

**Reponses to Questions on  
the proposed Harbour Area Treatment Scheme (HATS)  
raised by Friends of the Earth (HK) on June 28, 2004**

**Q.1 : Any remaining concerns from the previous phase of the former Sewage Strategic Disposal Scheme (SSDS)? Such as chemical dosing, chemical sedimentation on harbour floor, sludge generation, contractual disagreement, risk to Tsuen Wan beaches?**

A.1 : Whilst the overall bacteria (*E.coli*) levels in the harbour have been reduced by some 50% after the commissioning of HATS Stage 1, the levels in the western harbour and the Tsuen Wan Beaches have increased as a result of the impacts due to the discharge of the large volume of treated effluent (without disinfection) off Stonecutters Island. To enable these beaches to be re-opened, we plan to expedite part of the disinfection facilities required under Stage 2 for early completion in 2008/09. We have not encountered any other problems such as chemical dosing, chemical sedimentation to the harbour floor, sludge generation, contractual disagreement as highlighted in your letter.

**Q.2 : What assurance is there to ensure that the new HATS scheme could accommodate the increase sewage load generated from “future” development along the waterfront on both side of the harbour? These may include the new cultural hub, the expansion of exhibition facilities, cruise ship terminals, entertainment & catering facilities planned for the harbour?**

A2 : We plan the HATS Stage 2 facilities with a clear objective to cater for the long-term population growth and development needs on both sides of the harbour. The population projections were specifically prepared by the Planning Department for the HATS project. They reflect the “full development” situation in the HATS catchment areas at an unspecified time after the year 2016. “Full development” refers to a scenario whereby the HATS catchments are assumed to accommodate the highest population allowed under the current planning standards and guidelines. As at Year 2000, the residential population and employment population within the HATS catchments were about 4.46 million and 2.55 million respectively. The ultimate population scenario assumed for HATS Stage 2 under the “full development” situation will result in a residential population of 6.27 million and an employment population of 3.85 million. As the HATS catchments are already fairly well-developed, we

do not envisage that there would be any further drastic increase in population beyond the full development scenario. That said, we will review the projections from time to time to make sure that they remain realistic in the years to come.

**Q.3 : Will there be a review of the present Water Quality Objective (WQO)? Hong Kong's existing WQO is two decades old. Is it time to conduct a review of the objective to luxury billion dollars of investment and planning? Such objective is to include beyond protecting the beaches, the harbour, the fisheries, the food chain, the avoidance of red tides, the re-use of treated water, the regional responsibility of protecting the whole South China Sea water quality?**

A.3 : We note that the present set of water quality objectives have been promulgated for more than twenty years, during which time there have been additional water quality data and new findings. However, most of the WQOs are still applicable.

When assessing the water quality impacts of the HATS discharges, we have actually included extra water quality criteria in addition to the WQOs. These additional criteria were made based on findings of additional studies conducted recently. We also sought the views of key stakeholders including green groups, professional bodies, academic institutions, the Monitoring Group for HATS, the ACE, etc. before finalizing these criteria in 2002. Details about how these criteria were drawn up are set out in the documents "*Proposed Water Quality Criteria*" and "*Report on Community Consultation for the Proposed Water Quality Criteria*" which can be obtained from the Clean Harbour web site.

**Q.4 : Will an Environmental Impact Assessment and Operational Risk Assessment be conducted to study the risk of centralized option of collecting all municipal sewage to Stonecutters Island for centralized treatment and disposal? What is the risk related to centralized near coast disposal of treated water as proposed in Stage 2a?**

A.4 : The purpose of the Environmental and Engineering Feasibility Study (EEFS) was to assess the feasibility of the four options proposed by the International Review Panel (IRP). While the study was not executed as a formal study under the Environmental Impact Assessment Ordinance (EIAO), water quality assessment was conducted following the requirements of the Technical Memorandum issued under the EIAO. The

EEFS also attempted to identify any insurmountable land-based impacts related to construction and operation of the four IRP options.

An operational risk assessment was conducted as part of the EEFS, and the assessment indicates that risks can be adequately contained through good practices, provisions of standby units, spare parts, monitoring equipment, suitable design features, and adequate storage of materials. Details of such assessment can be found in Section 5.6 of the EEFS Final Report which can be downloaded from the website "<http://www.cleanharbour.gov.hk>"

A formal EIA under the statutory EIAO process will be pursued for the option finally selected for implementation. It is expected that many of the EEFS findings will be served as useful references for this subsequent EIA.

The water quality impact of implementing Stage 2A has been assessed and the findings are included in the report "Phased Implementation for HATS" which has also been made available at the above website. Our assessment is that there should not be any insurmountable operational risks in implementing Stage 2A under a centralized arrangement because the operation will be very similar to that of HATS Stage 1.

**Q.5 : What is the sludge management and disposal plan for Stage 2a and Stage 2b? What is the estimation of the amount, the cost and the eventual disposal strategy for two stages?**

A.5 : The proposed strategy is that all sludge from HATS will be dewatered and incinerated and the ash will be landfilled. This strategy was reviewed by the IRP in 2000. The IRP opined that the treatment and disposal options for large quantities of sludge were rather limited under the specific circumstances of Hong Kong. After reviewing the international practice adopted by overseas large-scale sewage treatment works, the IRP also agreed that the technically most feasible option should be to incinerate the dewatered sludge, followed by landfilling of the ash.

The Stonecutters Island STW is now producing 600 tons of sludge a day. The sludge production will double when the sewage flow increases to its ultimate design capacity of 2.8 million m<sup>3</sup>/day under Stage 2A. The sludge production will double again when Stage 2B is fully commissioned due to the introduction of the biological treatment process. The capital and annual recurrent costs for handling the sludge

produced under Stage 2A and 2B are shown below.

Stage
Capital cost (\$ billion)
Sludge disposal cost (\$ billion/yr)
2A
2.2
0.097
2B
0.146

**Q.6 : Is there any plan to re-use the water treated after Stage 2b’s biological treatment facility?**

A.6 : We have been using seawater for flushing in the HATS catchments. In terms of conserving fresh water resources which is the major environmental benefit of pursuing effluent reuse, switching from seawater to treated effluent for flushing will not make a major difference. As flushing is a very major outlet for reuse of treated effluent but the supply of seawater for flushing is virtually unlimited in HATS catchments and its associated cost is low, it may not be easy to justify the high cost of making the treated effluent suitable for reuse against the environmental benefits to be derived.

That said, we would not rule out options to make good use of the high quality treated effluent from Stage 2B if it becomes cost effective to do so due to new or changing circumstances.

**Q.7 : Any plan to explore cooperation planning with the Pearl River Delta to ensure the “sustainability” and objective of the HATS scheme will be making a contribution not only locally but regionally?**

A.7 : Regional cooperation between the governments of Guangdong and HKSAR on water pollution issues has been established for many years through cross-boundary liaison and working groups involving officials at different levels.

The EEFS has confirmed that the HATS discharge is not expected to affect waters outside the territorial waters of the HKSAR, and in this context, we expect that HATS would contribute to the improvement of regional water quality.

**Q.8 : Will the Expert Panel (the advisory and monitoring group on HATS) that includes international and local experts continue to monitor and advice after the HATS consultation? Will it include PRD expert participation to give advice?**

A.8 : The HATS Monitoring Group was formed, in view of the highly technical nature of the project, to monitor the progress and advise the Government on the direction of the trials and studies following the recommendations of the 2000 IRP. As the studies and trials have been substantially completed following the guidance of the Monitoring Group and the Government's recommendations on the way forward for HATS Stage 2 have received the Monitoring Group's endorsement in principle, the most important task at present is to forge a consensus within the community on the way forward for HATS. Once a consensus on the way forward is agreed, the Government will implement the scheme with full steam. We will also maintain a high level of transparency during the implementation period and report the progress on a regular basis.

The EEFS has concluded that HATS discharge is unlikely to cause any adverse impact to waters outside the territorial waters of the HKSAR. Nevertheless, we would keep our counterparts of the Mainland side informed of the HATS development following the established communication channel.

**Q.9: To avoid a repeat of the tunnelling & engineering nightmare and contractual mismanagement related to the former SSDS, what check and balance mechanism will be in place to ensure no surprises from the billion dollar design and construction?**

A.9: Upon the completion of HATS Stage 1, the Government has undertaken a post-implementation review of the project. The purpose of the review is to examine and document the experience gained in the delivery of the HATS Stage I and to utilise such experience in a beneficial way in future project implementation. Following the review, we are now putting in place various improvement measures to enhance delivery of similar public works projects in future. Improvement measures cover four aspects –

- (a) Planning and design of deep tunnels;
- (b) Risk management of projects of underground works;
  
- (c) Selection and management of contractors of high risks projects;  
and
- (d) Use of multiple contracts.

Additional guidelines and procedures have been or are being developed to effect these improvement measures so that we can capitalize the valuable experience gained from HATS Stage 1 and make the best use of it in the planning, design and management of HATS Stage 2 and other major infrastructure projects to prevent recurrence of similar problems.

