



IMPROVEMENTS
IN EFFICIENCY AND
提高效率及 **QUALITY**
服務質素 OF SERVICE

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本署年內所採取多項提高效率和加強品質保證制度的措施，不僅取得令人鼓舞的實質成果，還增強了我們日後要不斷提高運作效率的決心。

促進委員會

年內，由管方及職工會一同參與的效率及生產力促進委員會所推行的25項新猷中，計有精簡工序及手續、採用現代化科技和加速自動化運作等多項措施。在促進委員會轄下7個小組委員會的支持下，其他如重組架構及外判現有服務等新措施亦已付諸實行。

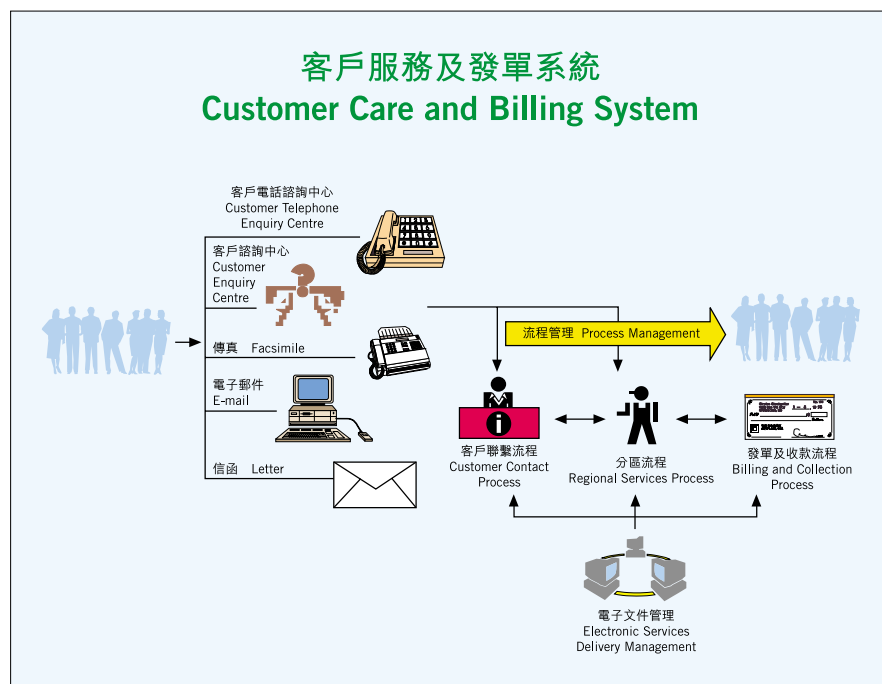
連同落實的建議(合共85項)，過去兩年所累積的節省約達2.13億元，即佔基線開支7%左右。隨著明年計劃推行更多新建議，預計在二零零三年完結前的三年期內，節省總額應可達3億元左右。

資源增值計劃

過去三年，累積節省達到1.99億元，這顯示當初在一九九八年根據資源增值計劃所訂定的目標，取得良好進展。年內，約節省7,000萬元，即約佔同期總基線經常開支2.5%。

資訊科技

本署早已洞悉資訊科技對提高整體工作效率和工作規劃極為重要。資訊系統策略計劃第一階段的客戶服務計劃已於二零零一年開始推行，將於二零零四年完成。至於第二階段的供水及分配運作計劃，則於本年稍後時間展開。資訊系統策略計劃下的各個項目，預計於二零零六至零七年間全部完成。



新的客戶服務及發單系統

當客戶服務及發單系統於二零零四年運作後，無論在提供客戶服務及提高生產力方面，均會有長足的進展。

該套價值2.53億元的綜合系統，會採用開放式結構，連接500多個工作站，以一站式概念提供服務，並具有多項以客為本的特性。除負責管理所有發單工作外，新系統亦會處理供水申請、客戶投訴、抄錶預約及工作定單等事宜。

客戶服務及發單系統的工作流程簡介。
Overview of flow processes of Customer Care and Billing System.

We are encouraged by the tangible results of the many initiatives taken in the year to improve our efficiency and strengthen the quality assurance system. They have served also to reinforce our dedication to continuous improvement of our operational efficiency.

IMPROVEMENT COMMITTEE

During the year, a wide range of activities including the streamlining of work processes and procedures, the use of modern technologies and greater automation were among 25 new initiatives steered by the Efficiency and Productivity Improvement Committee (EPIC) in which staff unions joined efforts with the management. Other new measures, which were also put into effect with the support of seven sub-committees, included reorganizations and outsourcing of existing services.

Taken together with initiatives already in effect, totalling 85 in all, they brought in cumulative savings of some \$213 million for the past two years, or nearly seven per cent of baseline expenditure. With more new initiatives planned for introduction next year, total savings should reach some \$300 million for the three-year period ending 2003.

EPP SCHEME

Cumulative savings for the past three years came to \$199 million showing encouraging progress in achieving the goals set under the Enhanced Productivity Programme (EPP) begun in 1998. There were savings of some \$70 million for the year, about 2.5 per cent of total recurrent baseline spending over the period.

INFORMATION TECHNOLOGY

The importance of information technology for overall efficiency and long-term business planning has for long been recognized by the Department. The Customer Service Programme, the first stage of the Information Systems Strategy Plan (ISSP), began in 2001 and will be completed in 2004. The Water Supply and Distribution Operations Programme, the second stage of the ISSP, will start later this year. All programmes under the ISSP are scheduled for completion by 2006 and 2007.

NEW CUSTOMER CARE SYSTEM

There will be a huge leap in both provision of customer services and productivity improvement when the Customer Care and Billing System (CCBS) comes into use by 2004.

The \$253 million integrated system will be of open architecture with connections to over 500 workstations, fulfilling the one-stop shop concept and providing a suite of customer-oriented features. Apart from managing all billing functions, the new system will also handle water supply applications, customer complaints, meter reading appointments and service order scheduling.

該系統其他綜合性的功能，包括客戶聯絡管理、工作定單處理、電子文件管理、抄錶、數據儲存及數據開採等。該系統可與部門內外其他電腦系統連接。透過工作站、電話及互聯網，亦可連接該新系統。

我們已於二零零二年五月就該系統公開招標，並會就接獲的投標書進行評估，評估工作預計於二零零二年年底完成。整項計劃會分三期推行，到二零零四年年底，系統將會全面運作。

自動化

經廣泛使用監控及資料收集系統後，本署可遙遠監控供水網絡內383個水務設施，包括137座抽水站及5個運作分區內所有配水庫。此外，各分區亦設立監控及資料收集系統的分區控制中心，以監督區內輸水設施的運作。

透過採用監控及資料收集系統，抽水站可用無人操控方式運作，達致大量節省人手的目的。本署現有的183座抽水站中，135座已經全面自動化，無須人手操作，其餘抽水站的編制人手亦可減少。

遙控閘

本署196個配水庫中，有155個配水庫的進出水閘是以監控及資料收集系統來遙控的。倘若探測到因大口徑水管損壞引致大量失水，控制出水量的閘會自動關閉。

當有水管爆裂，本署人員在尋找和操作水閘時會遇到困難，導致延遲恢復供水，尤以爆水管地點附近出現水浸的情況為然。為了更迅速處理水管爆裂事故，我們正研究可否在供水網絡的主要地點安裝遙控閘。

提高運作效率

二零零一年五月，本署成立了一個由管理人員及前線員工所組成的工作小組，檢討現有濾水廠的運作程序。工作小組在全港第二個最大型濾水廠－北港濾水廠進行試驗性研究，藉以制定檢討的機制。

工作小組就精簡工序以大量節省人手方面提出了多項建議。有關檢討亦正推展至其他濾水廠。



工作人員定期測試抽水機組的效率，藉以監察耗電量。
Staff conducting regular testing of pumpset efficiency to keep track of the energy consumption.

提高能源效益

為加快分析供水設備運作的能源效益，本署研發了一套綜合電腦程式，從監控及資料收集系統蒐集運作的數據，然後將之上載水務署的內聯網，方便員工查閱。經多次試用測試後，各分區的監控及資料收集系統現正分期進行連接，工程可望於二零零三年年底前完成。

為減少泵水往配水庫所需的電費，我們現正就透過調校配水庫的預設控制水位以增加非用電高峰時間的泵水量，進行多項試驗性研究。

另一項節省成本的措施是，嚴密監察各主要水務設施的能源費用及耗電模式，以及在遇上電力需求模式有變時，及時更改水務設施用電的收費計劃。

為增加能源效益，我們擬備了抽水站泵水組合編排表，並培訓操作人員在不同需求的情況下，選擇最具能源效益的泵水組合方式。

Other integrated functions of the CCBS will include customer contact management, service order processing, electronic document management, meter reading, data warehousing and data mining. There will also be interfaces with other systems, both internally and externally. Access to the system can be via workstations, telephone and the Internet.

Public tender for the system was invited in May 2002 and tenders received will be evaluated and the evaluation is scheduled for completion by the end of 2002. Implementation of the entire project will be phased over three periods and the system will be fully operational by the end of 2004.

AUTOMATION

Supervisory Control and Data Acquisition (SCADA) systems have been widely used for remote monitoring and control of our 383 installations in the water supply network, covering 137 pumping stations and all service reservoirs in the five operation regions. A Regional SCADA Control Centre has been set up in each of these regions to oversee the operations of the water transfer facilities in the respective regions.

Significant staff savings have been achieved through the unmanned operations of pumping stations using the SCADA system. Of the existing 183 pumping stations, 135 are fully automatic and unmanned. It has also been possible to reduce the manning levels of the others.



沙田濾水廠的監控及資料收集系統。
SCADA system at Sha Tin Water Treatment Works.

REMOTELY CONTROLLED VALVES

Of the 196 service reservoirs, the inlet and outlet valves of 155 such reservoirs are remotely controlled by the use of SCADA systems. The outlet valve will be automatically closed when there is excessive outflow due to damage of large water mains.

The difficulty of locating and operating valves after mains bursts, especially if the nearby area is flooded, can cause delays in restoring water supply. Consideration is thus being given to the feasibility of installing remotely controlled valves at strategic locations in the network for more speedy handling of mains bursts.

OPERATIONAL EFFICIENCY IMPROVEMENTS

A task group comprising managerial and frontline staff was formed in May 2001 to review the operational procedures of the existing water treatment works. It carried out a pilot study at the Pak Kong Water Treatment Works, the second largest treatment works in Hong Kong, to establish the mechanism for the review.

The task group has made a number of suggestions on streamlining the work procedures that could result in substantial staff savings. The review is being extended to other water treatment works.



利用數碼繪圖系統編製水管分布圖。
Production of mains layout plan by Digital Mapping System.

抽取海水

本署現時採用不銹鋼水泵取代鑄鐵水泵，以提高抽取海水的效能。此外，我們亦考慮以變速水泵取代固速水泵，以期更妥善地配合不斷轉變的供水需求。

外判工作

利用私營機構在資源調配上具備靈活性的優點，本署已把部分工作外判以提高效率，當中包括土木保養工作、保安服務、濾水廠的清潔工作、斜坡維修及測漏等。

品質保證計劃及新措施

一如以往，本署在推行前瞻性的品質保證計劃上，進展良好。年內，機械及電機科工程計劃部的工作、機電及儀器支援服務、測漏工作、分配組到場修理爆裂及滲漏水管的工作，以及用戶服務組處理投訴的工作，均獲得ISO 9001認證資格。

本署下年度採取的新措施，包括為機械及電機科保養部的工作取得認證資格。同時，我們亦正展開工作，提升先前所取得ISO 9000：1994版認證資格的品質管理系統，務求獲得新訂的ISO 9000：2000版認證資格。



本署年內獲頒的 ISO9001 證書。
ISO 9001 Certificates awarded to WSD in the year.

ENERGY EFFICIENCY IMPROVEMENTS

To expedite the energy efficiency analysis of plant operations, an integrated computer package has been developed to collect plant operating data from SCADA systems and upload the data to the WSD Intranet for easy access by staff. Following trial tests, the regional SCADA systems are being connected in stages for completion by the end of 2003.

As a means to reduce pumping costs for topping up the service reservoirs, pilot studies are being conducted on increasing off-peak pumping through adjustments of the level control settings.

Another cost-saving measure is to monitor closely the energy costs and electricity consumption patterns of the major waterworks installations and make timely switching of the tariff of an installation upon a change of demand pattern.

For increasing energy efficiency, pump scheduling tables are prepared for pumping stations and operation staff are trained to select the most energy efficient pump combination under different demand conditions.

SEA WATER PUMPING

Stainless steel pumps are being used in place of cast-iron ones to boost the efficiency of sea water pumping. Meanwhile, consideration is being given to replacing some of the fixed speed pumps by variable speed pumps to better match changing demand conditions.

OUTSOURCING

To take advantage of the flexibility of private sectors in resources deployment, we have contracted out some of our work for efficiency improvement. They include civil maintenance, security services, cleaning of water treatment works, slope inspection and leak detection.

QUALITY ASSURANCE PLAN AND INITIATIVES

We continued to make good progress in pursuing our forward-looking quality assurance plan. During the year, we were awarded ISO 9001 certification for the Mechanical and Electrical Projects Division, the mechanical, electrical and instrument supporting services, the leak detection activities, the distribution function on attendance to mains burst and leaks as well as the consumer services function on handling complaints.

Initiatives to be taken next year will include the activities and functions of the Mechanical and Electrical Maintenance Division. Meanwhile, action is being taken to migrate previously certified management systems under ISO:9000:1994 version to the 2000 version on future renewal of the ISO 9000 Certificates.



將清理濾水廠的工作外判以改善效率。
Contracting out cleaning work of water treatment works to improve efficiency.