

The Harbour Area Treatment Scheme (HATS) Stage 1

The Coverage

Construction of HATS Stage 1 commenced in April 1994 and was completed in December 2001. It was the largest sewerage infrastructure project ever constructed in Hong Kong and consists of a 23.6km deep tunnel conveyance system collecting sewage from Tseung Kwan O, Kwun Tong to Kowloon Bay area, the whole of Kowloon peninsula, Kwai Chung, Tsuen Wan, Tsing Yi, Chai Wan and Shau Kei Wan. It treats about 75% of the sewage (about 1.4 million cubic metres per day) generated on both sides of the harbour. The sewage tunnels transfer the collected sewage to the Stonecutters Island Sewage Treatment Works (SCISTW) for chemically-enhanced primary treatment (CEPT) and subsequent discharge through a submarine outfall to western waters.

2. The CEPT plant at Stonecutters Island is one of the most efficient chemically-enhanced sewage treatment plants in the world, with a high efficiency removing -

- (a) 70% of the organic pollutants in terms of biochemical oxygen demand;
- (b) 80% of the suspended solids; and
- (c) 50% of bacteria in the sewage.

Overall, it prevents about 600 tonnes of sewage sludge and its associated pollutants from entering the harbour everyday.

Water Quality Improvement

3. When HATS Stage 1 commenced full operation in December 2001, there was a marked improvement in harbour water quality. The average dissolved oxygen level in the harbour increased by about 10%. Similar improvements were observed in other water quality parameters. The levels of

key pollutants generally decreased as follows (up to end 2004) -

- (a) nutrients in terms of total inorganic nitrogen and phosphorus, which in rich supply can promote excessive algal growth, dropped by 17% and 28% respectively;
- (b) ammonia, which is harmful to marine life, declined by 24%, and
- (c) the overall bacteria level, using *E.coli*. as an indicator of disease-causing organisms, reduced by some 57%.

Closing of Tsuen Wan Beaches

4. The completion of HATS Stage 1 brought about a general improvement in harbour water quality, with significant improvements in the eastern part of the harbour. However, the western waters deteriorated due to the lack of disinfection facilities in HATS Stage 1. Treated effluent is not disinfected. A large volume of undisinfected effluent is discharged through a single outfall, thereby affecting the water quality of the sea areas near the outfall. This discharge of undisinfected effluent coupled with the existing discharges of locally untreated sewage has resulted in the closure of four beaches in the Tsuen Wan area.

5. The situation will improve once HATS Stage 2A and the advance disinfection facilities at SCISTW are completed.