



水務署採用最新的聲納探測儀器測漏。 The latest acoustic equipment is used for leak detection.

大規模更換水錶

供應及分配科所負責的其中一項主要工作是提供客戶服務和處理客戶投訴。該科已展開一項大規模的水錶更換計劃，初期每年更換約四萬個舊水錶。新水錶可讓水務署更準確地計量客戶的用水量。

組織結構

在執行職務方面，供應及分配科將全港分為五區——香港及離島區、新界北及沙田區、新界西及荃灣區、九龍東及西貢區和九龍西及葵青區。

該科轄下又設有分區行政部，專責統籌有關工作，並處理必須集中執行的職務，包括測漏、水塘安全和斜坡安全視察、資產管理及執法檢控工作。

水質科學部負責抽取水樣本進行物理學、細菌學、生物學及輻射學化驗，從而不斷監察整個供水系統的水質。

供應及分配科設有兩名助理署長，一名負責香港及離島區、分區行政部和水質科學部，另一名則負責餘下四區。

更換地下水管

水管滲漏一直是世界各地常見問題，唯一有效的長期解決辦法是有計劃地更換老化水管。

Large-scale Meter Replacement

Given the task of providing consumer services and dealing with customers' complaints, the Supply and Distribution Branch has embarked on a major project of replacing initially at a rate of some 40 000 of the old water meters a year. The newer meters will enable the WSD to gauge more accurately the water consumption.

Organisation

The work of the Branch is carried out over five regions - Hong Kong and Islands, Mainland North East, North West, South East and South West.

Also functioning under the Branch is the Regional Administration Division, which is responsible for coordinating functions and matters requiring centralised operation, including leak detection, reservoir safety and slope safety inspection, asset management and prosecution enforcement.

The Water Science Division is responsible for continuously monitoring the quality of water throughout the entire water supply system by carrying out physical, bacteriological, biological and radiological examinations of water samples.

The Branch operates under two Assistant Directors - one being in charge of the Hong Kong and Islands Region, as well as Regional Administration and Water Science Divisions. Another Assistant Director is responsible for the four Mainland regions.

Underground Pipe Replacement

Water leakage is a perennial and universal problem and can be effectively dealt with only by a programme of pipe replacement over a long term.

For Hong Kong, some 3 050 kilometres of underground mains have been earmarked for replacement out of the 6 420 kilometres of fresh water and sea water mains. The entire programme will be carried out in incremental stages over 20 years, starting with the replacement of some 350 kilometres of mains in the first seven years, commencing from 2000.

Meanwhile, as an interim measure, work is being carried out to replace 50 km of unlined galvanised iron (GI) pipes annually in the next few years to lessen the loss of water through distribution network leakage.

Leak Detection

A record number of nearly 5 600 leaks were detected and repaired, resulting in significant savings of fresh and sea water.

Eight trial pressure management schemes have been successfully implemented with the use of 'flow modulation pressure modes' for maximum savings of water under a reliable supply condition. Savings of more than 20 per cent of water consumption were achieved in some schemes.

香港的食水管及海水管全長6 420公里，其中約3 050公里的地下水管已計劃更換。整個更換計劃需時二十年，首階段於二零零零年展開，以七年時間更換約350公里的水管。

此外，現正著手在未來數年更換無內搪層鍍鋅鐵管(每年更換50公里)，作為一項臨時措施，以減少因配水網絡滲漏所流失水量。

測漏工作

年內，測漏成績創新紀錄。檢測到的滲漏約有5 600處，這些滲漏水管已全部修理妥當，大大減低流失的食水及海水。

本署成功推行八個水壓管理試驗計劃，採用「流量/壓力調節模式」把水壓維持於最合適的水平，務求盡量避免出現爆水管情況，從而減低流失水量。部分參與試驗計劃的區域的流失水量，下降逾20%。

首份針對約1 600段埋於斜坡而又會影響斜坡安全的水管的測漏合約大致完成。第二份合約亦於一九九九年九月批出。到二零零二年八月，另有約3 000段這類水管的測漏工作亦會完成。

此外，石湖墟兩個地點的測漏合約加入以成效為本的獎勵試驗計劃，亦令滲漏情況大為改善。

地面水務資產

本署已甄選顧問公司制定地面水務資產管理策略及方法。這項工作預計會在二零零一年四月完成。

水管圖則數碼化

隨著水管圖則轉為數碼化，所有這方面的資料現時均採用數碼繪圖系統來修訂，為發展地理訊息系統奠下基礎。數碼化除提高效率外，更讓本署可與其他政府部門及公用事業機構作信息交流。

斜坡安全

年內，水務署負責維修的6 400個斜坡當中，約有2 300個進行了工程師維修檢查。

同時，進行例行維修工程的斜坡約有2 000個，設置告示牌的斜坡約有3 200個，而獲例行維修檢查的斜坡則有4 300多個。此外，本署又就2 000多個已登記斜坡的工程師維修檢查事宜委託顧問進行研究。

所有斜坡目錄、檢查記錄和維修記錄，均已存入水務署斜坡管理系統，並可望於二零零一年四月前納入內聯網，方便員工檢索。

有關斜坡維修工作明年申請ISO 9000證書認證的籌備工作，現正進行。

水務署於一九九九年十一月成立了土力顧問組，由一名土力工程師及其他技術人員組成，負責本署斜坡維修方面的土力事宜。

環境保護

同時，為現有濾水廠(例如香港仔、大埔道及石梨貝濾水廠)新增設的污泥處理設施已進行測試工作。

當這些設施於二零零零年中全面運作後，從現有濾水廠排出的污水水質均會符合水污染管制條例的規定。

配水庫用高壓噴水器清洗後流出的所有污水，會繼續經流動處理設備處理，然後才排入雨水系統。本署現正探求更具成本效益的污水處理方法。



檢查水務署管理的斜坡。 *Inspecting WSD slopes.*



一名獨立的工程師正在檢查堤壩。 *A dam surface being inspected by an independent engineer.*

The first leakage detection contract for checking some 1 600 sections of buried mains affecting slopes has been substantially completed. The second one was awarded in September 1999 and nearly 3 000 more sections of watermains will have been checked by August 2002.

Meanwhile, a pilot performance-based leak detection contract in two areas in Shek Wu Hui, based on an incentive plan also resulted in significant reduction of leakage.

Surface Assets

A consultant has been selected for the development of a surface asset management strategy and methodology and is expected to complete the project by April 2001.

Digital Format

With the conversion of the paper watermains record plans to digital format, all data are now being updated by use of the digital mapping system paving the way for the development of a Geographical Information System (GIS). The improved efficiency also allows for exchange of information with other government departments and utility operators.

Slope Safety

Engineer Inspections for Maintenance (EIM) for some 2 300 slopes were carried out during the year out of the 6 400 slopes maintained by the WSD.

In that time Routine Maintenance Work (RMW) was undertaken on some 2 000 slopes, sign plates were placed on nearly 3 200 slopes, and Routine Maintenance Inspections (RMI) were conducted on more than 4 300 slopes. In addition, a consultancy study is being undertaken on EIM of 2 000 more registered slopes.

All slope inventory, inspection and maintenance records have been input in the Slope Management System (WSD SMS) and its incorporation in the Intranet system for easy access by all staff is expected to be completed by April 2001.

Preparation work is also underway to obtain ISO 9000 certification for the slope maintenance activities next year.



利用一部水底錄影系統檢查堤壩。 An underwater video system is being deployed for dam inspection.



檢視一部設於萬宜水庫西壩頂部的新壓力計。 Inspecting a new piezometer at the High Island West Dam crest.

法例修訂

年內，水務設施規例作出的兩項修訂獲得通過，正式生效。

其一是把規例中有關無排氣管儲水式電熱水器的電力規格，改列於電氣產品(安全)規例內，另一項修訂是把沖廁水箱的最低沖廁水量，由9公升減至7.5公升。

有關使用閥式沖廁水箱及低容量沖廁水箱的法例檢討，仍在進行中。

執法工作

年內，根據水務設施條例及規例執行的檢控個案約有300宗，罰款總額為555,200元，檢控宗數和罰款額均較前一年上升25%。

水塘安全

年內，顧問公司和本署人員就水塘及配水庫的安全情況進行約1 120次視察。根據進一步訂立的合約，顧問公司亦會視察多個容量較小的水塘的安全情況。

研究與發展

有關修復陳舊水管技術的鑽研工作仍在繼續進行，而就提高三項外勤工作(即收集水樣本、巡查無人駐守的抽水站及裝換水錶)的效率所作的研究，則已完成，有關建議現正付諸實施。

A Geotechnical Advisory Unit comprising a geotechnical engineer and other technical staff was set up in November 1999 to provide in-house geotechnical services for slope maintenance activities.

Environmental Protection

Meanwhile, work has begun on testing of the sludge treatment plants for existing treatment works such as Aberdeen, Tai Po Road and Shek Lei Pui Treatment Works.

When these plants are in full operation in mid-2000, the quality of effluent discharged from all the existing treatment works will comply with the Water Pollution Control Ordinance.

All effluent produced from cleaning service reservoirs by high pressure water jets continued to be treated by the mobile treatment plant before discharge to surface drainage. Efforts are being made to find more cost effective methods for treating effluent.

Legislation

Two amendments to the Waterworks Regulations were effected during the year.

One was the transfer of the electrical requirements for unvented water heaters to the Electrical Products (Safety) Regulations. The other amendment provided for the reduction of flushing water cistern volume from 9 litres to 7.5 litres.

A review of the use of valve type flushing cisterns and low volume flushing cisterns is continuing.

Enforcement

Enforcement of the Waterworks Ordinance and Regulations, meanwhile, resulted in nearly 300 prosecutions and fines totalling \$555,200.

This was an increase of nearly 25 per cent in prosecutions and in fines over the year before.

Reservoir Safety

Some 1 120 safety inspections of impounding and service reservoirs were carried out by consultants and inhouse staff during the year.

Under a further agreement, safety inspections will be carried out on a number of smaller reservoirs.

Research and Development

Studies are continuing on the rehabilitation technology of old water mains. A study, meanwhile, has been completed on improving the operational efficiency of three selected outdoor works, namely the collection of water samples, attendance of unmanned pumping stations and installation and replacement of water meters. The recommendations are being implemented.