

Report No. 55 of the Director of Audit — Chapter 9

PROVISION OF VILLAGE SEWERAGE

Summary

1. Many villages in the New Territories are not provided with public sewerage. Sewage from unsewered villages is discharged into nearby watercourses after treatment by septic tanks and soakaway systems. According to the Environmental Protection Department (EPD), a proper sewerage network for collecting sewage from village houses for suitable treatment and disposal will significantly reduce pollution to nearby rivers and coastal waters. Since late 1980s, the EPD had commissioned sewerage studies for drawing up Sewerage Master Plans (SMPs). The SMPs included implementing programmes to provide public sewerage systems to unsewered villages (village sewerage programmes).

2. *Implementing village sewerage programmes in Yuen Long and North District.* Discharge from unsewered areas in Yuen Long (including Kam Tin) and North District (including Sheung Shui, Fanling and Sha Tau Kok) had an adverse impact on the water quality of Deep Bay and nearby rivers. According to the EPD, Deep Bay is one of the marine waters with poor water quality. To address Yuen Long and North District sewerage needs and to improve Deep Bay water quality, the Government has been implementing village sewerage programmes in these two districts. As of July 2010, 306 villages were covered by these programmes.

3. The EPD is responsible for planning the village sewerage programmes and taking enforcement action against water polluters. The Drainage Services Department (DSD), as the EPD's works agent, is responsible for implementing the sewerage infrastructure works. The Audit Commission (Audit) has recently conducted a review to examine the planning and administration of the village sewerage programmes, focusing on the programmes in Yuen Long and North District.

Village sewerage programme in Yuen Long

4. According to the 1992 Yuen Long SMP Study, the sewerage works recommended under the SMP should be completed by the end of 2005. In May 2001, the Administration informed the Legislative Council that all sewerage works under the Yuen Long SMP were scheduled for completion in 2008.

5. ***Need to formulate long-term strategies for unsewered villages in Yuen Long.*** Audit noted that, as of July 2010, the sewerage works for 134 villages (74% of the 180 villages) in Yuen Long were still under preliminary planning and not yet included in the Public Works Programme (PWP). *Audit has recommended that the Director of Environmental Protection should, in collaboration with the Director of Drainage Services, formulate a long-term strategy to implement village sewerage works for the unsewered villages in Yuen Long which are currently not included in the PWP.*

6. ***Need to review progress of village sewerage programme in Yuen Long.*** The progress of the village sewerage projects in Yuen Long is slower than originally planned (see para. 4). As of July 2010, of the 44 unsewered villages included in the PWP, the sewerage works for 35 villages were still under planning. *Audit has recommended that the Director of Drainage Services should, in collaboration with the Director of Environmental Protection, closely monitor the progress of the Yuen Long village sewerage programme and consider devising an action plan to expedite the implementation of the sewerage works for the 35 villages.*

Village sewerage programme in North District

7. In August 1994, the EPD completed the North District SMP Study. The sewerage works recommended under the Study were divided into different phases and planned to be implemented under a number of PWP projects. In 2007, the DSD completed another sewerage project in connection with the development of the Northeast New Territories (NENT) Landfill in North District.

8. ***Need to expedite planning of North District village sewerage projects.*** According to the 1994 SMP Study, the North District village sewerage programme was planned to be completed in 2005. As of July 2010, of the 126 unsewered villages covered in the programme: (a) works for 12 villages (10%) were in progress; (b) works for 56 villages (44%) were under planning and included in the PWP; and (c) works for 36 villages (29%) were under preliminary planning and not included in the PWP. *Audit has recommended that: (a) the Director of Drainage Services should closely monitor the progress of village sewerage projects in North District which have been included in the PWP; and (b) the Director of Environmental Protection should, in collaboration with the Director of Drainage Services, expedite the planning for the unsewered villages in North District which are currently not included in the PWP.*

9. ***Need to incorporate village sewerage requirement into New Development Area (NDA) development programme.*** In November 2002, the EPD completed a review of the North District SMP. According to the review, the existing sewerage systems in North District might need to be extended to serve additional rural areas, including the proposed NDA in Ping Che and Ta Kwu Ling. In June 2008, the Civil Engineering and Development Department and the Planning Department commissioned an engineering study to formulate a development plan for the NDA. *Audit has recommended that the Director of Environmental*

Protection should, in consultation with the Director of Civil Engineering and Development and the Director of Planning, examine the feasibility of incorporating the village sewerage requirement into the NDA development programme.

10. ***Need to improve the planning process of village sewerage projects.*** According to the DSD, the scheduled completion dates for two village sewerage projects were revised due to the need for further consulting the local communities and for finalising the sewer alignments before commencing land resumption. *Audit has recommended that, in planning village sewerage projects in future, the Director of Drainage Services should: (a) in collaboration with the Director of Environmental Protection, allow more time for consultations with villagers concerned and seek the assistance of the Heung Yee Kuk and the relevant District Councils early in the planning stage; and (b) take action to minimise, where feasible, the need for land resumption in such projects.*

Sewer connection of village houses

11. Provision of sewerage infrastructure for rural villages can improve the environment only after the relevant village houses are properly connected to the public sewerage systems. Under the existing policy, the Government will provide public sewerage to selected unsewered village areas through constructing trunk sewers with branch sewers and tapping points up to the lot boundaries of village houses.

12. According to the DSD, in most cases, village house owners need to construct terminal manholes within their private lots and to complete the final sewer connection works from their terminal manholes to the tapping points at their own cost (known as Type A connection). Type B and Type C connections are special arrangements adopted in the NENT Landfill village sewerage project (see para. 7). Type B connection works involve, in addition to the provision of standard sewerage under Type A connection, the construction of a terminal manhole within the house lot and the completion of house connection. Type C connection works involve the provision of standard sewerage, and the construction of a terminal manhole but without the house connection.

13. ***Need to closely monitor sewer connection of village houses.*** As of April 2010, the overall sewer connection rate for village houses was 92%. In comparison, the connection rates for North District and Yuen Long were 84% and 0% respectively. Audit examination revealed that two villages in North District had connection rates of 0% and 50%, and two villages in Yuen Long both had a connection rate of 0%. *Audit has recommended that the Director of Environmental Protection should, in collaboration with the Director of Drainage Services: (a) closely monitor the sewer connection of village houses in North District and Yuen Long; and (b) take measures to improve the sewer connection rates for these two districts.*

14. *Need to further negotiate with villagers on provision of tapping points.* According to the DSD, tapping points would be provided at the lot boundaries of village houses (see para. 11) to facilitate the final connection from village houses to public sewers. However, in some circumstances, due to site constraints, tapping points could only be provided at a distance from the lot boundaries. There were cases in which the Government and the villagers had different views on the provision and location of the tapping points. *Audit has recommended that the Director of Environmental Protection should, in collaboration with the Director of Drainage Services, step up efforts in negotiating with the villagers with a view to working out an acceptable solution for the provision of tapping points.*

15. *Need to take appropriate action for non-compliance with sewer connection requirements.* Upon the DSD's completion of the village sewerage works, the EPD will conduct briefing sessions, arrange visits to village houses, and issue advisory letters to house owners. According to the Water Pollution Control (Sewerage) Regulation (Cap. 358AL), the EPD may require village house owners to complete sewerage connection by issuing a notice setting out the connection requirements. In case the owners refuse to complete the works, the EPD may issue reminders or notices under the Regulation. Failure to comply with the requirement specified in the notices constitutes an offence.

16. Audit noted that, up to July 2010, for the four villages in North District and Yuen Long with zero or low connection rates (see para. 13), advisory letters had been issued for only two villages and notices had only been issued for one village. *Audit has recommended that the Director of Environmental Protection should, in collaboration with the Director of Drainage Services: (a) closely monitor the cases of non-compliance with the sewer connection requirements; and (b) continue dialogue with villagers and consider taking appropriate action to enable connection in accordance with the Water Pollution Control (Sewerage) Regulation.*

Planning and administering village sewerage projects

NENT Landfill village sewerage project

17. In April 2002, the Finance Committee (FC) of the Legislative Council approved \$107 million for implementing the project. In June 2006, the FC approved an increase of the approved project estimate (APE) to \$145 million. The sewerage works of the project were completed in June 2007 (i.e. about 17 months later than the scheduled completion date).

18. *Need to strengthen project planning process.* Audit noted that there were discrepancies between the planned and the final sewerage requirements for different connection types (see para. 12). The total number of houses requiring sewerage works at the end of the contract for the project was 1,346, compared with 1,078 houses originally

identified. *Audit has recommended that, in implementing village sewerage projects in future, the Director of Drainage Services should strengthen the project planning process to improve the assessment of sewerage requirements as far as practicable.*

Village sewerage project for 12 unsewered villages in North District

19. In January 2007, the FC approved \$130 million for implementing the project. In April 2010, the FC approved an increase of the APE to \$185 million. The project was originally scheduled for completion in November 2010, but later revised to February 2011.

20. ***Need to better ascertain development status of village houses.*** The original design for the project covered about 800 village houses in 12 villages. After the award of contract in March 2007, 100 additional houses requiring provision of sewerage were identified. Of these 100 houses, Audit found that: (a) the sewerage requirements of 41 houses could have been ascertained before the award of the contract; and (b) branch sewers had been provided for 23 houses, the development of which was still tentative in nature. *Audit has recommended that, in implementing village sewerage projects in future, the Director of Drainage Services should: (a) review the arrangement for determining the development status of village houses and their sewerage requirements; and (b) conduct more extensive consultations with the villagers during the project planning stage.*

21. ***Need to conduct more comprehensive site investigation.*** Audit noted that additional works were required to overcome technical difficulties and site constraints. Deeper piling foundations for pumping stations were found necessary during construction due to adverse ground conditions. *Audit has recommended that, in implementing village sewerage projects in future, the Director of Drainage Services should carry out, as far as practicable, more comprehensive site investigations.*

Response from the Administration

22. The Administration agrees with the audit recommendations.

November 2010