

The Audit Commission ("Audit") conducted a review to examine sewerage systems in rural areas.

2. According to the Environmental Protection Department ("EPD"), as of April 2016, about 395 000 population in Hong Kong mainly relied on septic-tank-and-soakaway ("STS") systems for treating their sewage or dry-weather-flow interceptors for reducing pollution caused by untreated sewage. Under the Water Pollution Control Ordinance (Cap. 358) ("WPC Ordinance"), EPD is responsible for monitoring the water quality of rivers and coastal areas, and controlling pollution of these water bodies. EPD has formulated 16 Sewerage Master Plans that set out at regional/district level sewage collection, treatment and disposal programmes, including village sewerage ("VS") programmes to provide public sewerage systems for unsewered villages and squatter areas to reduce pollution. Expenditure for the implementation of the VS programmes from 1989-1990 to 2015-2016 totalled \$8.2 billion, and further expenditures were estimated at \$2.7 billion from 2016-2017 to 2025-2026.

3. The Committee noted the following findings from the Director of Audit's Report:

- level of *Escherichia coli* ("*E. coli*") in water was used as an indicator of faecal contamination and pollution. In 2015, of the 71 EPD river monitoring stations in areas with Water Quality Objectives on *E. coli*<sup>1</sup> established, the average levels of *E. coli* found at 63 (89%) stations exceeded the statutory Water Quality Objectives levels. For the Yuen Long District and the North District which had many unsewered villages, in 2015, the average levels of *E. coli* at 14 (58%) of the pertinent 24 river monitoring stations exceeded 10 000 *E. coli* per 100 millilitres of water, indicating that sewage might have been discharged from unsewered villages;
- licensing for STS systems under the WPC Ordinance was not a mandatory requirement, and failure to obtain a licence was not an offence. As of August 2016, only 1 912 of the about 154 000 unsewered village houses and residential squatters had been issued with licences for their STS systems. Also, EPD did not:

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<sup>1</sup> Various Water Quality Objectives expressed in numerical or narrative form had been established under the WPC Ordinance to describe the water quality to be achieved in order to promote the conservation and best use of Hong Kong waters.

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- (a) conduct periodic inspections of STS systems installed for unsewered houses;
  - (b) ascertain the number, conditions, extent and effectiveness of all dry-weather-flow interceptors; and
  - (c) maintain a database for STS systems;
- some of the village-house sewerage requirements stipulated under the certificate of exception issued by the Lands Department for pertinent drainage works in the New Territories were not on par with those stipulated under EPD's practice note issued in 1993;<sup>2</sup>
  - since 2000, the Food and Environmental Hygiene Department ("FEHD") had advertised on its website the provision of desludging service. However, FEHD had only provided desludging service to members of the public on 34 occasions from 2000 to 2002, and it had not provided such service to the public from January 2003 to August 2016;
  - the Drainage Services Department had designated three sewage treatment plants<sup>3</sup> for receiving excretal matter from private desludging operators. As of April 2016, 78 private desludging operators (having a total of 317 desludging vehicles) were involved in the provision of related services, but none of them had obtained licences from EPD or FEHD, contrary to the requirements under the Waste Disposal Ordinance (Cap. 354);
  - EPD and FEHD had received a total of 55 complaints on environmental problems related to desludging operations from 2010 to 2015. From October 2013 to October 2014, EPD and FEHD found excretal matter having been illegally disposed of at a hill top in the North District on eight occasions, but no suspects were identified;
  - according to EPD's study reports on the Sewerage Master Plans and the subsequent reviews, STS systems were generally not installed in

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<sup>2</sup> EPD issued the practice note "Drainage Plans subject to Comment by the Environmental Protection Department" stipulating the technical requirements for an STS system for Authorized Persons in preparing drainage-plan submissions.

<sup>3</sup> The Ap Lei Chau Preliminary Treatment Works, the Pillar Point Sewage Treatment Works and the Sai Kung Sewage Treatment Works.

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- squatter areas and untreated sewage generated from the squatters was therefore mostly directly discharged into the nearby rivers or water bodies, causing water pollution and environmental problems;
- in 2007, the Administration sought funding approval of \$33 million from the Finance Committee of the Legislative Council for implementing a sewerage project for a squatter area near the midstream of Tuen Mun River ("Squatter Area A"), covering 278 squatters (involving 1 100 residents). According to EPD's estimation, 80 % of the squatters would be connected to the new sewerage system. The public sewerage works at Squatter Area A were completed in May 2011. However, apart from eight squatters which did not have any resident, only 112 (41%) of the remaining 270 squatters had been connected to public sewers up to June 2016;
  - the target completion dates of VS programmes for 662 villages in eight SMP areas had been deferred from between 2004 and 2009 to between 2013-2014 and 2017-2018. As of June 2016, public sewerage works for 407 (61%) villages were still under planning. A VS project in Tuen Mun, having an approved project estimate ("APE") of \$1,340 million, was delayed mainly due to the need to divert unrecorded underground utilities. For another VS project in Shatin and Tai Po with an APE of \$381.4 million, there was a slippage of 25 months in completing the works owing to objections on private land resumption;
  - as of June 2016, of the 14 710 village houses located at 178 villages covered by public sewers, 4 531 (31%) had not been connected to the sewers;
  - according to EPD, the majority of sewer-connection works would be completed by village-house owners between two and five years after completion of public-sewer works. However, Audit examination of the progress of sewer connections at five villages and one squatter area (with a total of 385 houses suitable for sewer connection) revealed that, as of June 2016, while the related public sewerage works had been completed 5 to 15 years ago, only 144 (37%) houses had been connected to public sewers. In one case involving public sewerage works having an APE of \$2.7 million being carried out for two elderly homes and a village comprising 56 houses in Yuen Long, owing to objections of village representatives of 49 houses, public sewerage

works for these 49 houses were not carried out. Public sewerage works for the remaining seven houses were completed in December 2000, but none of these houses had been connected to public sewers up to June 2016, and EPD had not served statutory notices nor taken prosecution actions against the related village-house owners in accordance with EPD's "Enforcement Guidelines on Sewer Connection". In another case involving public sewerage works having an APE of \$125.1 million for eight unsewered areas, which included a village comprising 62 houses where the works were completed in June 2006, only 12 (19%) houses had been connected to public sewers up to June 2016; and

- as of September 2016, EPD's computerized database did not record the addresses and sewer connection information of 4 283 village houses which were located in areas covered by public sewers, while the information of these houses was kept in paper files on individual villages maintained by EPD's Regional Offices. Audit also found inadequacies in the computerized database.

4. The Committee did not hold any public hearing on this subject. Instead, it asked for written responses regarding the controls over sewage discharged from unsewered villages, statutory requirements and problems of STS systems and relevant pollution prevention measures, licensing for desludging services, delays in VS programmes, actions to prevent illegal dumping of excretal matter, sewer-connection progress of village houses and EPD's computerized database for village houses. The consolidated replies from **Secretary for the Environment and Director of Environmental Protection**, and the replies from **Director of Drainage Services, Director of Food and Environmental Hygiene** and **Director of Lands** are in *Appendices 36* to *39* respectively.

5. The Committee wishes to be kept informed of the progress made in implementing the various recommendations made by Audit.