

Report No. 42 of the Director of Audit — Chapter 5

MAINLAYING WORKS

Summary

1. Hong Kong's water supplies are provided through networks of fresh water mains and salt water mains. The Water Supplies Department (WSD) undertakes waterworks projects, most of which involve the laying of water mains. In 2003-04, the estimated expenditure on mainlaying works is about \$510 million.

Contract overruns

2. From September 1999 to August 2003, the WSD certified the completion of 29 mainlaying contracts. The Audit Commission (Audit) found that a high percentage (45%) of the contracts overran by more than six months. Audit selected three of the seven mainlaying contracts with contract overruns of more than 12 months for in-depth examination. These three mainlaying contracts (**hereinafter referred to as Contract A, Contract B and Contract C**) overran by 17 months, 17 months and 14 months respectively. The WSD granted to the contractors extensions of time and prolongation costs. *Audit has recommended that the Director of Water Supplies should identify contracts with slow progress and take early management action to minimise overruns in the contracts.*

Contract A — realignment of water mains

3. **Substantial realignment of water mains.** The progress of the works had been slow since the commencement of Contract A in November 1996. The delay was mainly due to the existence of underground utilities and the lack of working space, which prevented the water mains from being laid along the originally planned alignment. Approximately 70% of the original alignment was redesigned. In the event, the works were substantially completed in November 1999. The WSD granted an extension of time of 599 days and paid a prolongation cost of \$13.99 million to the contractor. *Audit has recommended that the Director of Water Supplies should strengthen the WSD quality control procedures to ensure that a thorough site investigation is carried out prior to finalising the alignment and size of water mains.*

Contract B — delay due to additional works

4. Contract B commenced in April 1998. An extension of time of 534 days was granted to the contractor due to additional works. In the event, the works were substantially completed in October 2001. A prolongation cost of \$4.38 million had been assessed. Two major issues relating to the delay are described in paragraphs 5 and 6 below.

5. ***Substantial increase in quantities of bends.*** The contractor was instructed to install a larger quantity of bends than that shown on Contract B's Drawings due to the realignment of the water mains. The additional bends caused delay to the works. In the event, the contractor was granted extension of time. A note on the Drawings of Contract B stated that the locations of the water mains and pipe fittings were indicative only. *Audit has recommended that the Director of Water Supplies should, for items of work the quantities of which cannot be ascertained from the Drawings, clearly state on the Drawings that the contractor should programme and price them according to the Bills of Quantities.*

6. ***Works carried out within restricted hours.*** In Contract B, it was stipulated that works at four specified locations should be carried out within restricted hours. During the construction stage, the works at 10 more locations had to be carried out within the restricted hours, and the contractor was granted extension of time and an additional cost of \$3.82 million. *Audit has recommended that the Director of Water Supplies should strengthen consultation with the Transport Department/Police to ensure that all locations which require works to be carried out within restricted hours are identified before tendering.*

Contract C — delay in giving site possession

7. ***Delay in giving site possession.*** Contract C, which comprised two sections of works (Sections I and II), commenced in December 1996. The contractor was granted extension of time of 436 days and a prolongation cost of \$8.44 million. In the event, the works were substantially completed in January 2000. The extension of time granted was due to the failure to give site possession to the contractor on time. There was delay because other contractors occupied the sites longer than originally planned. *Audit has recommended that the Director of Water Supplies should take remedial actions to deal with delay in giving possession of sites to contractors.*

8. ***Procedures for entrustment of works.*** The WSD planned to incorporate part of the mainlaying works in a Drainage Services Department (DSD) sewerage contract. However, due to a delay in obtaining funding for the WSD works, the WSD did not entrust the works to the DSD. As it transpired, there was also a delay in obtaining funding for the DSD works. The delay in completing Contract C could have been minimised if the related works were entrusted to the DSD sewerage contract. *Audit has recommended that the Director of Water Supplies should critically review and update the WSD project administration procedures to ensure that, if there is a delay in obtaining funding for works planned for entrustment, appropriate follow-up action is taken to deal with the entrustment.*

Supply of treated water to remote villages

9. Since the 1980s, the WSD has been implementing water supply schemes for remote villages in the New Territories. Most of the remote villages have now been supplied with treated water. There are 16 villages for which the related works are being carried out. The WSD has deferred the plan to supply treated water to another 19 remote villages due to the estimated high average per capita capital cost.

10. ***Per capita capital cost of individual water supply schemes.*** Audit examined the Public Works Subcommittee (PWSC) papers of different Public Works Programme (PWP) items for the funding of the water supply schemes. Each PWP item covered a number of water supply schemes. Audit noted that it was not possible to ascertain from the PWSC papers the per capita capital cost of the individual water supply scheme. Upon analysis, Audit noted that the per capita capital cost of some of the water supply schemes was significantly higher than that of the PWP item. *Audit has recommended that the Director of Water Supplies should include adequate information in the PWSC papers to bring to the attention of the PWSC members the per capita capital cost of individual water supply schemes.*

11. ***Village population figures.*** The WSD used population figures of different basis for implementing the water supply schemes. However, the basis on which the population figures were derived was not disclosed in the PWSC papers. For some villages, the population figures included part-time residents and persons with indigenous villager status but not residing in the villages. Such larger population figures tended to understate the per capita capital costs of the water supply schemes. *Audit has recommended that the Director of Water Supplies should critically assess the population figures used for justifying the water supply schemes, and disclose in the PWSC papers the basis on which the population figures are derived.*

12. ***Low water consumption.*** Audit found that for some remote villages, the number of water accounts was relatively few and the water consumption was low. Some villages did not even have any water accounts. *Audit has recommended that the Director of Water Supplies should carry out a post-implementation review of the water supply schemes to ascertain the reasons for the low consumption of treated water in some villages.*

Response from the Administration

13. The Administration has accepted the audit recommendations.

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