

For Information

Legislative Council Panel on Environmental Affairs

**Information Note on Policy and Planning of
Sewage Infrastructure for Unsewered Villages**

Purpose

In response to a request made by Members at the EA Panel meeting on 22 May 2006, this paper explains the policy and planning in respect of sewage infrastructure for unsewered villages in Hong Kong.

Policy Goals on Village Sewerage

2. The policy goals for the provision of sewage infrastructure to unsewered areas, including villages, are the protection of public health and the attainment of the declared Water Quality Objectives. The latter are set so as to ensure our waters are of a sufficient quality to sustain certain uses which are valued by the community. These include, variously, abstraction for potable supply, swimming, secondary contact recreation, and the ability to sustain healthy aquatic ecosystems.

The Need for Village Sewerage

3. Septic tank and soakaway systems are commonly used for treating the wastewater arising from unsewered village houses. However, they provide only a minimum level of sewage treatment. The effluent from a septic tank still carries very high nutrient, organic and microbiological loads. These can only be effectively attenuated by the soakaway system in circumstances where the ground conditions are suitable and development density is low. Experience shows that some degree of operational failure of village house septic tank and soakaway systems is inevitable and they could therefore cause pollution of the environment and potential health hazards to the villagers or the public in the vicinity.

4. The major benefits of the village sewerage programme include the reduction of risks to public health, reduction in nuisance associated with exposed and stagnant ponding of wastewater, elimination of the deposition of unsightly solids such as food residues and toiletries contained in the wastewater, the removal of insect pests and malodour, and the restoration of balanced ecological conditions

to waters previously polluted.

The Sewerage Planning Process

5. The sewerage planning process entails the systematic review of the sewerage needs in each sewerage catchment with the aim of drawing up a series of Sewerage Master Plans (SMPs) devised so as to ensure the above policy goals will be met. A total of 16 SMPs covering the whole of Hong Kong were completed between 1989 and 1996 [**Annex (1a)**]. The SMPs started with those covering areas where waters were close to or exceeded their assimilative limits, were highly valued, or where excessive pollution had resulted in environmental black spots. Each study made recommendations for the appropriate network of sewers, pumping stations and treatment facilities for the proper collection, treatment and disposal of sewage generated in the catchment, with the aim of catering for the present and future development needs. Reviews of the SMPs were conducted to cover areas with a significantly revised population forecast and development proposals. As a follow up to the information note CB(1) 516/05-06(01) submitted on 12 December 2005, the most updated SMPs are as shown at **Annex (1b)** for Members' reference.

6. The SMPs contain recommendations for numerous sewerage projects which have to be prioritized. In determining the priority for implementation of the recommended village sewerage projects, we consider various factors including the extent of the environmental problems and the benefits of the new sewerage, population projections for the area, future urban and rural area planning intentions, proximity to trunk sewers, cost-effectiveness, project readiness, and local community views and support. So far, 494 originally unsewered villages have been included in the village sewerage programme. Of these, 92 villages have already been seweraged while the programme for the remaining 402 is being rolled out over the coming decade.

Sewage Treatment Options for Unsewered Villages

7. The provision of a proper sewerage network for collection of sewage from village houses for centralized treatment and disposal at a suitable location without detriment to the environment or public health is the preferred long-term solution.

8. Notwithstanding the benefits of village sewerage it is not always

possible or cost-effective to provide all areas or all properties with village sewers. To ensure cost-effectiveness and technical feasibility, unsewered areas are screened systematically for suitability for village sewers under our planning process. Properties requiring excessively costly pumping facilities, with limited space, complex internal drainage, land resumption issues, or located far from main sewers with small populations are excluded from the programme. Properties or villages excluded from the village sewerage programme would continue to rely on the septic tank and soakaway systems.

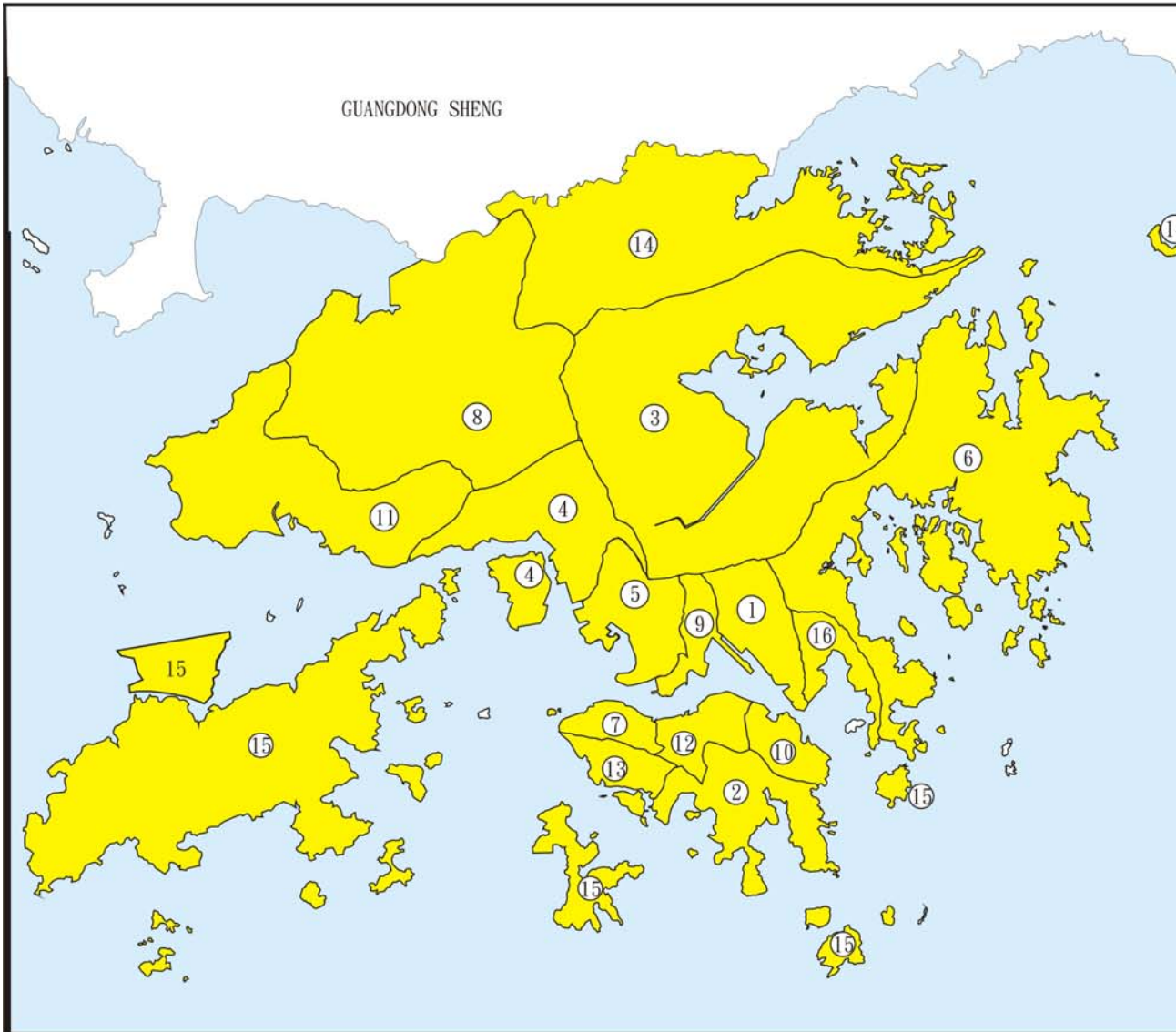
9. Guidelines to ensure the proper design and operation of the septic tank and soakaway systems are available to village house owners for their reference. If septic tanks systems are not operated properly and we receive complaints as a result, we will conduct site investigations and advise the concerned party on the necessary remedial measures for rectifying the problem.

Funding and Future Sewerage Work and Plans

10. Between 1986 and the end of 2005, we have earmarked or allocated about \$32 billion for capital spending on sewage infrastructure, including \$8.5 billion for Stage 1 of the Harbour Area Treatment Scheme and \$4.4 billion for village sewerage schemes. The funds cover the costs of construction as well as design and investigation. To date, about 84,000 people living in 92 villages have been provided with public sewers under fifteen village sewerage projects costing \$811 million. To complete our currently-envisaged non-HATS sewerage programme, we estimate a further investment of about \$8 billion will be required, of which \$2.1 billion would be for the village sewerage projects.

11. So far, funds have been earmarked or allocated for village sewerage projects to provide proper sewage disposal facilities for around 330,000 people. Our indicative timeline for rolling out the future village sewerage programme, including the associated extension/upgrading of sewers and sewage treatment works, up to 2015, is shown in **Annex (2)**.

Environmental Protection Department
November 2006



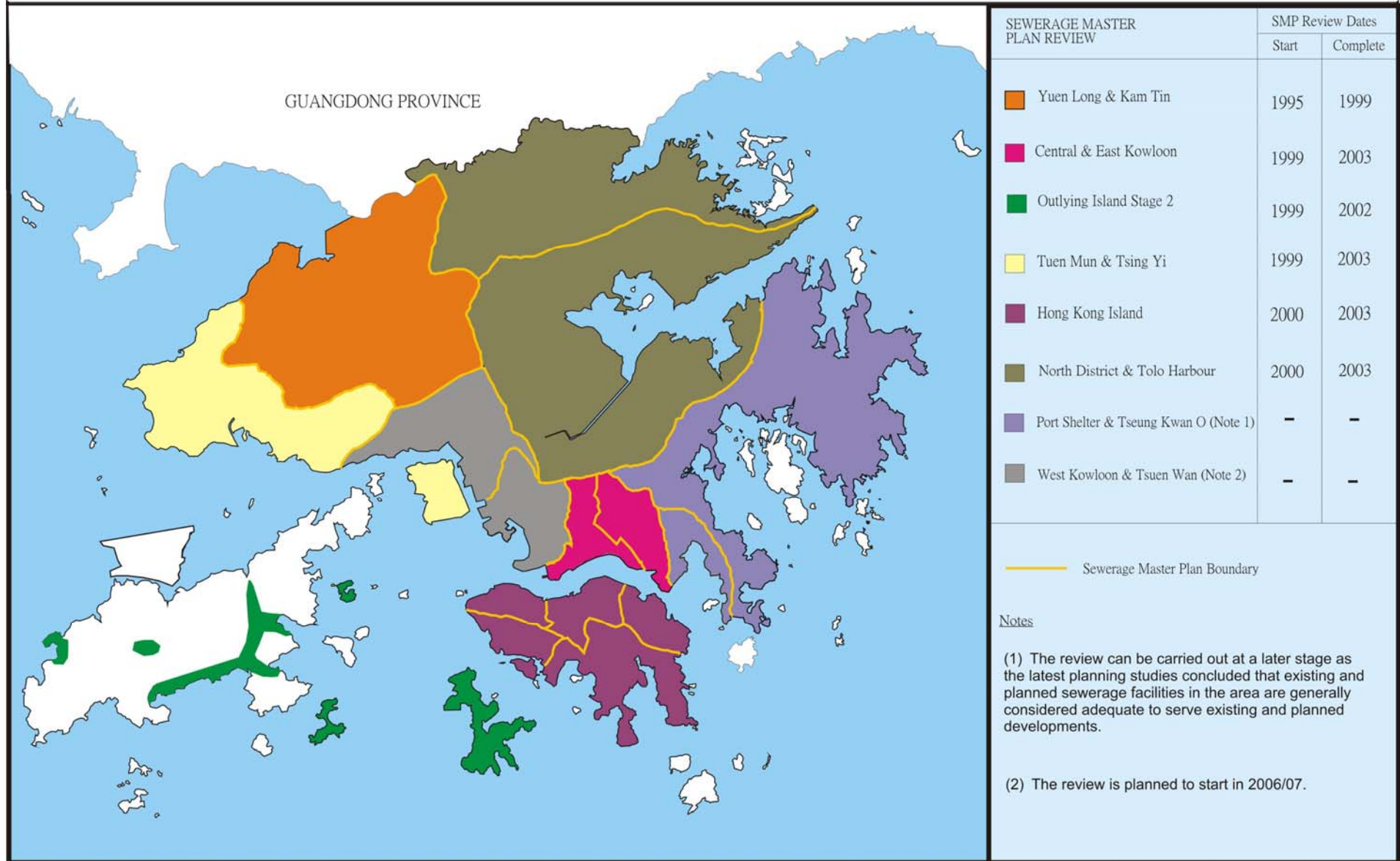
Sewerage Master Plan Areas

Sewerage Master Plan Study Programme

Sewerage Master Plan Study Area	SMP Dates	
	Start	Complete
1 East Kowloon	1987	1989
2 Hong Kong Island South	1988	1989
3 Tolo Harbour	1989	1990
4 Tsuen Wan, Kwai Chung & Tsing Yi	1989	1992
5 North West Kowloon	1989	1991
6 Port Shelter	1989	1991
7 Central, Western & Wan Chai West	1990	1993
8 Yuen Long & Kam Tin	1990	1992
9 N&S Kowloon	1991	1993
10 Chai Wan & Shau Kei Wan	1991	1993
11 Tuen Mun	1991	1993
12 Wan Chai East & North Point	1992	1994
13 Aberdeen, Ap Lei Chau & Pok Fu Lam	1992	1995
14 North District	1993	1994
15 Outlying Islands	1993	1994
16 Tseung Kwan O	1994	1996



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Sewerage Master Plan Reviews



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**Programme of future Sewerage Works related to Provision of Village Sewerage
in the New Territories and Outlying Islands up to 2015**

Planned Works	Indicative Target Completion Date
New sewage pumping stations and sewers, provision of village sewerage in Sham Tseng, Tsing Lung Tau and Ting Kau	2009
New sewage pumping stations and sewers in Sai Kung Area 4 and Mang Kung Uk	2010~2013
Upgrading of Peng Chau and Siu Ho Wan Sewage Treatment Plants; construction of Ngong Ping (completed), Yung Shue Wan and Sok Kwu Wan Sewage Treatment Plants and outfalls; construction of sewage pumping stations and sewers in Yung Shue Wan and Sok Kwu Wan; provision of village sewerage in Peng Chau; upgrading of sewerage in Mui Wo and provision of sewerage in Tai O, Cheung Chau and Lamma Village	2010~2013
Upgrading of Pillar Point Sewage Screening Plant; village sewerage, sewage pumping stations and sewers in Tuen Mun, Tai Lam and So Kwun Wat	2012~2013
Upgrading of Tai Po Sewage Treatment Plant; village sewerage, new and upgraded sewage pumping stations and sewers in Tai Po areas	2011~2014
Upgrading of Sha Tin Sewage Treatment Plant; village sewerage, new and upgraded sewage pumping stations and sewers in Sha Tin areas	2010~2014
Upgrading of San Wai Sewage Treatment Plant; new sewage pumping stations and sewers in Kam Tin, Nam San Wai, Au Tau, San Tin, Yuen Long south and Tin Shui Wai; village sewerage in Yuen Long areas	2012~2014
Upgrading of Shek Wu Hui Sewage Treatment Plant; new sewage pumping station on Ting Kok Road, new trunk sewers and provision of village sewerage in North District	2012~2015