

**Legislative Council Panel on Environmental Affairs  
26 November 2007**

**Harbour Area Treatment Scheme, Stage 2A - Construction of  
advance disinfection facilities at Stonecutters Island Sewage  
Treatment Works**

**Submission  
by**

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The meeting of the Panel on Environmental Affairs on Monday, 26 November 2007 refers, particularly Item VI. 352DS - Harbour Area Treatment Scheme, Stage 2A - Construction of advance disinfection facilities at Stonecutters Island Sewage Treatment Works.

As a former member of the Second International Review Panel (IRP), I would like to offer my views on the proposed advance disinfection facilities where chlorination is used as the preferred disinfection method. My views are based on a careful reading of LC Paper No. CB(1) 283/07-08(07) and the EIA Report "Harbour Area Treatment Scheme (HATS) - Provision of Disinfection Facilities at Stonecutters Island Sewage Treatment Works" which was approved by EPD on November 8, 2007. Some of these views were presented previously in a written submission made to the Environmental Affairs Panel [CB(1)973/06-07(01)] (22 January 2007).

1. Tsuen Wan beach water quality and advance disinfection facilities (ADF)

The stated objective of the ADF is to bring about the early reopening of some of the closed beaches in the Tsuen Wan area. However, even before implementation of HATS Stage 1, the background *E.coli* level at the Tsuen Wan beaches was already so high that the beaches had to be closed because they could not meet the existing water quality objective of EPD for bathing beaches which requires that the level of *E.coli* should not exceed 180 counts/100mL. It is therefore highly unlikely that the beaches could be reopened, even if HATS Stage 1 discharges no *E.coli* at all. The Government's proposed solution to the Tsuen Wan beach water quality problem by building huge advance disinfection facilities at Stonecutters Island Sewage Treatment Works (SCISTW) for the CEPT effluent appears thus extremely doubtful.

2. Chlorination as the preferred disinfection method

Chlorination of primary/CEPT effluent in the ADF is clearly against the international trend. It grossly defies best practicable control technology and professional judgment and, according to the EIA Report, would require 11-15 mg Cl<sub>2</sub>/L, i.e. up to 35 tonnes

per day of highly toxic chlorine in the form of industrial bleach. This would turn Hong Kong government into the biggest chlorine consumer for “environmental protection” in the world. In practice, even more chlorine would be needed, since the recommended dosage is based on laboratory tests, which notoriously underestimate chlorine requirements under actual conditions and neglect the re-growth potential of *E.coli* in natural waters. Despite the huge chlorine consumption, the recommended HATS-ADF effluent standards for *E.coli* are still as high as 200,000 counts/100mL (geometric mean). This means that the disinfection efficiency for the assumed *E.coli* level in the un-disinfected effluent of 10,000,000 counts/100mL amounts to only 98%. In contrast, the government-commissioned Compact Sewage Treatment Technology Pilot Plant Trials demonstrated that secondary treatment alone, without application of any disinfection, reduced the *E.coli* count by 99.5% leaving 50,000 counts/100mL. In the unlikely event that chlorination would still be needed after secondary treatment, consumption of chlorine would be reduced to less than a fifth. The EIA Report also found that the overwhelming majority of the surveyed sewage treatment works in the world apply secondary treatment prior to disinfection, and disinfect only when needed. In sum, disinfection of primary/CEPT effluent is NOT a viable alternative.

### 3. Root cause of Hong Kong’s water pollution problem

The Government’s proposed ADF does not attack the root cause of the beach pollution, which is inadequate sewage treatment due to Hong Kong’s outdated policy of setting unacceptably low effluent standards on a case-by-case basis. Only a statutory requirement of higher treatment levels (minimum secondary treatment plus nitrification, with disinfection if needed) for the SCISTW and all other sewage treatment works in Hong Kong can effectively contribute to solve the water quality problem in Victoria Harbour and the Hong Kong beaches in the long term. This requires the early implementation of HATS Stage 2B.

However, Hong Kong alone cannot solve this problem because of the constant influx of pollutants from the Pearl River, and needs the cooperation of all sewage dischargers in the Pearl River Delta Region. Mainland China has recognized the urgency of this problem and set strict national discharge standards for sewage requiring at least secondary treatment. In the Pearl River Delta Region, secondary sewage treatment plants have already been built or are under construction at great financial cost in Guangzhou, Shenzhen, Zhuhai, Macao, etc. It is up to the Hong Kong government to join this great effort by the national government to effectively clean up its water pollution. Calls for Hong Kong not to waste public money for secondary treatment – because it won’t make any difference – are unwarranted, selfish and unpatriotic, betraying a deep disregard for China’s patrimonial waters.

Summary:

1. Construction of the advance disinfection facilities (ADF) is a wasteful, unnecessary, technically outdated and environmentally unsustainable stop-gap measure, which will not lead to the re-opening of Tsuen Wan’s bathing beaches. **Bleaching Hong Kong's famous Victoria Harbour with huge amounts of chlorine is an international embarrassment. Disinfection of CEPT/primary effluent is NOT a viable alternative.**

2. Only a statutory requirement of secondary treatment levels for the SCISTW and all other sewage treatment works in Hong Kong can solve the water quality problem in Victoria Harbour and of Hong Kong' bathing beaches. **Early implementation of HATS Stage 2B is a necessity.**
3. **A concerted and equitable effort by ALL sewage dischargers in the Pearl River Delta Region, including Hong Kong, is needed** to clean up the pollution of the Pearl River.