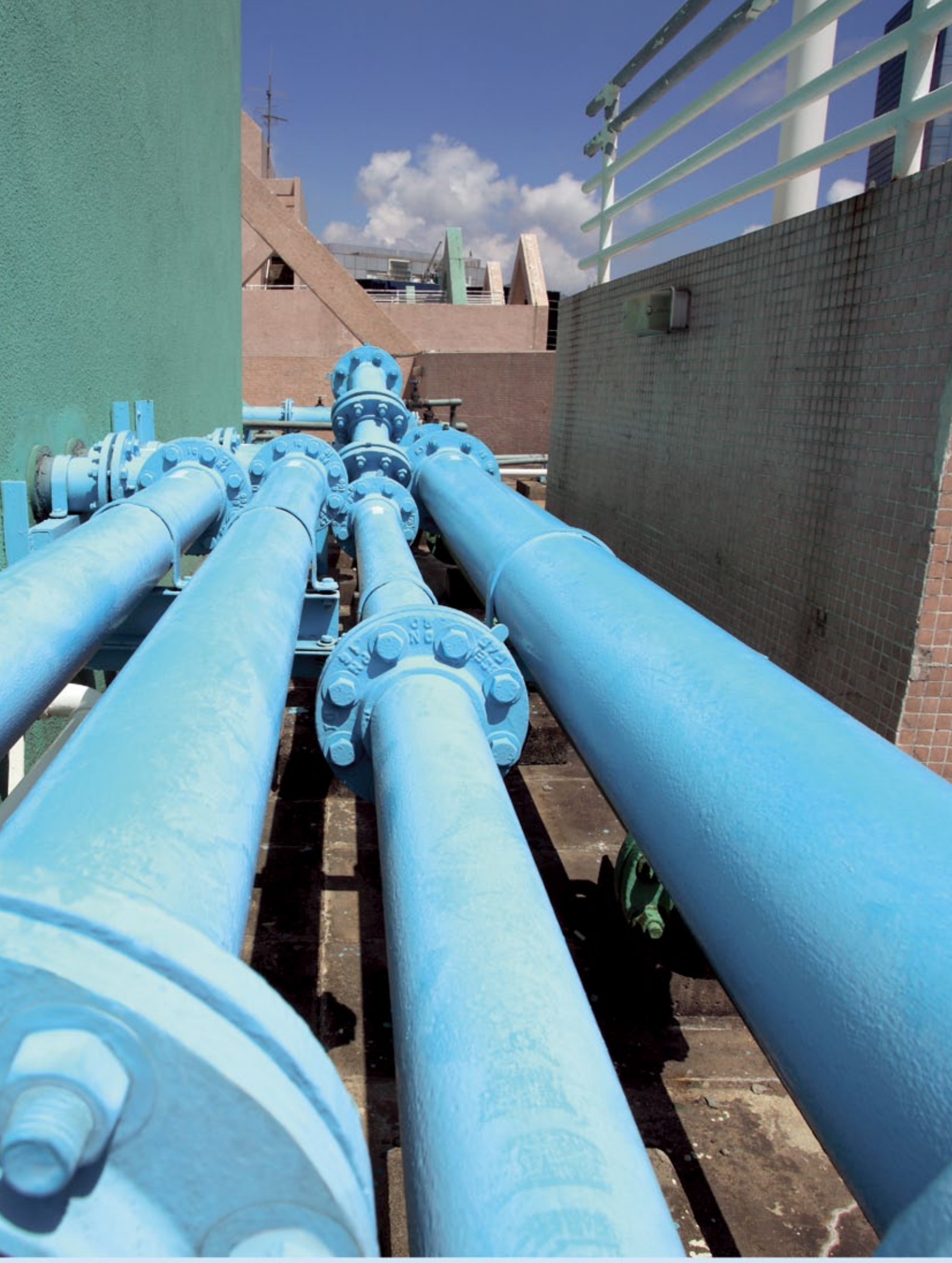
全面水資源管理
Total Water Management

刷牙、洗手和剃鬚時，不長開水龍頭，每日可節省**26**公升的水。

Turning off taps while brushing teeth, soaping hands and shaving, can save **26** litres of water a day.



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食水是彌足珍貴的天然資源。未來數十年，因應天氣轉變和鄰近珠三角區域對水資源的需求，我們必須居安思危，有效管理水資源。

Water is a finite resource. Over the coming decades the impact of climate change together with the growing competition for available supplies from cities and counties across the Pearl River Delta, means we will need to manage our resources carefully.

供求管理

二零零八年，政府推行全面水資源管理策略，力求在水的供應和需求間達致理想的平衡，以保證能可持續地運用水資源。這策略的重點是綜合各界努力，從節約用水、開拓新水源、使用再造水和管理水資源四方面著手，達致以可持續的方式管理水資源的供求。

過去一年，本署在用水需求管理方面展開多項活動，主要包括：對公眾推行節水教育，推廣節水器具；以及在供水系統中，加強控制滲漏和擴展使用海水沖廁。

在供水管理方面，本署實施多項保護水資源的措施，範圍包括集水區、水塘和供水管道。我們繼續積極推行循環再用洗盥污水等再造水試驗計劃，並且不斷探討海水化淡的可行性。

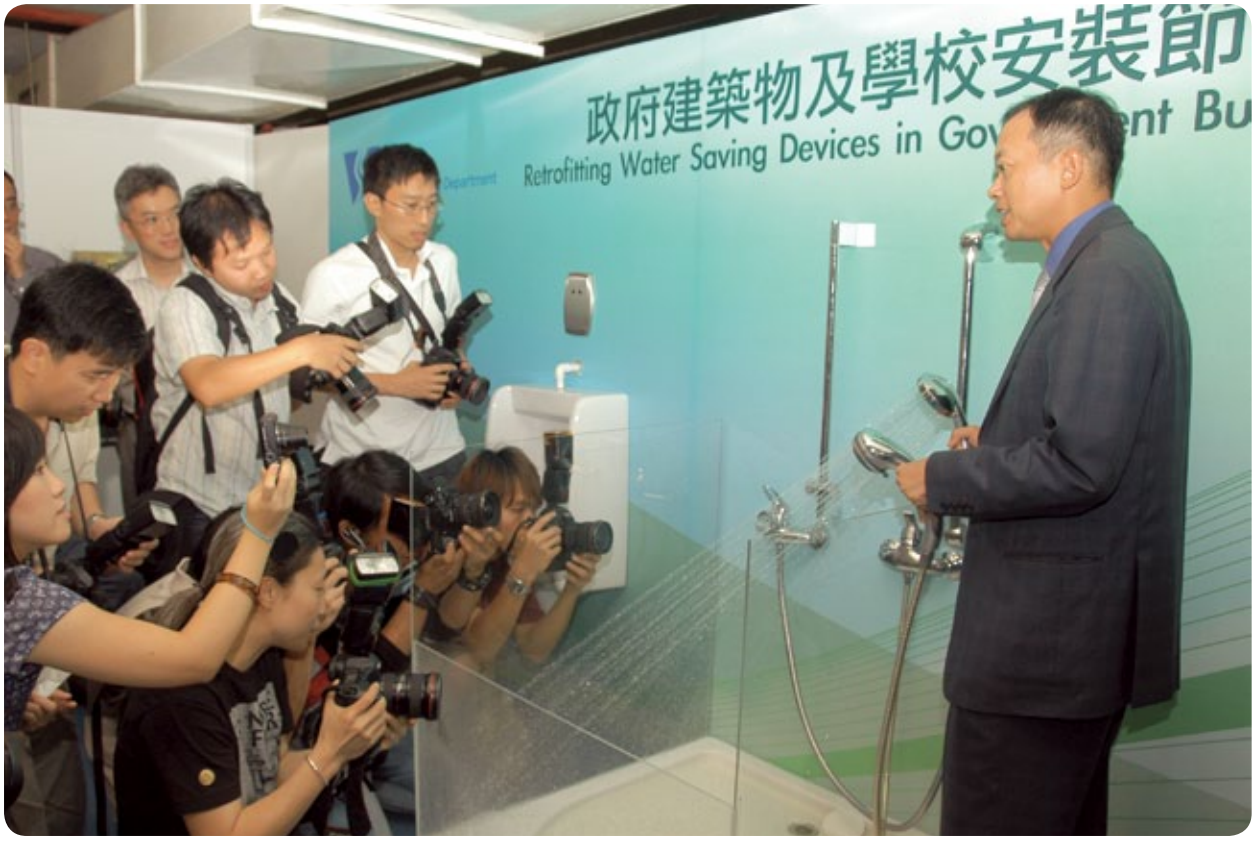
Demand and Supply Management Tools

In 2008, the Government introduced a Total Water Management strategy which aims to achieve an optimal balance between water demand and water supply in order to ensure the sustainable use of resources. Demand and supply are managed in an integrated multi-sectoral and sustainable manner and the strategy targets four main areas: water conservation, new water resources, water reclamation and the management of water resources.

Key initiatives implemented in terms of water demand management over the past 12 months include public education on conservation, the promotion of water saving devices, enhanced leakage control along the supply system and extended use of sea water for toilet flushing.

From a supply management perspective, measures have been taken to strengthen the protection of water resources within catchments, reservoirs and along the supply line. We have continued to trial pilot projects on water reclamation involving the reuse of grey water and kept exploring the potential of sea water desalination.

位於水務署旺角辦事處的宣傳海報帶出節約用水的重要訊息。
A poster promoting water conservation sends an important message from the WSD Mong Kok Office.



在記者招待會上介紹為政府樓宇及學校更換的節水效益器具。
Water saving devices to be retrofitted in government buildings and schools are unveiled at a press conference.

節約用水

我們承諾並貫徹以節約用水來控制用水需求的增長。我們強調節水器具的重要性，以鼓勵大眾使用貼有用水效益標籤的用水器具，節約用水。在宣傳節約用水的公眾教育活動中，我們鼓勵消費者選用低流量式水龍頭及花灑頭、雙掣式沖廁水箱及節流器。

節水的用水裝置和器具現正分階段納入用水效益標籤計劃。二零零九年九月，計劃推行的首批節水產品是沐浴花灑。在不到一年的時間裏，超過50款花灑型號已獲登記使用用水效益標籤。在二零一零和一一年，本署計劃推出水龍頭和洗衣機的效益標籤。我們又委聘顧問，參考外地節水器具的規格，以制定本港適用的標準，並應用在所有政府工程項目中，減少耗水量。市民增加使用節水器具，有助節約用水。

Conservation

We operate on the promise that we need to contain demand through conservation. In particular, we have highlighted the importance of water saving devices and the need to look for appliances that carry water efficiency labels. A publicity campaign has been launched to encourage consumers to use water saving devices such as low flow taps and shower heads, dual flush cisterns and flow restrictors.

The Water Efficiency Labelling Scheme (WELS) for plumbing fixtures and appliances is being introduced in a phased manner. In September 2009, we launched labels for water efficient showers. Over less than a year, more than 50 models of shower heads have been registered with the scheme. We plan to extend WELS to water taps and washing machines in 2010 and 2011. A consultancy study has been launched to review overseas standards on water saving devices and to develop a technical standard for Hong Kong. This technical standard will apply to all government projects to reduce water consumption. Increased use of water saving devices across the community will assist water conservation.

本署鼓勵私人發展商在新建或翻修的工程計劃中，優先使用節水器具和節約用水的設施。本署與香港綠色建築議會攜手，並推動建築環境評審法計劃，對能融入環保理念的樓宇設計給予獎勵。與此同時，本署繼續為政府樓宇及學校的水喉潔具進行更新計劃，裝置節水設備。

Private developers are being encouraged to give priority to the use of water saving devices and water conservation features in both new developments and renovation projects. Working with the Hong Kong Green Building Council and the Building Environmental Assessment Method Scheme, the Department awards credits to designs that incorporate conservation features. The Department itself has continued its programme of retrofitting plumbing fixtures with water saving devices in government buildings and schools.

公共宣傳及教育

過去一年，本署展開了一系列公眾教育活動，向各界人士，特別是年青人，宣傳節約用水。

已推出的「節約用水，從家開始」教育活動，加強了本署在學校節水宣傳的力度。節水活動吸引了來自100多所小學約33 000名學生參加。所有小學都獲派發水務署的參考資料套，用以推廣負責任的用水態度。此外，校園用水考察的試驗計劃也在進行中，藉以鼓勵學生努力在日常生活中節約用水，分享節水心得。

二零一一年初，本署將為中學教師和學生製備有關供水的教材套，作為通識科目的一部分。教材套包括的輔助教材，能加深學生瞭解有關供水的問題，以及明白節約用水的重要。

Publicity Campaigns and Education

Over the past year, we have launched a series of public education campaigns that focus on water conservation, particularly targeting at the younger generation.

School education programmes have been enhanced with the launch of a 'Water Conservation Starts from Home' campaign. More than 100 primary schools with some 33 000 students have participated in the conservation campaign. Information kits have been distributed to all primary schools for promoting a responsible attitude of using water. In addition, a pilot scheme involving school water audits is under way. This encourages students to examine areas where water conservation is feasible to develop, and to make suggestions on appropriate water saving practices.

In early 2011, we will introduce a teaching kit on water supplies to secondary school teachers and students as part of the liberal studies curriculum. This kit will contain supplementary teaching material that will facilitate students to acquire an in-depth understanding of water supply issues and the importance of water conservation.

鼓勵大眾珍惜點滴。
Water conservation awareness is widely promoted.

向小學生灌輸正確的用水態度。
Working to instil a culture of responsible water use.

漏水噪聲相關儀。
Leak noise correlator.

監測滲漏技術

偵測並控制供水系統的滲漏是節水的首要任務。為此，本署進行更換及修復水管計劃時，亦同步提升所有的滲漏監測控制系統。本署已在選定的供水區內的策略性位置安裝流量計及數據記錄儀。水壓及流量數據自動傳輸至中央監察電腦，這些數據有助員工更快捷地辨別懷疑滲漏的初步跡象，並及時安排適切的跟進和維修。

二零一零年年底，本署計劃試用新技術，在充壓之水管系統中監測滲漏。在直徑不少於300毫米的水管中，安裝聲音感應器或閉路電視鏡頭來監測滲漏點和檢查管道內的情況。

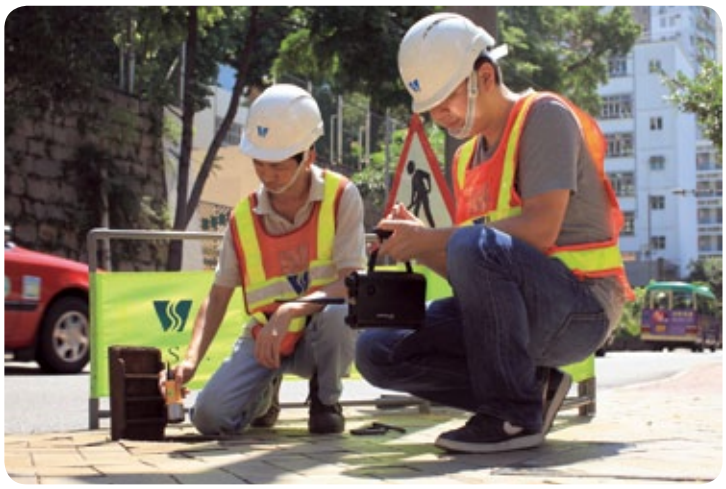
本署現正於全港各食水供應區內推行水壓管理計劃，此計劃目的是要減少水管滲漏，同時亦維持足夠及穩定的水壓。在12個區展開的調查研究中，部分經已完成，其餘仍在進行。在已完成調查的區內，設置水壓管理系統的工作現正在進行中。

Technology for Mains Leaks

Detecting and controlling leaks remains a conservation priority with all detection systems upgraded in parallel with the Department's ongoing replacement and rehabilitation programme for aged water mains. New generation water flow meters and noise loggers have been installed at strategic locations in selected supply zones. Leak noise data are sent to a control centre enabling staff to quickly identify potential leaks and arrange appropriate follow up action and remedial work.

A pilot scheme is scheduled to begin in late 2010 using a new technology to detect leaks along pressurised water mains. An instrument using an acoustic sensor or a CCTV camera will be inserted along water mains with a diameter of not less than 300 millimetres to detect leakage points and inspect the internal condition of pipes.

Pressure management schemes which aim to reduce water mains leakage, whilst maintaining adequate and stable pressure are being implemented across the city's supply zones. Investigative studies in 12 zones have either been completed or are under way. In zones where the studies have been completed, the pressure management systems are being installed.



職員實地探測水管滲漏。
Our staff are detecting the leaks on site.

從海中抽取的鹹水，在海傍海水抽水站經過濾隔及消毒後成為沖廁用水。
Salt water, extracted from the sea, becomes flushing water after screening and disinfection at a seafront salt water pumping station.

選用替代淡水的水源

節水是保護水資源的重要方法，與此同時，本署繼續尋找飲用水和非飲用水的替代水源。

多年來，海水是商業及住宅樓宇沖廁用水的主要水源。海水於海傍抽水站進行隔濾及消毒，以符合有關的水質指標；隨後被輸送到用戶樓宇作為沖廁用水，或貯存於海水配水庫。

現時，本港約八成人口使用海水沖廁。本署已開展了一系列基礎建設系統改善工程，以進一步拓展沖廁用的海水供應系統。主要工程項目包括薄扶林、元朗及天水圍地區的全新海水供應系統。擴展東涌地區海水供應系統的計劃亦已展開。與此同時，本署將在長沙灣設置環形水管系統，並會更新灣仔的海水供應系統，為更多市民服務。

Adopting Fresh Water Alternatives

While conservation is a key tool, the Department continues to look at alternative sources of water for both potable and non-potable use.

Sea water has, for many years, been an important source of flushing water in commercial and residential buildings. This sea water is screened and disinfected at seafront pumping stations to meet water quality standards and then piped as flushing water to end user buildings or into salt water service reservoirs for storage.

Currently about 80 per cent of Hong Kong's population uses sea water for flushing purposes. The Department has begun a programme of capital works for system improvements and extensions to the sea water supply network. Major projects include new sea water supply services to Pok Fu Lam, Yuen Long and Tin Shui Wai while planning work for extension to Tung Chung area has also commenced. A ring mains system will be implemented for Cheung Sha Wan and Wan Chai's sea water supply system will be upgraded and extended to serve more people.

定時檢驗海水水質。
Regularly testing on the quality of sea water.

海水化淡　未來水源

為維持可靠的食水供應，本署繼續探索海水化淡技術。許多國家都開始建設海水化淡工程，將海水處理變成可飲用水。

在香港，我們將密切留意海外在這方面的技術發展。逆滲透技術在屯門和鴨脷洲試驗成功，確認了在香港以逆滲透技術進行海水化淡是可行的。相關試驗在不同地區、不同特質的海水作測試，成效理想。

使用再造水

使用再造水是把經過不同程度處理的污水，變作可飲用或非飲用水。多個國家和城市已引入或試驗再造水計劃，來應付水資源短缺的困境。成功的再造水計劃可把質素較低的水（質素較低的水是指從浴室、洗手盆和廚房洗滌盆等收集得來的洗盥污水經處理後再使用），代替現時使用的質素較高的食水，用作沖厠、灌溉等非飲用用途。

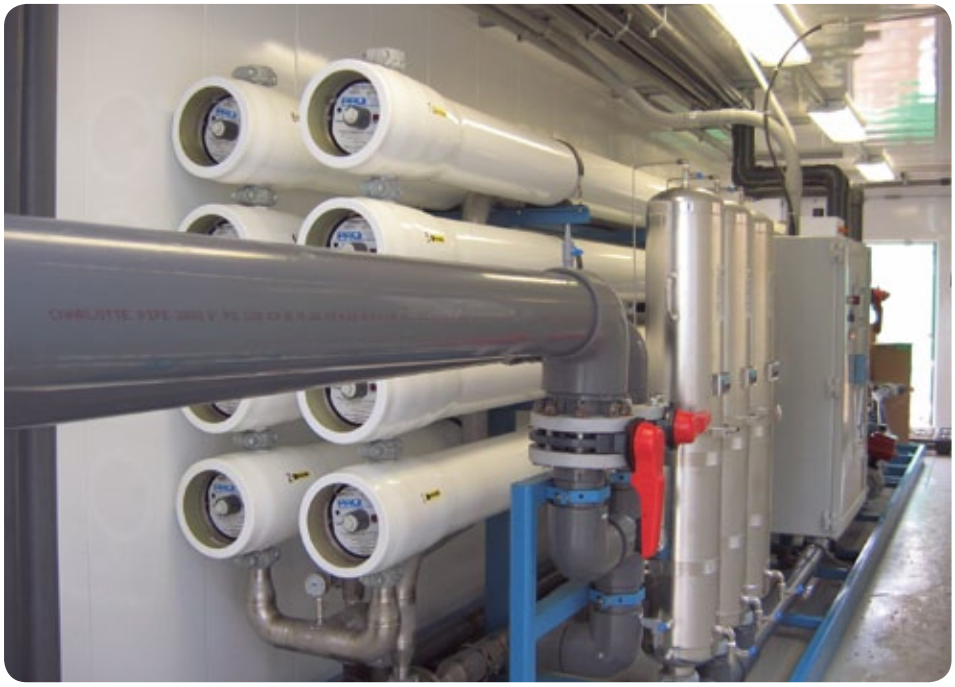
Desalination as a Future Source

On a separate front, the Department continues to explore desalination as a solution to long term water supply needs. Many countries are now embarking on the construction of desalination schemes that will yield drinkable water.

In Hong Kong, we continue to monitor overseas developments in terms of technology. The pilot schemes successfully implemented at Tuen Mun and Ap Lei Chau, using reverse osmosis technology, have ascertained that the schemes are technically viable for Hong Kong conditions. Located in areas that have different sea water characteristics, the pilot plant had performed well.

Water Reclamation

Water reclamation or recycling is the treatment of municipal wastewater which is then used as either potable or non-potable water, depending on the extent of treatment. This process is in practice or under consideration in many countries and cities as an answer to water shortages. Successful schemes can replace high quality water being used for non-potable purposes such as toilet flushing and landscape irrigation, with lower quality water. This lower quality water is referred to as grey water and can be collected from baths, showers, wash basins and kitchen sinks, treated, and then reused.



以逆滲透技術在香港進行海水淡化，技術上是可行的。
Using reverse osmosis technology for sea water desalination is technically viable in Hong Kong conditions.

政府在石湖墟污水處理廠推行試驗計劃，生產再造水，供應給上水及粉嶺地區，作沖廁及灌溉用途，成效顯著，用戶反應積極正面。昂平污水處理廠也推行了類似計劃，利用再造水灌溉和沖廁，成效亦令人滿意。本署正策劃為上水和粉嶺地區居民推出以再造水作沖廁和其他非飲用用途的項目。預計項目全面推行後，每年可為香港節省2 100萬立方米的食水，相等於香港總用水量的1.5%。

A pilot scheme at the Shek Wu Hui Sewage Treatment Works where water is recycled for toilet flushing and gardening in the Sheung Shui and Fanling areas is proving a success with, to date, a positive public response. A similar scheme is in use at the Ngong Ping Sewage Treatment Works with positive results in terms of water produced for irrigation and toilet flushing. We are planning reclaimed water scheme for residents in Sheung Shui and Fanling for toilet flushing and other non-potable uses. Upon completion, 21 million cubic metres of water will be saved annually. That is equivalent to 1.5 per cent of Hong Kong's total water use.

非法用水

根據水務設施條例的規定，未經水務監督的水錶量度，而從水務設施取水即屬違法。本署負責有關條例的行政工作，並對違例者採取法律行動。在過去12個月，本署檢控組向75個非法取水個案作出檢控行動，該等個案的被告全被裁定罪名成立。傳媒的報道亦有助遏止此等非法行為。

在一些現有大型屋邨及鄉郊地區安裝的總水錶，繼續協助本署監察耗水量，並偵查滲漏和非法用水的情況。此外，現時政府強制規定，本港的新建發展項目必須安裝總水錶。

Illegal Water Use

It is an offence under the Waterworks Ordinance (WWO) to draw water illegally from the waterworks without a metered measurement by the Water Authority. The Department is responsible for administering the Ordinance and for taking enforcement action against infringements. Over the past 12 months, our Prosecution Unit instituted 75 prosecutions against illegal use of water with convictions in all cases. With the associated media attention, the prosecutions have helped curb illegal water use.

Master meters installed at some existing large housing estates and rural villages continue to help monitor water consumption and identify problems of leakage and unauthorised use. These meters are mandatory in new and large developments.

展望未來

在全面水資源管理策略下，我們會不時檢討供應和需求各方面的措施，務求節約用水和珍惜點滴的意識在社會上世代相傳，奠定香港可持續發展的基礎。

Long Term Positioning

Under the Total Water Management strategy, all measures whether taken from a demand or a supply perspective, will be subject to future review to ensure that community awareness about the importance of water conservation will last for generations, underpinning the sustainable development of Hong Kong.

測漏統計數字（二零零九／一零年度）
Statistics of Leak Detection (2009/10)

食水 Fresh Water

各財政年度所進行的測漏工作
Tests Conducted Per Financial Year

	2005/06	2006/07	2007/08	2008/09	**2009/10**
最低晚間流量測試次數 No. of Minimum Night Flow Tests	304	292	291	278	**276**
分段流量測漏次數 No. of Step Tests (or Leakage Tests)	64	60	57	65	**30**
日間流量測試次數 No. of Day Flow Tests	2 079	2 354	2 429	2 793	**3 269**
音聽視察次數 No. of Sounding & Visual Inspections	3 105	3 238	4 220	4 438	**4 914**
測試及視察次數總計 Total No. of Tests & Inspections	5 552	5 944	6 997	7 574	**8 489**
經發現的滲漏個案數目 No. of Leaks Detected	3 758	3 107	2 998	2 598	**2 563**
估計每日可節省的食水量（立方米） Estimated Quantity of Fresh Water Saved (cubic metres/day)	108 090	109 817	126 019	127 244	**93 731**

海水 Sea Water

各財政年度所進行的測漏工作
Tests Conducted Per Financial Year

	2005/06	2006/07	2007/08	2008/09	**2009/10**
最低晚間流量測試次數 No. of Minimum Night Flow Tests	0	0	0	0	**0**
分段流量測漏次數 No. of Step Tests (or Leakage Tests)	3	3	3	2	**2**
日間流量測試次數 No. of Day Flow Tests	268	332	336	325	**327**
音聽視察次數 No. of Sounding & Visual Inspections	238	153	222	207	**155**
測試及視察次數總計 Total No. of Tests & Inspections	509	488	561	534	**484**
經發現的滲漏個案數目 No. of Leaks Detected	132	116	161	153	**154**
估計每日可節省的食水量（立方米） Estimated Quantity of Fresh Water Saved (cubic metres/day)	40 870	30 642	45 592	113 201	**18 204**