



Environment, Transport and Works Bureau
10/F., Citibank Tower,
3 Garden Road,
Central, Hong Kong

DATE: ~~10 NOV 2004~~

16 November 2004

Dear Sir/Madam,

**Comment and views on Consultation Document for
the Harbour Area Treatment Scheme Stage 2**

I refer to the captioned project and have the following comments.

Introduction

Evolving from the previously known Strategic Sewage Disposal Scheme (SSDS), the Harbour Area Treatment Scheme (HATS) aims at improving the water quality of Victoria Harbour by collecting, treating and disposing of sewage produced in Hong Kong Island and most of the Kowloon Peninsula. With the completion of HATS Stage 1, which included construction of Stonecutters Island Sewage Treatment Works and a more than 20 kilometre-tunnel network in 2001, about 75% of sewage receives primary and chemically enhanced treatment. The improvement to the water quality has demonstrated that the marine environment of our precious Victoria Harbour can and should be restored, and it was reported that some marine organisms have started to re-colonise in the Harbour areas. Nevertheless, more than 450,000 cubic metres of untreated sewage mainly from northern and western Hong Kong Island, still continues to enter the harbour.

To achieve the targeted water quality, the Government has proposed HATS Stage 2 including the extension of the deep tunnel network, an increase of existing chemical treatment capacity, the provision of disinfection and most importantly the

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biological treatment of all HATS flows. While WWF Hong Kong welcomes the commitment by the Government to improve the water quality in Victoria Harbour, we would also like to highlight the following areas for discussion.

Phasing of HATS Stage 2

To construct infrastructure to handle large quantities of sewage produced by Hong Kong, the Government anticipates that huge capital and recurrent costs of some 19 billion Hong Kong dollars will be required for HATS Stage 2. It is proposed HATS Stage 2 should be implemented in two phases with the extension of deep tunnels, expansion of chemical treatment and disinfection in Phase 2A, and construction of biological-treatment plant in Phase 2B. The consultation paper delineates the timetable of the implementation of Phase 2A with completion by 2008/09, but sets no target date for Phase 2B.

Despite the fact that the biological treatment is recognised as essential for our harbour sewage, the Consultation Document suggests to phase the HATS programme into Stage 2A and 2B. The Biological Aerated Filters (BAF) treatment in Stage 2B would only be implemented **IF** it is found to be **necessary**.

Without time frame for Phase 2B, this brings the question of whether the Government is truly committed to improve the water quality of Victor Harbour

Biological treatment, also known as Secondary Treatment, has been commonly recognised as the minimum requirement in sewage-treatment progress all over the world. Although chemical treatment and disinfection would improve the quality of effluent, they are commonly viewed primarily as enhancement. Biological treatment removes toxic substances such as ammonia which is highly poisonous to marine life, and greatly reduces Biological Oxygen Demand (BOD) which is essential for marine organisms. Chemical treatment may give us clearer water but crystal clear water full of toxic waste is still hazardous to the health of both human and marine life.

It is indisputable that Secondary/Biological Treatment is needed for the sewage of Victoria Harbour. We understand from the Consultation Document that the costs to implement the HATS Stage 2B may be significant, however, the Government should not underestimate the economic and environmental benefits derived from Stage 2B. As Asia's "World City" and an internationally favoured tourist spot, Hong Kong has relied on Victoria Harbour to develop our tourism industry. Smelly and polluted water combined with the absence of marine life in the past decades have left terrible images to many tourists. This has also hampered the further development of potential recreational uses of the Harbour.

The cost to remedy environmental impacts is never cheap and a committed and responsible Government should not be deterred by the investment involved. The long-term consequence of ignorance will lead disaster. To restore the degraded marine environment, Secondary Treatment is **necessary** as it not only removes ammonia from the sewage, which is highly toxic to marine life, but also reduces harmful bacteria, *E.coli*. WWF urges the Government to swiftly schedule the timetable for the construction of Biological Treatment Plant as proposed in Phase 2B.

The International Review Panel¹ (IRP) commented on SSDS in 2000 and stressed that the discharge of chemically enhanced primary treatment (CEPT) effluent into waters south of Lamma Island is neither a viable nor a sustainable option. The proposed HATS Stage 2 without a time frame for Phase 2B (Construction of Biological Treatment Plant) achieves no appreciative difference from the previous SSDS but only with shorter outfalls within our precious Victoria Harbour! This arrangement not only undermines one of the most important comments from IRP, but also jeopardises the concept of Sustainable Development.

Disinfection

With all the primary treated effluent discharge located at the Stonecutter Island Treatment Work, concentration of bacteria including *E. coli* and other pathogens at the outfalls and nearby water is expected to increase. In order to meet the

¹ IRP (2000). Review of Strategic Sewage Disposal Scheme, International Review Panel.

bathing water criteria, the Consultation Document proposed the use of Chlorine to disinfect these effluents.

Although chlorination could effectively remove *E. coli*, it may also create adverse impacts to the marine environment. Total Residual Chlorine (TRC) and Chlorination By-Products (CBPs), which form in the disinfection process, are recognised as being highly toxic to marine organisms and humans. In order to disinfect huge volumes of sewage produced around the harbour, a large quantity of chlorine will be needed, and this in turn may produce considerable amount of TRC and CBPs in the effluent. Hence, it is doubtful whether Chlorination is the best option for the disinfection of effluent of HATS.

Secondary Treatment could also remove *E. coli* and other harmful substances including viruses and protozoa but without the potential environmental hazards mentioned above. This has been demonstrated in the Compact Sewage Treatment Technology Pilot Test Trails². Should any disinfection process, such as Ultra-violet, be required to further reduce the *E. coli* level, it could be achieved at a much lower cost.

Beaches are not only for swimming but also for the appreciation of the diverse marine life. Disinfection with chlorine could effectively remove *E. coli* and hence meeting the bathing water quality for swimming. However, many families wish to enjoy a day out to a beach expecting to experience the beauty of nature, with soldier crabs, fishes, and other interesting marine life, rather than just a visit to a giant chlorinated swimming pool.

As such, WWF considers the government should expedite the implementation of Stage 2A and 2B simultaneously to improve the marine environment of the Harbour, and to address the potential negative impacts of chlorination as disinfection technique.

² DSD (2003). *Harbour Area Treatment Scheme. Compact Sewage Treatment Technology Pilot Plant Trails at Stonecutters Island Sewage Treatment Works.* Drainage Services Department Government of the Hong Kong SAR.

The Polluter Pays Principle (PPP)

The concept of PPP is simple. Anyone who pollutes should pay for the cost of removing same, or provide compensation to those who have been affected by it. WWF supports the principle that everyone in the community shares a communal responsibility for causing pollution. In particular, those who produce large quantities of sewage should bear a bigger burden in treating those pollutants. The government should cautiously assess the current sewage charge system to avoid over-burden of certain polluter categories.

While supporting the heavier polluter should pay more concept, WWF considers the ultimate goal of our community should be the reduction in the production of sewage and consumption of freshwater resources. Although the proposed capacity of the HATS II could handle up to 2.8 million cubic metres of sewage per day, treated effluents still cause adverse impacts to our marine environment. Furthermore, the supply of freshwater from mainland China is not infinite because of the rapid development in the Guangdong cities. Competition for scarce freshwater resources is likely to happen with expansion of these cities.

Conclusion

In conclusion, WWF welcomes the Government to take a bold step to HATS Stage 2 and supports the principle that the causer of pollution should pay. However, we strongly urge the Government show the determined commitments on HATS Stage 2, and to:

- a). swiftly schedule an integrated Stage 2A and 2B plan with firm time frame,
- b). properly investigate and address the potential adverse effects of disinfection techniques
- c). cautiously assess the current sewage charge system to avoid over-burden of certain polluter categories

A world class city deserves a world class harbour, and a world class harbour needs our commitment to protect, restore and enhance its marine environment. A healthy marine environment could be easily demonstrated by sustaining a diverse

marine ecosystem, and implementation of HATS Stage 2A and 2B will help to achieve the goal to attend a healthy harbour for all to enjoy and admire.

Thank you for your kind attention and I should be grateful if the above mentioned be considered

Please do not hesitate to contact the undersigned for any queries at

Yours faithfully,

Ciarus Chu
Assistant Conservation Officer