

全年回顧 Year in Review

滿足用水需求

Meeting Demand for Water



水務署深知水乃珍貴資源，因此不論水源源頭，
我們均會致力確保食水質量及供水服務效率。

The Water Supplies Department is conscious
that water is a scarce resource and constantly
works to ensure that, irrespective of the source,
Hong Kong's water is maintained for quality and
managed for delivery efficiency.



本年的全年食水總耗用量為
9.51億立方米。

Annual total fresh water
consumption for the year
was 951 million cubic
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951

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million cubic metres

滿足用水需求 Meeting Demand for Water



位於港島東南的大潭篤水塘。
Tai Tam Tuk Reservoir in the south east of Hong Kong Island.

水務署的職責是為香港近七百萬人口提供基本及持續的供水服務。本港用水有兩個主要來源，分別是來自廣東的東江水及來自位於香港郊野公園及鄉郊地區的本地集水區網絡。本署深知水乃珍貴資源，因此不論水源源頭，我們均會致力確保食水質量及供水服務效率。

本港平均七至八成用水由東江輸入特別行政區（特區）。東江水的每日供水量約相當於每日總食水耗用量。輸入的原水若有盈餘，便會貯存於遍佈全港的多個主要水塘。

本港其餘食水供應是透過本身多個集水區收集而來，並貯存在分佈於全港17個水塘內。本港同一時間的存水量可達5.86億立方米。然而，香港在二零零七年經歷了較往常乾旱的一年。分佈於本港各地的龐大水塘及集水區網絡收集的降雨量，較年均下降23%。本年的全年食水總耗用量為9.51億立方米。

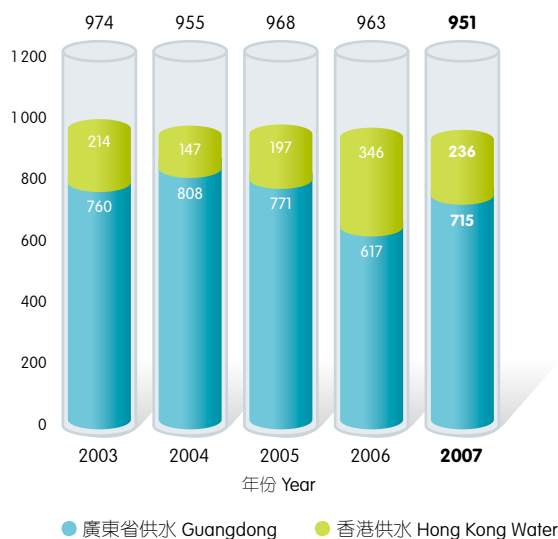
The Water Supplies Department is tasked with the role of delivering essential and sustainable water services for the benefit of Hong Kong's population of almost 7 million people. The city's water comes from two primary sources, the Dongjiang (or East River) in Guangdong and a network of domestic catchments located within Hong Kong's country parks and rural areas. The Department is conscious that water is a scarce resource and constantly works to ensure that, irrespective of the source, Hong Kong's water is maintained for quality and managed for delivery efficiency.

On average, between 70 and 80 percent of Hong Kong's water is piped into the Special Administrative Region (SAR) from the Dongjiang River. The daily supply rate of this water roughly equals to the total daily consumption. Surplus of the imported water, if any, is stored in several major fresh water impounding reservoirs around Hong Kong.

The balance of the city's fresh water supply, gathered within its own water catchments, is stored in the 17 impounding reservoirs across the territory. Hong Kong can store up to 586 million cubic metres of water at any one time. However, in 2007 Hong Kong experienced a drier than normal year. Rainfall collected across Hong Kong's vast network of catchments and impounding reservoirs fell by 23 per cent when compared to an average year. Annual total fresh water consumption for the year was 951 million cubic metres.

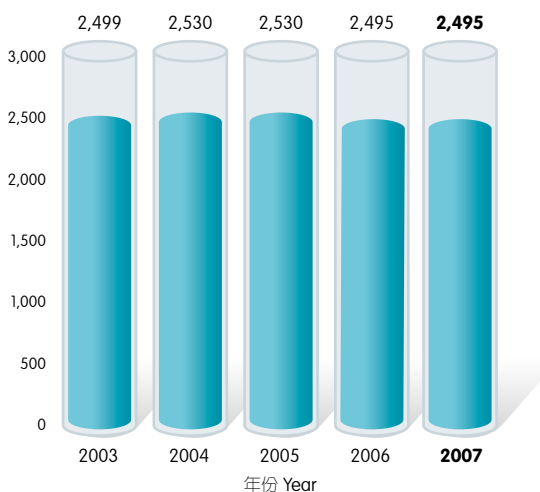
全年供水量 Annual Quantity of Water Supply

百萬立方米 million cubic metres



廣東省供水價格 Price of Guangdong Water

百萬元 \$ million



東江供水

於二零零六年四月簽訂的東江供水協議繼續確保本港可獲得彈性的原水供應，並保證長遠對港供水。供水協議將於二零零八年屆滿，本署於撰寫本報告時，正就未來供水的新協議進行磋商。

需要供港的東江水水量按本港集水區收集的雨水量調節。實際後果是供水協議使本署可更有效地控制水塘存水量，既可盡量減少浪費，亦能節省調配運水的費用。

於二零零六年至二零零八年期間，每年東江水供水價格為港幣 24.948 億元。與二零零四年相比，三年間累積的成本節省達港幣 1.05 億元。

在磋商新協議的同時，廣東省當局已承諾繼續致力保護東江水水源環境，使供港東江水的水質達到國家地表水標準。這樣，處理食水的成本可維持在低廉水平。

Dongjiang Water Supplies

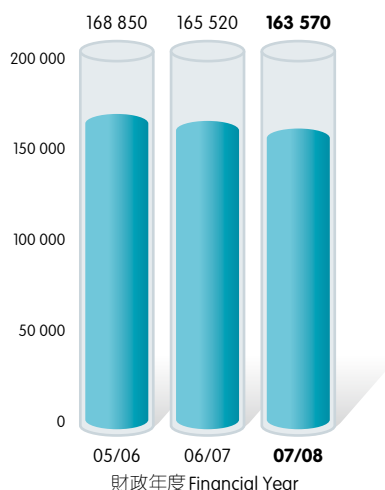
The Dongjiang Water Supply Agreement signed in April 2006 continues to guarantee a flexible supply of water to Hong Kong and assures Hong Kong of a long-term supply. The agreement is due to expire in 2008 and, at the time of writing this report, negotiations are under way on an agreement to cover future supplies.

The amount of Dongjiang water required to be supplied to Hong Kong fluctuates depending on the volume of water collected within Hong Kong's catchments areas. In practical terms, this agreement enables the Department to better control storage levels in its reservoirs, minimising waste and ensuring financial savings on pumping costs.

The annual cost for Dongjiang water covering the period 2006 to 2008 is set at HK\$2,494.8 million. When compared to the 2004 expenditure, a cost saving of HK\$105 million over the 3-year period has accrued.

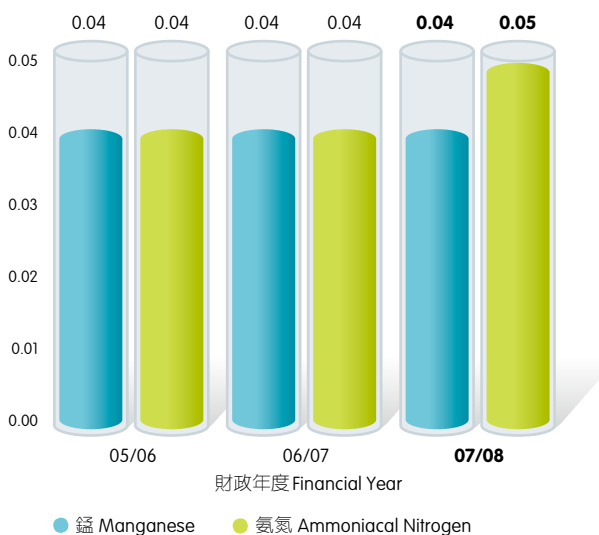
While details of a new agreement are being negotiated, from a quality perspective, the Guangdong authorities have guaranteed that they will continue their efforts to protect the Dongjiang's source environment. The quality of the water that is pumped to Hong Kong meets National Standards for surface water thereby keeping low the domestic water treatment costs.

化驗樣本總數
No. of Samples Taken



東江原水內平均氨氮及錳水平
Average Ammoniacal Nitrogen and Manganese Levels in Dongjiang Water

毫克/公升 mg/l



水質及品質檢定

不論源自廣東省或香港本身的集水區，本署對注入本港供水系統的食水，均實施嚴格的水質化驗標準。監察及化驗包括整個食水處理過程及供水系統內有關的物理、化學、輻射學、生物學及細菌學化驗項目。本署亦會定期在供水系統指定及隨機的地點抽取水質樣本，並採用先進及公認的技術，按嚴格品質保證方案進行分析。

水質監察計劃保證本地供水安全，免受「賈第蟲」及「隱孢子蟲」等有害微生物的影響。水質化驗數據會在本署網站公佈，以供公眾查閱。

「水質事務諮詢委員會」在監察水質方面，繼續擔當重要角色。去年，委員會尤其重視涉及樓宇水質的問題，以及其他水源和公眾教育的項目。委員會代表團更參觀了深圳水庫和惠州市梅湖水質淨化中心，考察廣東省當局的保護環境及供水措施。主席何建宗教授表示，委員會對東江流域的水質及所採取的污染控制措施感到相當滿意。

Water Quality and Compliance

Strict quality testing standards are adopted for Hong Kong's water along its supply chain, irrespective of whether the water is sourced from Guangdong or from Hong Kong's own water catchments. Monitoring and testing involve physical, chemical, radiological, biological and bacteriological testing programmes during the water treatment process and throughout the supply system. Regular water samples taken from selected and randomly determined points along the supply chain are analysed using advanced and proven technology that conforms to rigorous quality assurance protocol.

Water monitoring programmes confirm that the water supply is safe and free of harmful organisms such as Giardia and Cryptosporidium. Quality test data are published on the Department's website for the public information.

The Advisory Committee on the Quality of Water Supplies (ACQWS) has continued to play a key role in monitoring water quality. Over the past year, the committee looked specifically at issues concerning water quality in buildings, projects focused on alternative water resources and public education. A delegation representing the committee visited the Shenzhen Reservoirs and the Huizhou Mei Lake Water Purification Centre to study the environmental and supply protection efforts undertaken by the Guangdong authorities. The Chairman, Professor Ho Kin Chung said the committee was impressed with the quality of the water and the anti-pollution measures in place along the Dongjiang.



實驗室人員在九龍化驗室的工作情況。
Laboratory staff working in Kowloon Laboratory.

一項住宅用戶及物業管理公司對樓宇食水水質的意見調查顯示，大多數用戶對自來水水質持正面的評價。

食水安全指標乃根據國際認可指引制定，當中包括世界衛生組織頒佈的指引。本署的「水安全計劃」包括根據風險管理及多重屏障方法制定的框架，而這項全方位計劃正分階段實施。

A customer opinion survey of domestic customers and property management companies on the quality of tap water found that the majority had a positive perception of tap water quality.

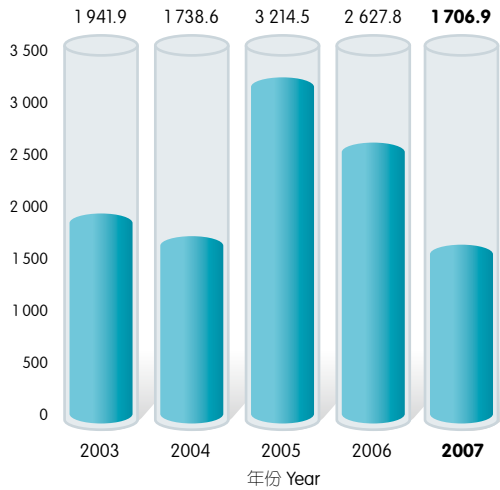
Water safety objectives are based on internationally accepted guidelines including those of the World Health Organization (WHO). Our Water Safety Plan (WSP) includes a framework based on risk management with a multi-barrier approach. The multi-faceted plan is being implemented in phases.



實驗室人員正進行細菌化驗。
Laboratory staff performing bacteriological analyses.

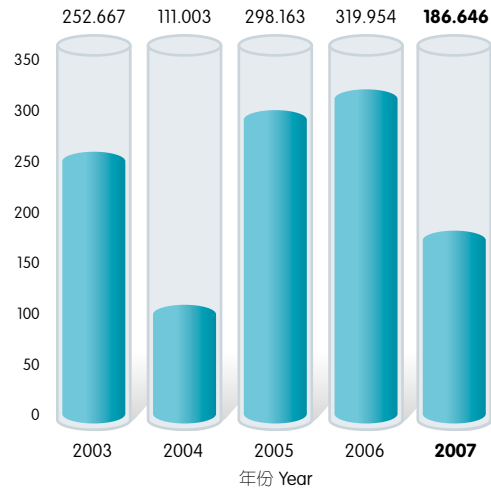
**全年降雨量
Annual Rainfall**

毫米 millimetres



**全年集水量
Annual Yield**

百萬立方米 million cubic metres



其他水源

為節約食水，本港正逐步增加採用海水作為樓宇沖廁用水的主要另類水源。本署於海傍鹹水抽水站按本署設定的水質標準處理海水，隨後輸入用戶樓宇或貯存於配水庫。本港約八成人口使用鹹水沖廁。

年內，本署於貯存鹹水的露天配水庫採取適當步驟，以免海藻滋生。本署定期監察這些水庫中的鹹水，以確保符合沖廁用水的水質標準及指標。

本署認為，使用再造水在節約用水計劃中佔重要地位。相關試驗計劃的調試已臨近尾聲，本署計劃將石湖墟污水處理廠生產的再造水用於上水及粉嶺地區的沖廁及其他非飲用用途上。

除此之外，政府亦正進行污水循環再用及雨水收集方面的試驗，並鼓勵私人發展商考慮採納有關措施。本署亦不斷跟進海外同業如何改良海水淡化廠的設計及運作。我們相信，海水淡化長遠而言將為善用水資源的重要成份。

Alternative Water Sources

To conserve supplies of fresh water, Hong Kong is progressively increasing the use of sea water as an important alternative source of flushing water for buildings. Sea water, treated at seafront salt water pumping stations to quality standards set by the Department, is piped to end user buildings or into service reservoirs for storage. About 80 % of Hong Kong's population uses salt water for flushing purposes.

During the year, steps were taken to prevent algae growth in the open service reservoirs that store salt water. The salt water in these reservoirs is regularly monitored to ensure it complies with the quality standards and objectives set for flushing water supplies.

The use of reclaimed water is considered equally important in our conservation programme. Pilot schemes are in their final stages of trials and the Department is planning for the use of reclaimed water produced by the Shek Wu Hui Sewage Treatment Works for toilet flushing and other non-potable uses in the Sheung Shui and Fanling areas.

In parallel with this, the Government has been conducting trials in grey water reuse and rain water harvesting and encouraging private developers to consider adopting these measures. Improvements to the design and operation of sea water desalination plant overseas are being kept under constant review. We believe that in the long term, desalination would play a part in the efficient use of water resources.

為進一步拓展沖廁鹹水供應系統，本署計劃實施一系列基礎建設系統改善工程，有關計劃已獲當局批准。是項計劃將可滿足更多地區的需要，並提升現有鹹水沖廁系統的可靠性。主要工程項目包括薄扶林、元朗及天水圍地區的全新鹹水供應系統，以及實施長沙灣的環形水管系統。

節約用水

「全面水資源管理」計劃對於香港實現可持續發展的抱負，以及更有效應付氣候變化及降雨量不足等不確定因素非常重要，亦有助促進香港與其他珠江三角洲市政府的緊密合作關係。本署倡議的「全面水資源管理」計劃包括四個主要元素：開拓水源、再造使用、節約用水及保護和管理水資源。

在過去十二個月內，本署的工作重點為透過公眾教育及節水設備推廣計劃，增強市民節約用水的意識。本署已加強對社區各個階層的公眾教育計劃，特別是年輕一代。本署會向大眾市民積極推廣使用節水設備，並正計劃推出節水效益標籤計劃，協助消費者選購有助節水的「低流量」浴室裝置及器具。

Plans to undertake a programme of capital works and system improvements which will further extend the supply of salt water for flushing have been approved. This will meet the needs of more areas and improve the reliability of existing salt water flushing systems. Major projects include new salt water systems to serve Pok Fu Lam, Yuen Long and Tin Shui Wai as well as the implementation of a ring main system for Cheung Sha Wan.

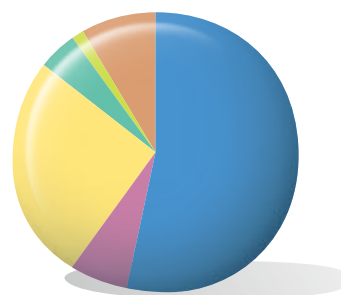
Water Conservation

A Total Water Management (TWM) programme is vital to achieve sustainability ambitions and better prepare Hong Kong for uncertainties such as climate change and low rainfall. It also helps enhance our role as a good neighbour of other municipalities in the Pearl River Delta. The TWM programme introduced by the Department covers four key elements: new water resources, reclamation, water conservation and the protection and management of water resources.

The emphases over the past 12 months included raising water conservation awareness through programmes of public education and the promotion of water saving devices. Public education programmes have been stepped up across all sectors of the community particularly the young people. The use of water saving devices will be actively promoted and a water efficiency labelling scheme is being planned to help consumers select "low flow" plumbing fixtures and appliances that help conserve water.

二零零七年按用水類別劃分的食水用量(百萬立方米)(及佔總量百分比)
Annual Water Consumption 2007 by sectors in mcm (and percentage of total)

	百分比 percentage	百萬立方米 mcm
● 住宅用水 Domestic	53.5	509
● 工業用水 Industrial	6.7	64
● 服務業及商業用水 Service Trades	25.4	242
● 免費供水 Free Supply	4.6	44
● 建築及船舶用水 Construction & Shipping	1.3	12
● 臨時淡水沖廁 Flushing	8.5	80
食水總用水量 Total Fresh Water Consumption	100	951



全年食水用水量（按用水類別劃分）
Annual Water Consumption (by sectors)

百萬立方米 million cubic metres

年份 Year	2003	2004	2005	2006	2007
住宅用水 Domestic	511	493	512	513	509
工業用水 Industrial	77	75	72	69	64
服務業及商業用水 Service Trades	234	245	244	243	242
免費供水 Free Supply	52	42	44	43	44
建築及船舶用水 Construction & Shipping	18	16	14	13	12
臨時淡水沖廁 Flushing	82	84	82	82	80
食水總用水量 Total Fresh Water Consumption	974	955	968	963	951



不論源自廣東省或香港本身的集水區，本署對注入本港供水系統的食水，均實施嚴格的水質化驗標準。
Strict quality testing standards are adopted for Hong Kong's water along its supply chain, irrespective of whether the water is sourced from Guangdong or from Hong Kong's own water catchments.



上：經常保持水塘安全和清潔對部門提供優質食水非常重要。
Upper: Keeping our impounding reservoir safe and clean is crucial to the provision of quality water supply by the Department.

下：透過顯微系統密切監測賈第蟲及隱孢子蟲。
Lower: Close monitoring of Giardia and Cryptosporidium parasites through microscopic system.

偵測並控制供水系統的滲漏是節水的首要課題。本署已改善測漏及監察系統，以配合本署的地下資產管理計劃。這項計劃與正進行的更換及修復老化水管計劃同步進行。為提升本署監察配水網絡的能力，本署繼續在選定的供水區內的策略位置安裝流量計及數據記錄儀。水壓及流量數據每日自動傳輸至中央電腦。分析這些數據，有助員工確認滲漏位置，迅速安排維修工作。

The detection and control of water leaks along the supply chain is a conservation priority. Leakage detection and monitoring systems have been upgraded as part of the Department's management of underground assets in parallel with the ongoing replacement and rehabilitation programme for aged water mains. To enhance our ability to monitor distribution networks, we have been installing flow meters and data loggers at strategic locations in selected supply zones. Pressure and flow data are automatically sent daily to centralised computers. Analysis of these data helps staff identify the location of water leaks and arrange remedial work expeditiously.

我們的目標是進行精確的測試和量度，確保提供優質用水。
 We aim at carrying out tests and measurements with accuracy to ensure a high quality of water supply.



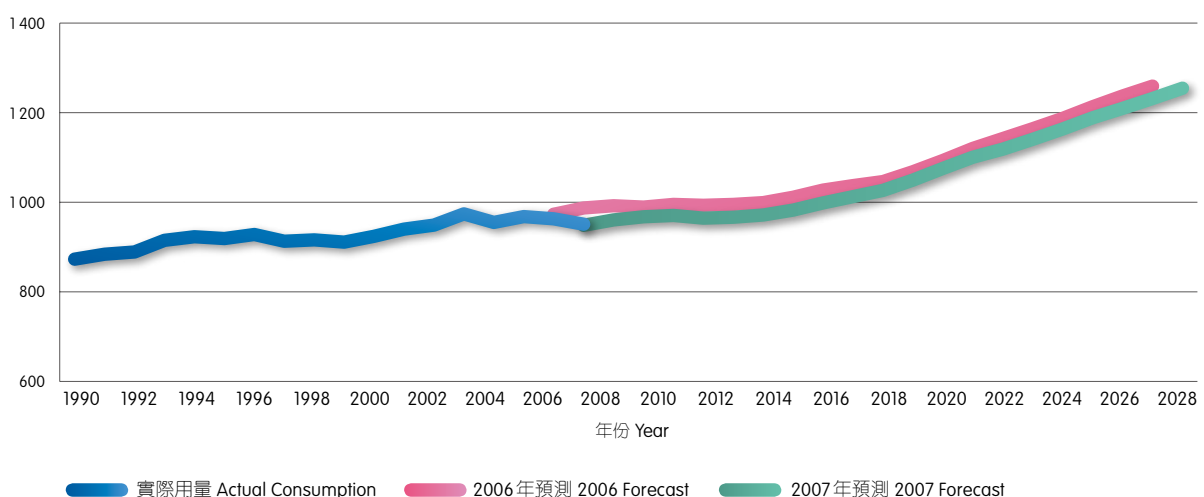
本署亦於配水網絡實施水壓管理計劃，藉以減少水管滲漏，同時亦為用戶維持穩定的供水水壓。有關計劃起初以試驗形式在較小的區域實施，如今已擴展至兩個主要的配水庫供水區。本署亦繼續監察部分住宅屋苑及鄉村地區的耗水量，協助確認內部管道可能出現的滲漏及任何非法用水情況。

現時，政府強制規定本港的新建大型發展項目必須安裝總水錶，以便測量發展項目中無記錄取水的用水量，並偵查非法用水和管道滲漏的情況。

We are also implementing pressure management schemes in the distribution networks to reduce water mains leakage and at the same time maintain a stable supply pressure to the customers. These schemes have initially been implemented in small areas as pilot schemes and are now being extended to two major service reservoir supply zones. We also continue to monitor water consumption at some housing estates and rural villages to help identify possible leakages in internal pipes as well as any unauthorised use of water.

Master meters are now mandatory in new and large developments across Hong Kong to facilitate gauging of unmetered consumption and detection of unauthorised use of water as well as leakage from pipes within these developments.

二零零七至二零二七年食水需求預測
 Fresh Water Demand Forecast Projection 2007-2027



測漏統計數字
Statistics on Leak Detection

食水
Fresh Water

各財政年度所進行的測漏工作 Tests Conducted Per Financial Year	2003/04	2004/05	2005/06	2006/07	2007/08
最低晚間流量測試次數 No. of Minimum Night Flow Tests	320	300	304	292	291
分段流量測漏次數 No. of Step Tests (or Leakage Tests)	70	92	64	60	57
日間流量測試次數 No. of Day Flow Tests	1 361	1 838	2 079	2 354	2 429
音聽視察次數 No. of Sounding & Visual Inspections	3 286	3 358	3 105	3 238	4 220
測試及視察次數總計 Total No. of Tests & Inspections	5 037	5 586	5 552	5 944	6 997
經發現的滲漏個案數目 No. of Leaks Detected	3 651	4 231	3 758	3 107	2 998
估計每日可節省之食水量(立方米) Estimated Quantity of Fresh Water Saved (cu.m/day)	91 993	99 293	108 090	109 817	126 019

海水
Sea Water

各財政年度所進行的測漏工作 Tests Conducted Per Financial Year	2003/04	2004/05	2005/06	2006/07	2007/08
最低晚間流量測試次數 No. of Minimum Night Flow Tests	0	8	0	0	0
分段流量測漏次數 No. of Step Tests (or Leakage Tests)	8	4	3	3	3
日間流量測試次數 No. of Day Flow Tests	48	127	268	332	336
音聽視察次數 No. of Sounding & Visual Inspections	557	400	238	153	222
測試及視察次數總計 Total No. of Tests & Inspections	613	539	509	488	561
經發現的滲漏個案數目 No. of Leaks Detected	219	199	132	116	161
估計每日可節省之海水量(立方米) Estimated Quantity of Sea Water Saved (cu.m/day)	12 598	11 948	40 870	30 642	45 592



左上：檢查水質。
Left upper: Check for water quality.



左下：員工使用數據記錄器材確認滲漏位置。
Left lower: Staff identifying the location of water leaks with the use of data logging device.

非法用水

根據水務設施條例的規定，未經水錶量度而非法取水即屬違法。本署負責有關水務設施條例的行政工作，並對違例者採取法律行動。在過去十二個月內，本署檢控組聯同其他執法部門，成功開展多項針對非法取水的聯合執法行動。



負責在船灣淡水湖內抽取水樣本的小船。
Boat for taking water samples in Plover Cove Reservoir.

Illegal Water Use

It is an offence under the Waterworks Ordinance (WVO) to draw water illegally without the measurement by a meter. The Department is responsible for administering the WVO and for taking enforcement action against infringements. Over the past 12 months, our prosecution unit has successfully conducted several joint enforcement operations with other departments against the illegal taking of water.