.

4.2.5.2.4 We are aware of the public's concern on sewage charges adjustment, and would consult them extensively, and consider affordability, before making any changes to the existing charges.

4.2.6 Disinfection

4.2.6.1 Community's Views

Views on any need for disinfection

4.2.6.1.1 Some acknowledged the need to reopen the beaches in Tsuen Wan and so supported the provision of disinfection of the effluent. However, some queried the need for disinfection, arguing that attendance rates at the Tsuen Wan beaches were unjustifiably low for the investment, and that the marine environment should exert a natural disinfection effect due to the seawater salinity, and the UV radiation in the incident sunlight.

4.2.6.1.2 Some pointed out that bacteria might re-grow in sea water even if the effluent was disinfected, and they therefore doubted the effectiveness of disinfection in protecting swimmers' health.

Views on disinfection technology

4.2.6.1.3 Concerns on chlorination/dechlorination⁶ were expressed particularly in relation to the possible residual toxic effect on the environment. While some considered that chlorination would only result in the formation of a trace amount of

⁴ This is the charge imposed on premises producing sewage of domestic nature.

⁵ This is the charge imposed on specific trades and industries on top of the Sewage Charge to account for the more polluting effluent produced by them.

⁶ Chlorination and UV-irradiation are the two most effective and popular disinfection methods for biologically treated effluent. In the Government's consultation proposal, if phased implementation is not adopted, UV-irradiation would be the preferred option because it requires less space. On the other hand, if phased implementation is applied, chlorination is the preferred option because it is more effective than UV for disinfecting chemically treated effluent. The disinfection technology adopted in Stage 2A will be carried forward to Stage 2B.

by-products which would be instantaneously diluted after discharge others, including some green groups and marine biologists, considered that there were still uncertainties surrounding the long term risk of the daily discharge of a substantial amount of effluent containing chlorination by-products. The potential threat posed to natural marine habitats might outweigh the benefits to be derived from allowing swimming or secondary contact recreation in these waters. Nevertheless, from the feedback obtained during the consultation, the technology was generally accepted by engineers and some academics to be reliable from the engineering perspective.

4.2.6.1.4 Some queried if chlorination was the most cost-effective approach for removal of bacteria from the treated effluent. Based on local data, some biological treatment processes were found to achieve 99.9% *E. coli* reduction. Thus it was argued that if Stage 2 was to be implemented in one phase only, the high bacterial removal rate generally achieved in biological treatment processes would help dispense with any need to install a separate disinfection facility. Moreover, even if the phasing approach was adopted, some expected that Stage 2B would be needed soon after Stage 2A was completed. They considered that the biological process to be included in Stage 2B will make any disinfection facility installed for Stage 2A a waste of public money, as the amount of investment could not be justified for such a short service period.

4.2.6.1.5 A few people suggested alternative disinfection technologies such as UV and ozonation, although others also pointed out that these technologies were not without drawbacks when working with CEPT effluent. The Government was also asked to consider setting up artificial reefs near the SCISTW outfall or in other strategic locations, as a means to lower the *E. coli* level in ambient waters which might then help dispense with the need for disinfection. The ACE and some marine biologists suggested conducting a detailed EIA to ascertain the environmental implications before making any decision on the choice of the disinfection technology.

4.2.6.2 Government's Responses

4.2.6.2.1 We have noted the community's views, including the request to reopen the Tsuen Wan Beaches, the concerns on disinfection by-products, the practical constraints of different disinfection technologies available in the market, and the interface between Stages 2A and 2B. All these issues should be addressed scientifically and objectively, and we thus propose to conduct a detailed environmental impact assessment for the disinfection facility, under the

Environmental Impact Assessment Ordinance (EIAO). Under the EIAO process, the findings of the assessment would be open for public consultation. The EIAO Authority would take into account the community's views before granting any approval for an application to use a particular technique.

4.2.7 Adoption of Local Technologies and Construction Materials

4.2.7.1 Community's Views

4.2.7.1.1 Some suggested adopting other cheaper technologies, or using local technologies and construction materials for Stage 2B. They believed that this would help lower the capital and recurrent costs of the project.

4.2.7.2 Government's Responses

4.2.7.2.1 We would take note of the design, operational and maintenance need of the project, and procure the required technologies and construction materials through the Government's tendering system. We believe that this would help purchase quality products with the best prices.

4.2.8 Public-Private Partnership

4.2.8.1 Community's Views

4.2.8.1.1 Two individuals, and eight key organizations and groups offered views. All the individuals and 75% of the key organizations and groups supported the Public-Private Partnership (PPP) approach, provided that the general interest of the public would be well-safeguarded in the PPP arrangement. While suggesting the Government should continue to explore the PPP arrangement, stakeholders also requested the Government to set up an institutional mechanism to ensure transparency, with adequate public consultation and participation in the project.

4.2.8.2 Government's Responses

4.2.8.2.1 The purpose of involving the private sector is to take full advantage of the private sector's expertise, skill and efficiency in the delivery of the project, with a view to accelerating completion while maximizing cost-effectiveness. When pursuing the Public-Private Partnership approach for the procurement of HATS

Stage 2, we would need to balance various aspects, such as the public interest and the project's investment potential.

4.2.9 Sludge Handling

4.2.9.1 Community's Views

4.2.9.1.1 Since a significant amount of sludge will be produced by HATS, some stakeholders requested more information about the Government's long-term plan in handling the sludge. In this regard, they requested detailed information on the future sludge handling arrangement and its cost.

4.2.9.2 Government's Responses

4.2.9.2.1 It is our plan to dispose of the HATS sludge using a centralized sludge treatment facility (STF). A feasibility study of the STF was commissioned in August 2004, and is planned for completion in November 2007. Key findings of the STF would be subject to consultation during the course of the study. The plan is to award a contract for development of the STF at the end of 2007, and to complete construction in 2009.

4.2.10 Extension of the Existing SCISTW Outfall

4.2.10.1 Community's Views

4.2.10.1.1 Some respondents suggested that if the existing SCISTW outfall could be extended to deeper waters within or outside the harbour area this would achieve better dilution which would in turn obviate the need for disinfection and thus remove any concerns about the potential environmental impacts of the disinfection technique.

4.2.10.2 Government's Responses

4.2.10.2.1 Taking into account the present uses of our harbour and its nearby waters, including fairways, anchorage areas, water intake points, beaches, secondary contact recreation zones, fish culture zones, and backfilled marine borrow pits, we identified two potential sites for extending the outfall. One was west of the Ma Wan Fairway, while the other was northwest of Lamma Island. We conducted water quality modeling to assess the possible spread of bacteria if undisinfected sewage were to be discharged from these two sites. We found that while both sites are

hydrodynamically better than the existing outfall site, in both cases the beaches at Tsuen Wan would still be affected by the HATS discharge, with breaching of the beach water quality objective. While fewer beaches at Tsuen Wan would be affected if the outfall were to be located northwest of Lamma, the option would cause significant impact at the island's gazetted beaches at Lo So Shing and Hung Shing Ye, with breaching of the beach water quality objective there.

4.2.10.2.2 Based on this *prima facie* evidence, it is highly likely that the HATS effluent would need disinfection for any potential inshore discharge location, if the beaches are to be protected.

4.2.11 Alternative Treatment Technologies

4.2.11.1 Community's Views

4.2.11.1.1 Some suggested exploring other treatment technologies such as the sequential batch reactor and deep shaft system, suggesting this would reduce costs and simplify operations.

4.2.11.2 Government's Responses

4.2.11.2.1 The Consultation result indicates that the community in general has no specific preference for any biological treatment technology. We are aware that a number of technologies are now available in the market, and there are trade-offs among them. By the time Stage 2B is implemented, it is anticipated that there would be further technological advancement in terms of reliability, efficiency and cost-effectiveness. On this basis, we expect the procurement of the Stage 2B technology would be through a tender which specifies the performance, rather than the technology. We believe that this approach would enable the procurement of the best technology, while achieving the maximum cost-effectiveness.

4.2.12 Artificial Reefs (ARs)

4.2.12.1 Community's Views

4.2.12.1.1 Some stakeholders proposed to explore the use of artificial reefs (ARs) as a means for removing nutrients and bacteria in marine waters.

4.2.12.2 Government's Responses

4.2.12.2.1 We have looked into the feasibility of applying artificial reefs to HATS. The technology is traditionally adopted for marine resources enhancement, and there have been trials conducted in local fish culture zones recently to assess its effectiveness in improving fish culture zone environment, and enhancing marine resources. While findings indicate that the installation of ARs at fish culture zones would yield positive results in these two aspects, their use as a "sewage treatment technology" for HATS would face a number of very severe practical constraints. To produce any material impact on water quality, a very large number of bulky ARs, numbering in the tens of thousands, each one measuring 4m (length) x 4m (width) x 4.5m (height)⁷ would have to be deployed at the seabed in the Western Harbour. This is an area of busy marine traffic where installation of such structures would pose a severe hazard to navigation. In addition there would also be maintenance considerations, due to the need to harvest the mussels from the ARs, and then dispose of them. We consider these difficulties to be insurmountable and therefore propose to focus on more conventional technologies which have been applied in large scale applications.

4.2.13 Alternative Proposals

4.2.13.1 Community's Views

4.2.13.1.1 Some urged the Government to reconsider the cost implications and practicality related to provision of biological treatment, and nutrient removal in Stage 2B. They considered that pollution loads from the Pearl River had raised the background pollution levels of the HKSAR waters. They thus argued that to invest heavily in local biological treatment facilities for reducing organic and nutrient loads would not be a cost-effective way to improve local water quality. They further advocated diverting the resources required for implementing Stage 2B to subsidize pollution abatement work in the Pearl River Delta instead. To clean up the pollution due to local discharges, these stakeholders proposed to resurrect the old SSDS long outfall scheme.

⁷ The size is based on trials recently conducted in local fish culture zones. The actual size needed for HATS would be subject to adjustment to suit the local environment.

4.2.13.2 Government's Responses

4.2.13.2.1 Poor water quality in Victoria Harbour is primarily caused by sewage discharges from both sides of the harbour and the solution to this problem lies in dealing with our own effluent. That it is possible to do so has been adequately demonstrated by Stage 1 of HATS which has brought about substantial, very marked improvements throughout much of the harbour. In similar vein, the remainder of the pollution problem has to be addressed by us also through provision of adequate sewerage facilities in terms of sewage conveyance and treatment.

4.2.13.2.2 We are aware that the Mainland side has been expanding its sewerage network and building secondary sewage treatment works to control the water pollution problem in the Pearl River Delta. We will continue to collaborate with our Mainland counterparts to deal with pollution problems that affect both jurisdictions. At the same time, we would deploy our own resources to deal with pollution within our boundary.

4.2.13.2.3 As the feedback from the community obtained during this consultation process indicates a consensus in favour of pursuing Option A, we see little prospect in resurrecting the old SSDS long outfall scheme. Further responses concerning this issue are provided in the paragraphs below.

4.2.14 Old SSDS Long Outfall Scheme

4.2.14.1 Community's Views

4.2.14.1.1 A small number of respondents suggested resurrecting the old SSDS long outfall scheme in order to reduce the overall financial commitment. They also believed the original SSDS proposal would bring about reasonably good water quality improvements, given the relatively good dilution achieved at the discharge point to the southeast of Lamma.

4.2.14.2 Government's Responses

4.2.14.2.1 According to the views of the panel of international experts which reviewed the HATS in 2000, the old SSDS long outfall scheme was "neither a viable

nor a sustainable option". On this basis, the panel proposed four options⁸ as alternative means for cleaning up the harbour. The four options were well received by the community, and confirmed to be feasible in engineering and environmental terms through a number of trials and studies conducted over the past few years. The findings of the trials and studies have been the subject of this Consultation, and as indicated above the community largely favours implementing HATS Stage 2 based on Option A. The Consultation findings also indicate that the community considers cleaning up the harbour to be a high priority task and we expect that the current consensus on Option A should be pursued.

4.2.14.2.2 We are aware of the fiscal commitment that implementation of HATS Stage 2 represents. As a fiscally prudent approach, we propose to implement the scheme in two phases. Stage 2A would be less expensive than the long outfall scheme due to the inshore discharge of the treated effluent through a short outfall. While tentatively we foresee that the construction of Stage 2B would need to start very soon after completion of Stage 2A, nevertheless the final decision on when to proceed would depend on water quality trends and the rate of sewage flow build-up. It is also our plan to explore the Public-Private Partnership approach as the means to procure the project in a timely and cost-effective manner, and to review the sewage charges as a means to involve the whole community in supporting the scheme.

4.2.15 Effluent Reuse and Conservation

4.2.15.1 Community's views

4.2.15.1.1 Some considered effluent reuse and conservation of water would be a fundamental way to help tackle the problem and that the Government should provide more education for the public in this respect.

4.2.15.2 Government's Responses

4.2.15.2.1 This is a worthwhile long-term goal and as a start, to help gain experience, we have planned the sewage treatment works serving the Ngong Ping / Tung Chung cable car system to include facilities capable of delivering effluent suitable for various types of re-use. These include toilet flushing, irrigation and

⁸ The key differences between the old SSDS long outfall scheme and the four options is that the four options would adopt biological treatment to produce effluent of quality suitable for discharge into inshore waters having a lower assimilative capacity than the deep waters southeast of Lamna.

filling up of water features. The Government is open-minded to any potential reuse and conservation proposal and would continue to explore various options, means and technologies that would help conserve water, and produce less sewage.

4.2.16 Harbour Reclamation

4.2.16.1 Community's views

4.2.16.1.1 Some considered that reclamation, being detrimental to the harbour environment, should be stopped.

4.2.16.2 Government's Responses

4.2.16.2.1 We are fully aware of the need to avoid reclamation for HATS. To this end we have been innovative in our site search for sewage treatment works proposed under each of the four options investigated. Thus in different locations we have proposed building treatment works in caverns, or underground.

Appendix A

Lists of Consultation Activities, and Information Uploaded to the Cleanharbour Website at “www.cleanharbour.gov.hk” during the Public Consultations

Lists of Consultation Activities

Date	Event
21 Jun. 2004	Announcement of Public Consultation
28 Jun. 2004	Meeting with the Environmental Affairs Panel of the Legislative Council (LegCo EA Panel)
7 Jul. 2004	Special meeting with the LegCo EA Panel
12 Jul. 2004	Meeting with the Advisory Council on the Environment (ACE)
13 Jul. 2004	Meeting with the Sham Shui Po District Council (DC)
15 Jul. 2004	Meeting with DC Chairmen and Vice-Chairmen
15 Jul. 2004	Meeting with the Central and Western DC
17 Jul. 2004	First in-depth technical briefing for green groups, academics and professional bodies
19 Jul. 2004	Second in-depth technical briefing for green groups, academics and professional bodies
20 Jul. 2004	Meeting with the Wan Chai DC
21 Jul. 2004	Meeting with DC Members
21 Jul. 2004	Kick-off Ceremony of the Public Education and Roving Exhibitions
22 Jul. 2004	Meeting with the Tsuen Wan Rural Area Committee
27 Jul. 2004	Meeting with the Tsuen Wan DC
29 Jul. 2004	Meeting with the Aquaculture Subcommittee of the Advisory Committee on Agriculture & Fisheries
24 Aug. 2004	Meeting with the Capture Fisheries Subcommittee of the Advisory Committee on Agriculture & Fisheries
31 Aug. 2004	Meeting with the Wong Tai Sin DC
6 Sep. 2004	ACE Meeting – Public Forum on HATS Stage 2
16 Sep. 2004	Meeting with the Environment and Hygiene Committee of the Eastern DC

17 Sep. 2004	Meeting with the Food, Environment, Hygiene and Works Committee of the Central & Western DC																														
18 Sep. 2004	Site visit to Stonecutters Island Sewage Treatment Works (SCISTW) by Eastern, Sham Shui Po, Islands and Tsuen Wan DC members																														
24 Sep. 2004	HATS seminars for the Environmental Protection Ambassador Scheme for Property Management																														
25 Sep. 2004	Site visit to SCISTW by members of the Wan Chai DC																														
27 Sep. 2004	Meeting with the Environment and Hygiene Committee of the Southern DC																														
28 Sep. 2004	Briefing to the British Chamber of Commerce																														
Jul. – Oct. 2004	Public Education and Roving Exhibitions: <table border="1"> <thead> <tr> <th><u>Date</u></th> <th><u>Location</u></th> <th><u>Function</u></th> </tr> </thead> <tbody> <tr> <td>21-22 Jul.</td> <td>Ocean Terminal</td> <td>Kick Off Ceremony and Exhibition</td> </tr> <tr> <td>31 Jul. - 1 Aug.</td> <td>Olympian City II</td> <td>Large Scale Road Show</td> </tr> <tr> <td>11-13 Aug.</td> <td>Ferry Pier at Central</td> <td>Exhibition</td> </tr> <tr> <td>21-22 Aug.</td> <td>World Trade Centre</td> <td>Exhibition</td> </tr> <tr> <td>4-5 Sep.</td> <td>Marina Square</td> <td>Exhibition</td> </tr> <tr> <td>12 Sep.</td> <td>The Westwood</td> <td>Road Show</td> </tr> <tr> <td>26 Sep.</td> <td>Cityplaza</td> <td>Road Show</td> </tr> <tr> <td>29 Sep.</td> <td>Tsuen Wan Plaza</td> <td>Road Show</td> </tr> <tr> <td>12-19 Oct.</td> <td>Central Library</td> <td>Exhibition</td> </tr> </tbody> </table>	<u>Date</u>	<u>Location</u>	<u>Function</u>	21-22 Jul.	Ocean Terminal	Kick Off Ceremony and Exhibition	31 Jul. - 1 Aug.	Olympian City II	Large Scale Road Show	11-13 Aug.	Ferry Pier at Central	Exhibition	21-22 Aug.	World Trade Centre	Exhibition	4-5 Sep.	Marina Square	Exhibition	12 Sep.	The Westwood	Road Show	26 Sep.	Cityplaza	Road Show	29 Sep.	Tsuen Wan Plaza	Road Show	12-19 Oct.	Central Library	Exhibition
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9 Oct. 2004	Open forum on HATS by the Hong Kong Institution of Engineers (HKIE) and the Chartered Institution of Water and Environmental Management, Hong Kong (CIWEM)																														
15 Oct. 2004	Site visit to SCISTW by members of the Southern DC																														
18 Oct. 2004	Meeting with the Canadian Chamber of Commerce																														
21 Oct. 2004	Meeting with the Conservancy Association																														
25 Oct. 2004	Meeting with the Federation of Hong Kong Industries																														
26 Oct. 2004	Meeting with the Society for Protection of the Harbour																														
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27 Oct. 2004	HATS seminars for Environmental Protection Ambassador Scheme for Property Management																														
28 Oct. 2004	Meeting with the Business Environment Council																														
28 Oct. 2004	Meeting with the Citizen Envisioning Harbour																														
29 Oct. 2004	Meeting with the World Wide Fund for Nature Hong Kong																														

29 Oct. 2004	Meeting with the Hong Kong Tunnelling Society
1 Nov. 2004	Meeting with the Hong Kong Institute of Architects
2 Nov. 2004	Site visit to SCISTW by DC Chairmen and vice-chairmen
3 Nov. 2004	Meeting with the Hong Kong Institute of Environmental Impact Assessment
4 Nov. 2004	Meeting with the Harbour-front Enhancement Committee
6 Nov. 2004	Public hearing
8 Nov. 2004	Meeting with the ACE
9 Nov. 2004	Follow-up meeting for the Open forum on HATS for HKIE & CIWEM held on 9 Oct 2004
13 Nov. 2004	Site visit to SCISTW by Central & Western DC Members
18 Nov. 2004	Meeting with the LegCo EA Panel
16 Dec. 2004	Meeting with the Environmental Committee, Hong Kong General Chamber of Commerce

**List of Information Uploaded to the Cleanharbour Website at
“www.cleanharbour.gov.hk” during the Public Consultation**

General Information

- Ø Consultation Document for the Harbour Area Treatment Scheme Stage 2.
- Ø Introduction of the HATS, including background, development milestones, the way forward for the further stages, etc.
- Ø Latest information on HATS and announcements of upcoming activities.
- Ø HATS related community outreach activities.
- Ø Minutes of the HATS Monitoring Group Meetings.

Resource Centre

- Ø Legislative Council papers.
- Ø Link to the 2000 Strategic Sewage Disposal Scheme (SSDS) Review website which contains SSDS related reports and publications.
- Ø HATS related reports:

1. Proposed Water Quality Criteria	Jun. 2002
2. Report on Community Consultation for the Proposed Water Quality Criteria	Oct. 2002
3. Summary of Flow Capacity Reassessment Study for Stonecutters Island Sewage Treatment Works	Jan. 2003
4. Summary Report of Flows for Harbour Area Treatment Scheme Stage I	Jan. 2003
5. Briefing Document - Tools for Water Quality Modelling	Apr. 2003
6. Compact Sewage Treatment Technology Pilot Plant Trials - Independent Checker's Final Report	Jun. 2003
7. Compact Sewage Treatment Technology Pilot Plant Trials - Executive Summary of Final Report	Jul. 2003
8. Environmental and Engineering Feasibility Assessment Studies - Final Report and Executive Summary	Jun. 2004

9. Study on Procurement Options - Final Interim Report	Jun. 2004
10. Assessment of Phased Implementation of HATS Stage 2	Jun. 2004
11. SSDS (HATS) Stage I Baseline Monitoring and Performance Verification - Executive Summary	Aug. 2004

Appendix B

List of Stakeholders who offered views and comments on HATS Stage 2

<u>Type of Stakeholders</u>	<u>Name</u>
Individual Firms	<ol style="list-style-type: none">1. Chevalier International Holdings Ltd.2. CK Life Sciences Ltd.3. CKI Materials4. New Energy and Nano Technology Co. Ltd.5. Ready Consultants Ltd.6. Sunflake Company Ltd.
Individual Persons	<ol style="list-style-type: none">1. A New Territories citizen2. Mr. Andy3. Mr. Donald Asprey4. Mr. Jeff Bent5. Captain Myles Bowker6. Mr. Sean Cassidy7. Mr. Chan Ka Wang Eric8. Ms. Chan Ka-man, Ms. Kwok Siu Fong, Ms. Poon Suk Chun, Mr. Ho Ng Kong, Mr. Lui Siu Man, and Mr. Lee Kong⁹9. Mr. Chan Kwun Hung10. Mr. Man Chan11. Mr. Samuel Chan12. Ms. Chan Siu Lan13. Mr. Chan Siu Tsuen14. Ms. Chan Wai Man15. Mr. K.L. Chen16. Ms. Cheng Choi Ha17. Mr. Cheng Tsang Wing18. Mr. Cheung Chi Keung19. Mr. Kelvin Chiu20. Ms. Apple Chu21. Mr. Joanna Chung22. Dr. David L. Cosman23. Mr. Howard Elias24. Mr. Geoff Fok25. Ms. Fok Hoi Ting26. Mr. Patrick Fung27. Mr. Lene Hansen28. Mr. John Harkins29. Mr. Geoffrey S. Harris30. Mr. Philip Heung31. Hkrailway2004

⁹ A joint submission was made.

32. Mr. Peter Ho
33. Ms. Catherine Hoo
34. Mr. Dennis H. Ip
35. Mr. Keith Ip
36. Mr. Kam Kin Pong
37. Ms. Lai Sau Wo
38. Mr. Lau Kam Cheong
39. Dr. Grantham KH Lee
40. Mr. Lawrence Lee
41. Mr. Leung Kwong Wah
42. Mr. Norman Li
43. Mr. Pok Lai Li
44. Ms. Stephanie Ngar Ling Liu
45. Mr. Adolfo Lue
46. Mr. Max
47. Mr. Paul Mok
48. Ms. Anna Northwood
49. Mr. Paul Penfold
50. Mr. Patrick Purnell-Edwards
51. Mr. Sha Ah Hoi
52. Mr. Patrick Sherriff
53. Mr. Shu Lok Shing
54. Mr. Tam Oi
55. Mr. W K Tang
56. Mr. Tse Chi Hong
57. Mr. Lawrence Tse
58. Mr. Roy Tse
59. Mr. Tze Tsun Yeung
60. Ms. Wilma Valentine
61. Mr. Benjamin Wang
62. Mr. William
63. Ms. Loretta T.Y. Wong
64. Mr. Solomon Wong Chi Ming
65. Mr. Wong Hung
66. Mr. K C Wong
67. Mr. Ken Wong
68. Ms. Wong Yuek Lan
69. Mr. Richard Zhiqiang Xu
70. Mr. Hay Yau
71. Mr. Yeung Pui Yin
72. Ms. Carmen Yik
73. Ms. Sandra Yip
74. Mr. Brian Yu
75. Mr. Paul Zimmerman

**Business and Trade
Associations**

1. Business Environment Council
2. Environment Committee, Hong Kong General Chamber of Commerce
3. Federation of Hong Kong Industries

4. Hong Kong Cotton Spinners Association
5. Hong Kong Project Management Exchange Centre
6. Hong Kong Tourism Board
7. Hong Kong Women Professionals & Entrepreneurs Association Limited
8. Sustainable Development Committee, Canadian Chamber of Commerce in Hong Kong

Academics

1. Dr. Larry Baum, Department of Medicine and Therapeutics, Chinese University of Hong Kong
2. Prof. Leonard Cheng, Department of Economics, Hong Kong University of Science and Technology, and IRP¹⁰ member for the Year 2000 SSDS Review
3. Prof. K C Ho, School of Science and Technology, Open University of Hong Kong
4. Prof. Howard Huang, Department of Civil Engineering, Hong Kong University of Science and Technology, and Independent Checker of the Compact Sewage Treatment Technology Pilot Plant Trial
5. Dr. Albert Koenig, Department of Civil Engineering, University of Hong Kong and IRP member for the Year 2000 SSDS Review.
6. Dr. Lai Pong Wai, Centre of the Environmental Policy and Resources Management, Chinese University of Hong Kong
7. Prof. Joseph Hun-wei Lee, Department of Civil Engineering, University of Hong Kong
8. Scientists from the Swire Institute of Marine Science, University of Hong Kong
9. Prof. Rudolf Wu, Centre for Coastal Pollution & Conservation, City University of Hong Kong, and IRP member for the Year 2000 SSDS Review.
10. Dr. John Russell, La Trobe University, Australia, and Mr. Peter H. Y. Wong¹¹
11. Prof Chii Shang, Department of Civil Engineering, Hong Kong University of Science and Technology
12. Dr. W.S. Yim, Department of Earth Science, University of Hong Kong

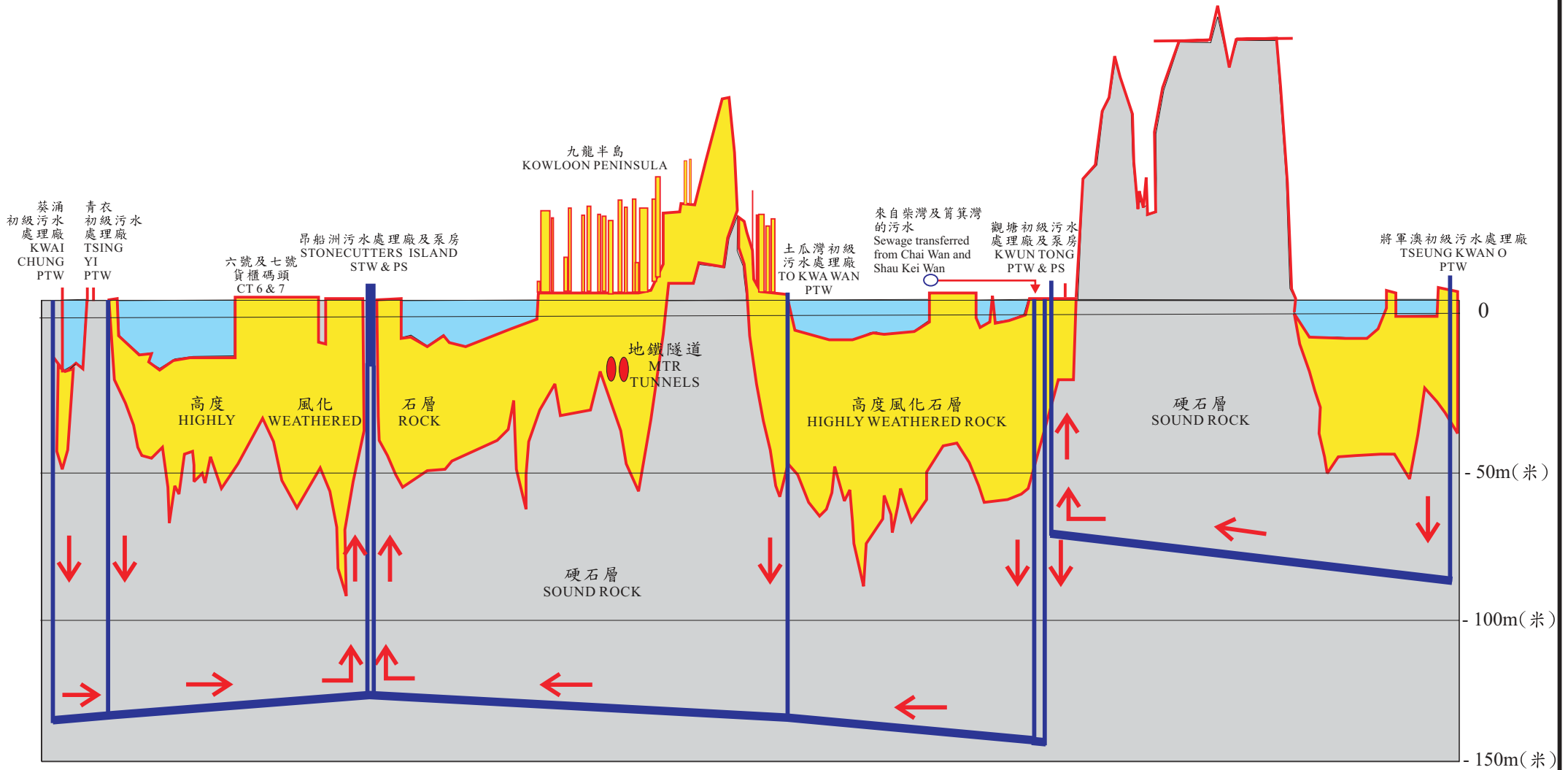
¹⁰ IRP is the panel of international experts which propose the four treatment and discharge options for the long term handling of the HATS sewage.

¹¹ A joint submission was made.

- Professional Bodies**
1. Association of Engineers in Society
 2. Chartered Institution of Water and Environmental Management Hong Kong
 3. Hong Kong Institute of Architects
 4. Hong Kong Institute of Planners
 5. Hong Kong Institute of Surveyors
 6. Hong Kong Institution of Engineers
 7. Marine Biological Association of Hong Kong
- Community Groups**
1. Conservancy Association
 2. Friends of the Earth (HK)
 3. Green Student Council
 4. Hong Kong Marine Conservation Society
 5. World Wide Fund for Nature Hong Kong
- Government's Advisory Bodies**
1. Advisory Council on the Environment
 2. Aquaculture Sub-committee of the Advisory Committee on Agriculture and Fisheries
 3. Capture Fisheries Sub-committee of the Advisory Committee on Agriculture and Fisheries
 4. Harbour-front Enhancement Committee
 5. HATS Monitoring Group¹²
- District Councils**
1. Eastern
 2. Central & Western
 3. Sham Shui Po
 4. Tsuen Wan
 5. Wan Chai
 6. Wong Tai Sin
 7. Southern
- Political Parties**
1. Democratic Alliance for Betterment of Hong Kong
 2. Liberal Party

¹² The Monitoring Group was set up to increase transparency and monitor the progress of all studies and trials in relation to the way forward for the HATS conducted over the last few years. It was chaired by the then Secretary for the Environment and Food from 2001 to July 2002, and the Permanent Secretary for the Environment, Transport and Works from August 2002 to December 2003. The Group comprised three local members of the expert panel which conducted the review on HATS in 2000, four members of the Advisory Council on the Environment, three members of the public, the Director of Environmental Protection, and the Director of Drainage Services.

污水隧道系統剖面圖 Profile of Tunnel System

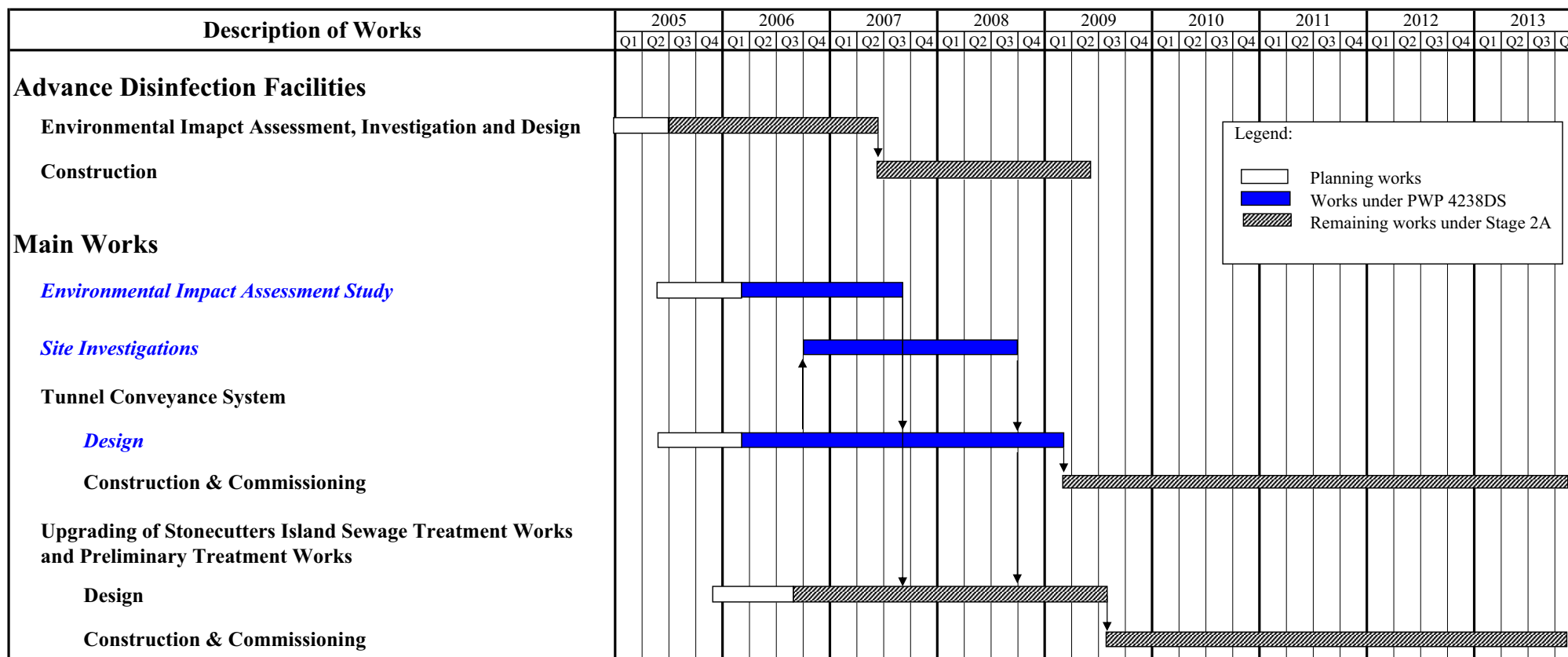


淨化海港計劃第一期 - 主要收集及處理系統
Harbour Area Treatment Scheme Stage 1 - Main Collection & Treatment System



香港特別行政區政府
環境保護署
GOVERNMENT OF THE HKSAR
ENVIRONMENTAL
PROTECTION DEPARTMENT

Annex C. Implementation Programme for HATS Stage 2A



Note: Works under PWP Item 4238DS constituting the fund of \$166M to be sought from the Finance Committee in late 2005 are highlighted in blue and italic.