

**The Views of the Association of Engineering Professionals in Society on
The Harbour Area Treatment Scheme (HATS) Stage 2A**

1. We are pleased to know that the commissioning of HATS Stage 1 has resulted in significant water quality improvements in most parts of Victoria Harbour. We urge the Government to proceed with the HATS Stage 2A without delay to treat the remaining 25% of sewage generated in the HATS catchment, i.e. the northern and western sides of Hong Kong Island.
2. Whilst we appreciate that the Government is proposing biological treatment in the HATS Stage 2B, we urge the Government to expedite the HATS Stage 2B to complete this sustainable solution to our sewage problem in the metro area.
3. We considered that the proposed process in Stage 2A of chlorination and followed by dechlorination of the treated effluent before discharge is striking a reasonable balance amongst protection of public health, long term impact of chlorination, and cost effectiveness. This disinfection measure is used, subject to the result of the EIA process, and is taken as an interim measure, pending the implementation of Stage 2B. It provides the Government with more flexibility for the future;
4. We believe that there has already been enough debate about centralisation and decentralisation, their merits and shortcomings in areas of engineering, economic, environmental, social and political factors. The Centralisation process is considered to be a reasonable and cost-effective option, striking the balance amongst all the considerations and maintaining the best performance in overall terms.
5. Given the complexity of HATS Stage 2 project and the huge amount of capital investment for both Stages 2A and 2B, we agree with the Government of the present proposed phasing. It, at least, shows Government's commitment to improve the harbour water quality and yet allows flexibility for a decision to be made on how Stage 2B is to be proceeded with and adjusted in the later years, with the benefit of the performance results of Stage 2A and the prevailing economic situation.
6. HATS Stage 2A comprises mainly the construction of an extensive deep (150m below seabed) tunnel system to transfer sewage from the northern and western parts of the Hong Kong Island to the treatment plant on Stonecutters Island. Based on the experience from the HATS Stage I and many other local tunnelling projects, the major hazards associated with deep tunnelling are groundwater ingress and risk of ground settlement. Whilst the risks are still large, we consider that the risk mitigation or precautionary measures (e.g. detailed site investigations prior to works commencing, close monitoring during construction, mandatory forward probing and grouting in advance of tunnel face, use of gasketted segmental linings, etc.) recommended by the Government's consultants are viable and acceptable.
7. We notice that the proposed deep tunnel alignment of HATS Stage 2A is still open. We reckon that by slight shifting of the tunnel alignment southward will reduce the influence of the tunnel construction in the reclaimed areas, and thus significantly lower the risks and cost. The extensive deep ground investigation and further hydrogeological studies, covering both alignments are needed to provide useful ground information and data, to allow an early decision on the preferred tunnel alignment and the planning and design of the tunnel conveyance system.

8. HATS Stage 2 is a mega project in terms of the works volume and the resources to be spent. A large number of construction contracts will be put on the market and it will create many construction related employment opportunities. We urge the authorities to consider the difficulties faced by the local construction community and to carefully derive a procurement strategy and a work package that are not unfavourable to the local contractors and the construction workforce.
9. We support that Government is going to subsidize the capital cost of providing the sewage treatment services and to cover the operating cost in accordance with the polluter-pays principle. We further consider that the proposed level of sewage charge is reasonable, affordable and acceptable.
10. In the HATS case, additional to the short-term economic gain and performance of Public Private Partnership (PPP) way of procurement, we should also consider its long-term effect, public interest and social impacts, such as concern of the reliability and sustainability of the service, job security, unaffordable pollution charge, etc. The proposed Design-Build (DB) and Design-Build-Operate (DBO) approaches are considered appropriate for the construction of the deep tunnels and the sewage treatment works of the HATS project respectively.

ASSOCIATION OF ENGINEERING PROFESSIONALS IN SOCIETY
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