CIWEM HK

THE CHARTERED INSTITUTION OF
WATER AND ENVIRONMENTAL MANAGEMENT
HONG KONG

香港水務及環境管理學會

Our Ref.: L0061004

Date: 19 November 2004

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

Attn.: Dr. LIAO Sau Tung, Sarah, JP

Dear Dr. Liao,

Re: CIWEM HK's Response to the Consultation Document for the Harbour Area Treatment Scheme Stage 2

In response to the consultation document for the Harbour Area Treatment Scheme (HATS) Stage 2, the Chartered Institution of Water and Environmental Management Hong Kong (CIWEM HK) and the Hong Kong Institution of Engineers (HKIE) have jointly organized a forum and a round table meeting on HATS on 9 October and 9 November 2004 respectively.

CIWEM HK fully supports the Government's initiative to complete the Harbour Area Treatment Scheme (HATS).

In response to the Consultation document, CIWEM HK would like to offer our views on the scheme for your consideration.

Yours sincerely,

Luciana Wong
Chairperson
CIWEM HK

Views of
The Chartered Institution of Water & Environmental Management Hong Kong
in Response to the Consultation Document
for the Harbour Area Treatment Scheme Stage 2

1. General

1.1 The Chartered Institution of Water and Environmental Management Hong Kong (CIWEM HK) fully supports Government's initiative to complete Harbour Area Treatment Scheme (HATS).

1.2 The prime objective of HATS should be clearly defined. CIWEM HK would suggest that the objective should be to maintain the water body in the harbour area a suitable environment for sustainable ecological development with due considerations given potential health risks to human beings.

1.3 In response to the current consultation documentation, CIWEMHK would like to offer the following views on the project.

2. HATS Stage 1

2.1 It is encouraging to note that HATS Stage 1 has brought about some improvements to the water quality of Victoria Harbour.

2.2 The Stage 1 system is already a major scheme by itself. The experience gained in the design, construction, operation and maintenance of the system, as well as its effects on the environment, should be taken into account and reviewed carefully before the Stage 2 proposal is finalised.

3. Phasing of the HATS Stage 2 Scheme

3.1 CIWEM HK has no objection to the proposed works of HATS Stage 2 being implemented in more than one phase. However, there must be a committed timeframe and an overall plan for future monitoring of the targets set to be achieved in each phase, and information provided to the public on the progress.

3.2 In particular, the Government should set a target completion date for the biological treatment process.

4. Choice of Technology

4.1 CIWEM HK supports that high priority should be given to intercepting the untreated sewage discharges on the Hong Kong Island side and conveying the sewage to a suitable location for effective treatment and disposal.

4.2 In the aspect of using deep tunnels to collect and convey sewage, the Government should conduct comprehensive geotechnical surveys on all proposed tunnel routes prior to calling for bidding. Reference can be made to the case of Route 9. Bearing in mind the high-rise buildings on the reclaimed land and hill slopes prone to landslides, careful planning, site investigation, risk assessment and measures must be taken to avoid, or at lease minimize, the risks of ground settlements and disturbances due to the deep shaft and tunnelling construction. The experiences gained from Stage 1 and other similar projects overseas should be fully utilised to form a basis for further improvement.

4.3 There are advantages and disadvantages in centralized and decentralized sewage systems. Conveying the additional flow from the remaining parts of Hong Kong Island to Stonecutters Island Sewage Treatment Works and discharging through the existing short interim outfall may exacerbate the impact to the water quality of Tsuen Wan beaches. A decentralized system can give the opportunity to select a more appropriate treatment process for biological removal of nutrients, a better overall dispersion of the effluent, reduce disinfection requirements and reduce the risk of a complete system failure. The Government should carefully consider various options, including those innovative ones not brought up before, with the aim of achieving the required water quality targets in the receiving waters in the most cost-effective way. The possibility of having more biological activities in the shaft and tunnel systems should be examined to strengthen the pre-treatment effects on the raw sewage before it reaches the sewage treatment plant.

4.4 During the time leading to the introduction of biological treatment, the Government should conduct further investigation into the choice of process option taking into account the availability of land, capital cost, operation cost, plant performance, system failure risks and environmental impacts.

4.5 Appropriate design parameters including discharge standards, water quality criteria and peak factors must first be determined before a realistic assessment can be made on the proposed sewage treatment processes, particularly the biological process. As the design parameters are not yet finalized (e.g. ammonia and total nitrogen criteria), the capital and operation expenditure figures quoted in the public consultation document might have a wide variation margin affecting the choice of options.

4.6 Some researches have indicated that during the summer months (June to August) the Pearl River Estuary waters, carrying certain amount of nutrients, normally flow eastwards and enter Hong Kong waters. Hence, to achieve the prime objective of HATS, there is obviously a need for the Pearl River to be cleaned up, through actions of Guangdong province and by enforcing environmental legislation on shipping discharges, apart from the improvement proposals now presented in the consultation document. The Government should therefore take into account the impact of Pearl River Estuary in determining the best practicable means of achieving the desirable water quality in Victoria Harbour and in the Tsuen Wan beaches.

5. Disinfection

5.1 CIWEM HK does not support putting disinfection first and biological treatment later. Disinfection of such a large flow of partially treated sewage will certainly incur high capital and recurrent costs, while the installed disinfection system will most probably be under-utilised if it is only used in swimming seasons, and may even become abortive, upon completion of the full scheme with biological treatment. The need for disinfection may also be significantly dependent on the improvements made to the water quality situation in the Tsuen Wan beaches after improvement works are carried out to the other sewage outfalls at Pillar Point, Sham Tseng and Ting Kau.

5.2 The Government should seriously review the proposal by seeking relevant expert advice on the need for disinfection, covering at least the following aspects:-

a. Ecological impact on the biological indicators in the receiving waters by the chlorination/dechlorination systems.

b. Assessment of the technical feasibility of the dosing systems and the environmental risks associated with overdosing in such a large scale.

c. The means of monitoring the effectiveness of chlorination and dechlorination and confirmation of compliance.

d. The cost benefit analysis of the disinfection scheme.

5.3 The Government should investigate other ways to improve the situation at the Tsuen Wan beaches, such as improvement to the existing outfall from Stonecutters Island Sewage Treatment Works to achieve better dispersion effects, removal of all local sources of pollution and upgrading the treatment level of the Pillar Point Sewage Treatment Works and others which discharge to Urmston Road Channel.

5.4 Making the water quality suitable for swimming at Tsuen Wan beaches is desirable but may not be the ultimate target if the cost benefit analysis cannot provide the justification. In fact, any illnesses due to swimming in polluted seawater there can be in a direct relationship to the proximity of drains and outfalls near the beaches.

6. Public Private Partnership

6.1 CIWEM HK supports the Public Private Partnership (PPP) approach. It is the imminent trend of the future in which private companies venture into public projects. It is prudent to ensure that an appropriate financial arrangement is to be developed between the Government and the private entity, and that the entire scheme shall be governed under clear policies and procedures to protect public interests.

6.2 The Government, under the PPP approach, should be actively involved in each stage of the project and that full deployment of local expertise should be utilised. The Government should set up a monitoring team to confirm the discharge compliance.

6.3 The Design, Build and Operate (DBO) mode under the PPP scheme is worth consideration. In order to avoid the recurrence of contract dispute arising from the construction of tunnel contracts at Stage I, Government should carefully consider payment based on re-measurement of tunnels as constructed rather than relying on a lump-sum contract which puts all the risk on the private contractor. The Government should formulate a contract sharing the risk between the parties.

7. Polluter Pays Principle

7.1 CIWEM HK fully supports the "Polluter Pays" principle. Each individual has a social responsibility to share the costs for cleaning up the environment. It is prudent, however, that the charging scheme has to be carefully devised, making reference to the actual situation and not to over-burden the cost to certain sector of the society.

7.2 7.2 The current portion of the Government's revenue allocated to wastewater treatment should also be duly taken into account.

8. Other considerations

8.1 Improvement to the water quality of the Victoria Harbour should not be confined to the scope of HATS under consideration. Following the "Total Water Management" concept, improvement opportunities should also be taken in the upstream part of the water path by the recycled use of water.

8.2 From practical point of view, recycled use of grey water, including the discharges from washing machines, bath-tubs, hand wash basin, etc. should be technically easier to implement than recycled use of foul water, including the discharges from the toilet and kitchen basins.

8.3 The recycled water, after suitable treatment, can be used for toilet flushing, landscape irrigation, street cleansing etc. With such applications the net volume of wastewater reaching the sewage treatment plant can be much reduced, thus relieving the capacity requirement of the plant.

8.4 The Government should take the lead in introducing water recycling systems and encourage the general public to follow.