

Legislative Council Panel on Environmental Affairs

**Progress update on Harbour Area Treatment Scheme Stage 2A
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**Submission
by**

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The meeting of the Panel on Environmental Affairs on Monday, 22 January 2007 refers, particularly Item IV. Progress update on Harbour Area Treatment Scheme Stage 2A and the proposal for applying the polluter-pays principle in the provision of sewage services. I would like to offer my views as a former member of the Second International Review Panel (IRP) on some aspects of the implementation of HATS Stages 2A and 2B. These views reflect my concern about the slow progress of the implementation of HATS Stage 2, especially the perceived lack in implementing Stage 2B. My views are based on a careful reading of the papers submitted to the EA Panel as well as on previous public consultations in connection with HATS and discussions with Government officials.

1. Phased implementation of HATS Stage 2

IRP in 2000 recommended that the Government implement secondary treatment along with nitrification as soon as possible. Nowhere in the report was phased implementation for the secondary treatment scheme recommended. Moreover, 2 of the 3 former IRP members (Prof. Leonard Cheng and myself) in the HATS Monitoring Group strongly objected to the idea of staged implementation, if it meant that secondary treatment is not an integral part of the project but will be re-examined as a new issue in the future. Hence the present plan to split HATS Stage 2 into two INDEPENDENT phases, namely Stage 2A and Stage 2B, does clearly deviate from the IRP's recommendation and appears to be an arbitrary alternative without the support of a structured and objective review comparable with the IRP's efforts. Splitting HATS Stage 2 in two independent phases invites doubt about the Government's sincerity in implementing Stage 2B. Neither uncertainty in population growth nor unavailability of land can be considered valid excuses for splitting the project in two independent phases. Fact is, the Government tries by all means to avoid secondary treatment for HATS sewage, contrary to the practice of most developed countries (EU, USA, Canada, Japan, Singapore, Korea, China incl. Macau SAR, etc.). There is no need to hold yet another review and/or re-examination in 2010/11 to decide the way forward on Stage 2B. This only gives rise to the suspicion that Government does not intend to implement Stage 2B.

2. Land allocation for Stage 2B

The IRP was of the view that a very compact secondary treatment plant could be built on Stonecutters Island (SCI), without the need for additional land. The Compact Sewage Treatment Technology Pilot Plant Trials on SCI also concluded that such a plant could be built on site. The need for additional land was first raised in the "Environmental & Engineering Feasibility Assessment Studies in relation to the way forward for the Harbour Area Treatment Scheme" (the EEFS). Naturally, additional land would greatly alleviate the pressure of space constraints, but may not be intrinsically needed, especially if well-proven technologies that are new to Hong Kong and a more innovative approach were to be adopted. Alternative, more decentralized IRP Options might have provided more flexibility with regard to space constraints, but were ranked lower in the performance comparison because of various other reasons (see Public Consultation document, p. 23: <http://www.cleanharbour.gov.hk/english/download/HATS%20Consultation%20Document.pdf>). Hence it is the duty of the Government to fully implement HATS Stages 2A and 2B on SCI, with or without additional land. I still maintain that it is possible to build a secondary treatment plant on SCI, especially in light of the since revised lower design capacity. I am convinced that a privately led design and implementation approach would be able to "get the job done" at SCI.

The land issue is therefore not a convincing excuse to avoid moving ahead with Stage 2B. The consequences of further dithering over the seemingly fabricated issue with land are as follows:

- a) Completion of Stage 2A could be jeopardized, because there is no point in conveying sewage to a place where it cannot or will not be fully treated. This would only cause further delay to the implementation of secondary treatment.
- b) The proposed Advance Disinfection Facility (ADF) (see more under Item 3.) which is currently promoted as a short-term stop-gap measure for the early opening of the Tsuen Wan beaches could become an embarrassing long-term liability at taxpayer's expense at SCI.
- c) If the new sewage charges, which will be valid until 2016, are approved by LegCo, there will be even less incentive for Government to act early on Stage 2B.

So far, the Government has not shown any credible evidence to secure additional land it claims is required for Stage 2B. An alternative plan or contingency plan does not exist for the case that additional land cannot be secured. This raises serious doubts about the commitment and sincerity of Government in implementing Stage 2B.

3. Tsuen Wan beaches water quality and Advance Disinfection Facility (ADF)

Annex B of the LegCo Environmental Panel Affairs Paper CB(1) 742/06-07(10) of January 22, 2007 compares the water quality predictions and actual impact of the SCI Sewage Treatment Works on the Tsuen Wan beaches (<http://www.cleanharbour.gov.hk/english/download/ea0122cb1-742-10-e%5B1%5D.pdf>). It shows that the background E.coli level in 2000 to 2001 before

implementation of HATS Stage 1 was 349 counts/100mL, but increased in 2002 to 2004 after implementation of HATS Stage 1 to 785 counts/100mL. The average influence due to HATS Stage 1 was reported as $785 - 349 = 436$ counts/100mL. The existing water quality objective of EPD for bathing beaches states that the level of *E. coli* should not exceed 180 counts/100mL. It is therefore obvious that the beaches could not be reopened even if HATS Stage 1 discharges no *E. coli* at all. The Government proposed solution to solve the Tsuen Wan beach water quality problem by building a huge ADF is therefore extremely doubtful.

The pilot trials (see results of the Compact Sewage Treatment Technology Pilot Plant Trials) showed that the *E. coli* count could be reduced by secondary treatment by 99.5%. Assuming that secondary treatment in Stage 2B removes 99% of the *E. coli*, which is very reasonable, the influence on Tsuen Wan beaches water quality due to HATS Stage 1 could be reduced from 436 counts/100mL to 4 counts/100mL. Since HATS Stage 2 adds only 32% more sewage, the overall impact after secondary treatment would be 5-6 counts/100mL. These results raise serious doubts about the need of disinfection after secondary treatment in Stage 2B, and by implication about the future use of the ADF should it ever be built.

It should be mentioned that the need for disinfection after secondary treatment has not been dealt with by IRP, nor has such need been clearly established so far in other studies. Interestingly, even the EIA study in progress on the ADF does not tell us what should be the maximum allowable *E. coli* count in the chlorinated CEPT effluent.

It is true that at the public seminar held on 7 December 2006 there was not a single question on the SUITABILITY of the proposed disinfection technique for the ADF. In the disinfection of CEPT effluent, other alternative techniques are even less suitable. However, many questions were raised regarding the NEED to disinfect CEPT effluent, with its extremely high chlorine requirements. As mentioned, secondary treatment could reduce the *E. coli* count by more than 99%. In the unlikely event that chlorination is still needed after secondary treatment, consumption and therefore discharge of chlorine will be dramatically lower. Besides, secondary treatment also removes most of the other pollutants remaining after CEPT/primary treatment, which the ADF cannot do. When asked about the proposed ADF, local and international sewage treatment professionals unanimously expressed complete puzzlement about such plan. It grossly defies best practicable control technology and professional judgment and would turn Hong Kong into the world capital of chlorine consumption.

It is therefore greatly disappointing to see the Government spending great efforts on promoting the ADF, which does not attack the root cause of the beach pollution, rather than moving ahead to implement secondary treatment. Chlorination of primary/CEPT effluent is clearly against the international trend; even the government commissioned EIA study unwittingly showed that the overwhelming majority of the surveyed sewage treatment works use secondary treatment prior to disinfection, if needed at all (See also information paper provided by the Administration LC Paper No. CB(1) 572/06-07(02) issued on 21 December 2006 in response to CB(1) 572/06-07(01)). Only a statutory requirement of higher treatment levels (minimum secondary treatment plus nitrification, with disinfection if needed) for the SCI sewage treatment

works and all other sewage treatment works in Hong Kong can solve the water quality problem in Victoria Harbour and the Hong Kong beaches in the long term.

Summary:

1. Splitting HATS Stage 2 in two independent phases allows the Government to pay lip service to Stage 2B while further delaying its implementation. This gives rise to the suspicion that Government does not intend to implement Stage 2B.
2. Land availability is not a good excuse to avoid moving ahead with Stage 2B. It is technically possible and feasible to build a secondary treatment plant on SCI. I am convinced that a privately led design and implementation approach would be able to “get the job done” at SCI.
3. While Government’s claim of additional land requirement seems dubious, as discussed above, the continuing uncertainty over land availability is perpetrated by the Government’s inaction in securing it. The Government will always find land if it has the will to do so. The result is that the overall implementation of HATS Stage 2 is endangered. Currently, no viable alternative plan or contingency plan exists in case additional land cannot be secured.
4. The Government proposed Advance Disinfection Facility (ADF) to solve the Tsuen Wan beach water quality problem is a costly, unnecessary and technically outdated stop-gap measure which, contrary to Government promises, will not lead to the reopening of the beaches. Even the EIA study in progress on the ADF clearly showed that the overwhelming majority of the surveyed sewage treatment works in the world apply secondary treatment prior to any disinfection, and only when needed. **Disinfection of CEPT/primary effluent is NOT a viable alternative.**
5. Only a statutory requirement of secondary treatment levels for the SCI sewage treatment works and all other sewage treatment works in Hong Kong can solve the water quality problem in Victoria Harbour and the Hong Kong beaches in the long term. If implementation of Stage 2B is further delayed, we could get stuck with an outdated ADF for decades leaving Hong Kong with the unenviable title of world capital of chlorine consumption.