

全年回顧 Year in Review

生態效益 ECO Efficiency

本署的職責是以不危害、不污染環境的方式，
為大眾市民提供安全有效供水服務。

**It is the Department's responsibility
to safely and efficiently channel water
supplies to the community in an
environmentally safe and friendly manner.**

本港集水區面積約為300平方公里。

Some 300 km² of the usable land in
Hong Kong is catchment area.

300

平方公里
km²



生態效益

ECO Efficiency

水是生命必需。

Water is an essence of life.

隨著全球對於善用天然資源日益關注，水務署繼續確保營運及供水模式符合可持續發展的基礎。

本署的職責是以不危害、不污染環境的方式，為大眾市民提供安全有效供水服務。去年，本署根據這方式推出多項革新，包括遵守《清新空氣約章》，以至開發太陽能工作車等一系列活動。時至今日，環境保護已成為我們規劃及發展等各方面工作中不可或缺的部分。我們將繼續致力實踐下列目標：

- 嚴謹遵行各項環保規例；
- 善用電力、燃料及改善空氣排放，以滿足操作要求，並遵守《清新空氣約章》的承諾；
- 減少辦公室用品的消耗，並在食水處理過程中減少使用氯氣、石灰及明礬等化學品；
- 減少配水系統的漏水量；
- 減輕建築工程對環境所造成的影響；
- 減少濾水廠的排污量；
- 減少工場和化驗室固體、液體及化學廢物的數量；及
- 減少柴油機的廢氣及抽水站的噪音。

In a world that is increasingly focused on optimising natural resources, the Water Supplies Department continues to ensure that its business and supply model is based on sustainable practices.

It is the Department's responsibility to safely and efficiently channel water supplies to the community in an environmentally safe and friendly manner. Innovations in this area over the past year cover a broad range of issues – from compliance with the Clean Air Charter to the development of a solar powered work vehicle. Today, environmental protection has become integral to all aspects of our planning and development work. We continue to commit ourselves to achieve the following objectives :

- strictly enforce compliance with all environmental regulations ;
- optimize the use of electricity, fuel consumption and air emissions to meet the operational needs and the commitments under the Clean Air Charter;
- cut down on the consumption of glossary items in office and the use of chemicals such as chlorine, lime and alum in water treatment;
- minimize water loss in the distribution system;
- minimize the environmental impact resulting from construction works;
- minimize the discharge of effluent from water treatment works;
- reduce the quantity of solid and liquid waste, as well as chemical waste, from workshops and laboratories; and
- reduce diesel engine emissions and pumping station noise.

能耗情況

我們為客戶處理及輸送食水及鹹水時，亦不斷降低有關設施的耗電量。

年內，我們已採取多項管理措施，應付乾燥天氣對使用能源造成的影響。有關措施包括密切監測能源運用情況、能源審核及根據所有供水設施及器材的情況實施保養計劃。我們亦加快以最新的節能設計取代老化的供水設施及器材計劃的進度。本署各辦公室繼續實施節約能源項目，使本署較去年節省1.8%的能源。

然而，由於二零零七年降雨量低於平均水平，我們需使用較多能源調配運送境內原水，因而令我們的總能源耗用量較正常水平略高。

Energy Consumption

We are continuing to reduce levels of power consumption in facilities that treat and distribute fresh water and salt water to customers.

During the year, we have adopted a range of management measures to counteract the adverse effects of dry weather on energy use. These measures include close monitoring of energy use, energy audits and a condition-based maintenance programme for all plant and equipment. We have also fast-tracked the programme of replacing aged plant and equipment to incorporate the latest in energy saving designs. A continuous energy saving programme that operates across departmental offices has resulted in a 1.8 per cent saving over the past year.

However, because of the lower-than-average rainfall in 2007, we used more energy to transfer raw water within the territory, which pushed our overall energy consumption to a slightly higher level than normal.



左：大潭副水塘水掣房（二級歷史建築）。
Left: Tai Tam Byewash Reservoir Valve House (Grade II Historic Building).

右下：設於大潭中水塘水掣房旁的獨立太陽能及風能發電裝置。
Right lower: Standalone solar and wind powered unit next to Tai Tam Intermediate Reservoir Valve House.



可再生能源措施

我們不斷探索新方式，力求以靈活創新的意念，運用可再生能源。我們在偏遠地區試用獨立組件，並在濾水廠中試用大型太陽能電網系統，效果均相當理想。最近，我們在北港濾水廠試用首創的太陽跟蹤光伏系統，而這套系統使用太陽能電池，將光能轉化為電能。一座12千瓦風力－太陽能發電裝置，將於二零零九年在欣澳鹹水抽水站啟用，而另一座擬置於屯門濾水廠的水力發電裝置，其設計在進行中。

遵守《清新空氣約章》

我們認為，要改善香港空氣質素，必須減少排放廢氣，而香港的《清新空氣約章》，亦同樣適用於供水的各個層面。我們採取積極措施以符合公認的世界級排放標準或由香港特區政府或廣東省政府特別制訂的排放標準，表現甚至經常超越有關標準。我們亦已制訂計劃，藉此識別及監測大量排放的來源，並於必要時減少排放量。與此同時，我們已承諾在各項工序上採取能源效益措施。

Renewable Energy Initiatives

We are continuing to explore ways to incorporate smart and innovative use of renewable energy. The experimental use of stand-alone units at remote sites and a larger grid-connected solar power system at a water treatment works, have proved successful. More recently, a prototype sun-tracking photovoltaic system using solar cells to convert light into electricity has been tried out at Pak Kong Water Treatment Works. A 12kW hybrid wind-solar installation will be commissioned at Sunny Bay Salt Water Pumping Station in 2009 and the design for the hydropower generation plant at Tuen Mun Water Treatment works is being taken place.

Clean Air Charter Commitments

We recognise that to improve Hong Kong's air quality requires reductions in emissions. The demands of Hong Kong's Clean Air Charter underpin all aspects of the provision of water. Emission standards that are recognised either as world class standards or set specifically by the Hong Kong SAR Government or the Guangdong Provincial Government are actively met and often surpassed. We have established a programme to identify, monitor and, where necessary, mitigate significant emission sources. At the same time, we have undertaken to adopt energy efficient measures across all operations.



左上：壓濾機是把濾水過程中產生的廢物製成泥餅的裝置。

Left upper: Filter press for converting treatment waste into sludge cakes.

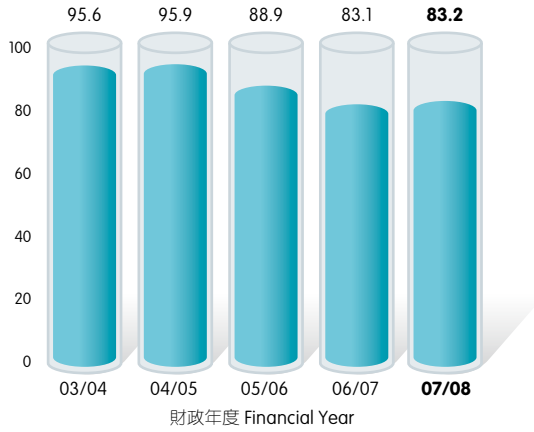
右下：黃泥涌水塘建於1899年，是香港第三個水塘。後改建為水上公園，在1986年開放給市民使用。

Right lower: Constructed in 1899, Wong Nai Chung Reservoir is the third reservoir in Hong Kong. It was converted to an artificial lake and opened for the public since 1986.



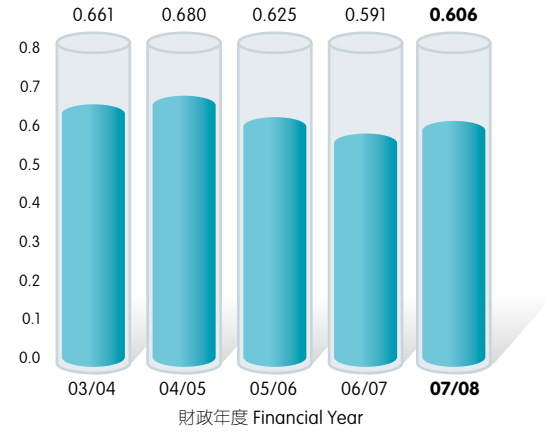
人均耗電量 (食水及原水)*
Per Capita Electricity Consumption (Fresh Water and Raw Water)*

千瓦時/每人/每年 kWh/head/year



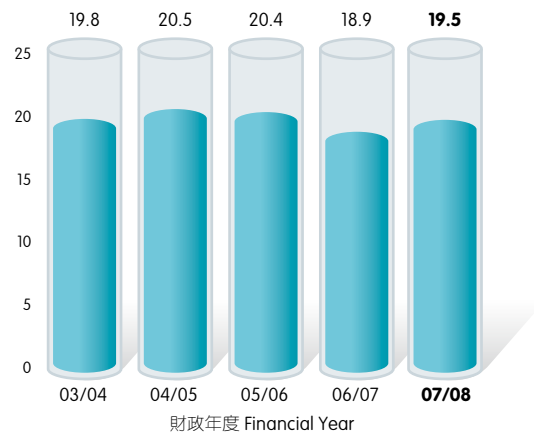
每單位耗電量 (食水及原水)
Unit Electricity Consumption (Fresh Water and Raw Water)

千瓦時/立方米 kWh/m³



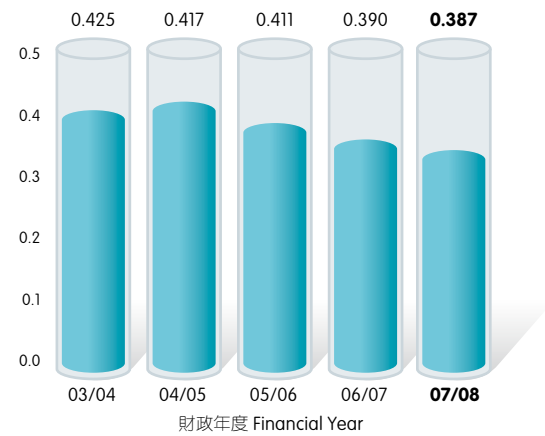
人均耗電量 (海水)*
Per Capita Electricity Consumption (Sea Water)*

千瓦時/每人/每年 kWh/head/year



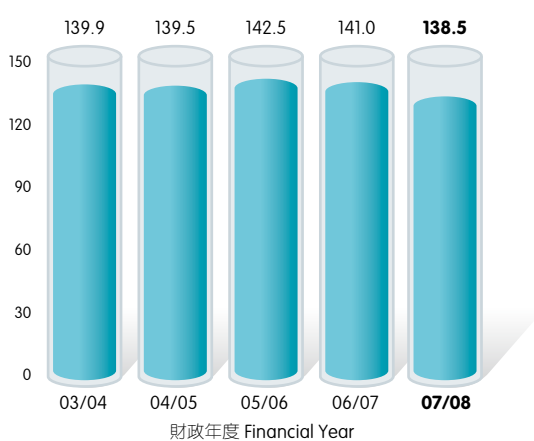
每單位耗電量 (海水)
Unit Electricity Consumption (Sea Water)

千瓦時/立方米 kWh/m³



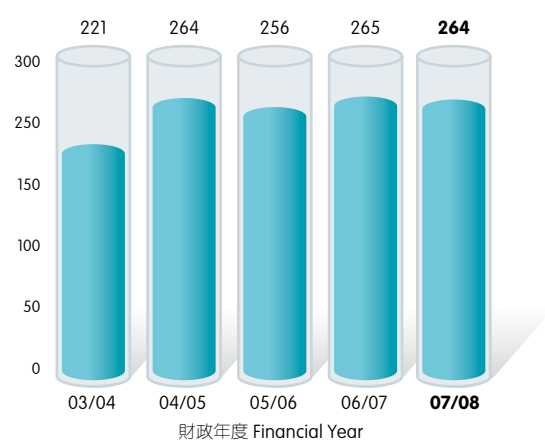
辦公室每單位樓面面積的耗電量
Office Electricity Consumption Per Unit Floor Space

千瓦時/平方米 kWh/m²



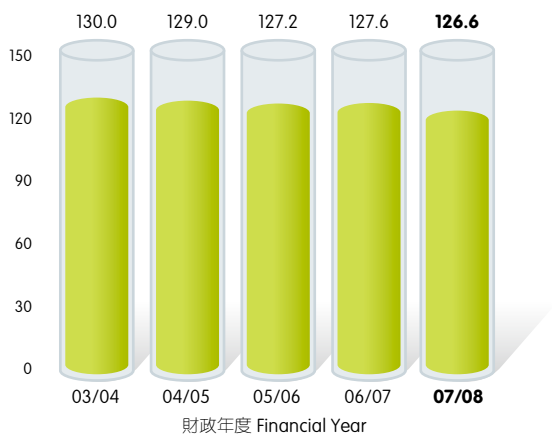
水泵測試次數
No. of Pump Tests

次數 nos.



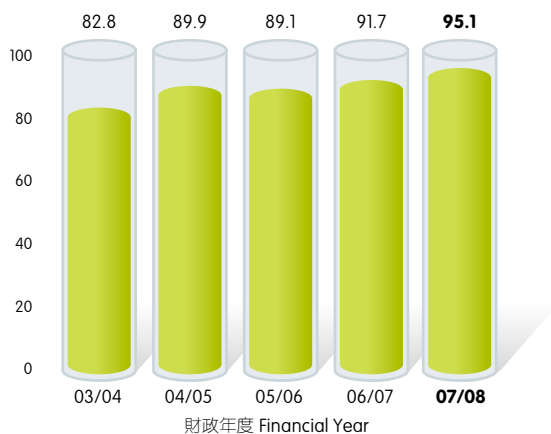
人均住宅食水耗用量*
Per Capita Domestic Fresh Water Consumption*

公升/日 litres/day



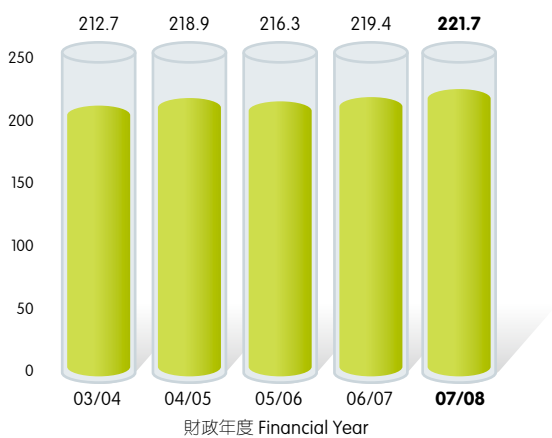
人均沖廁水耗用量(食水及海水)*
Per Capita Flushing Water Consumption (Fresh Water and Sea Water)*

公升/日 litres/day



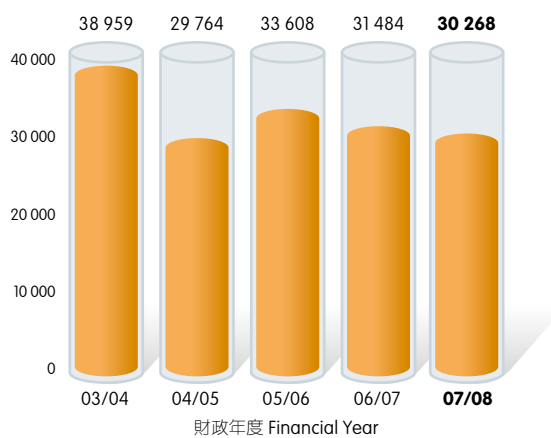
總人均耗水量(住宅及沖廁)*
Total Per Capita Consumption (Domestic and Flushing)*

公升/日 litres/day



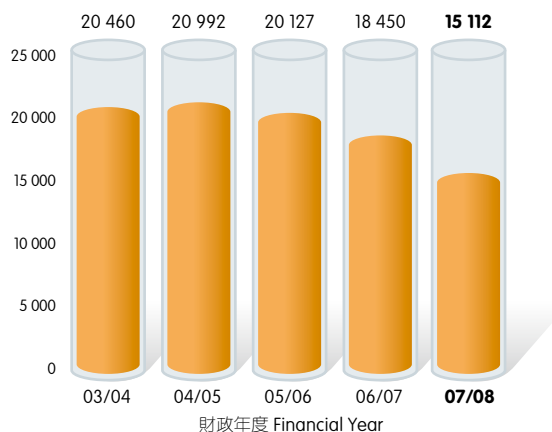
用紙量
Paper Consumption

令 reams



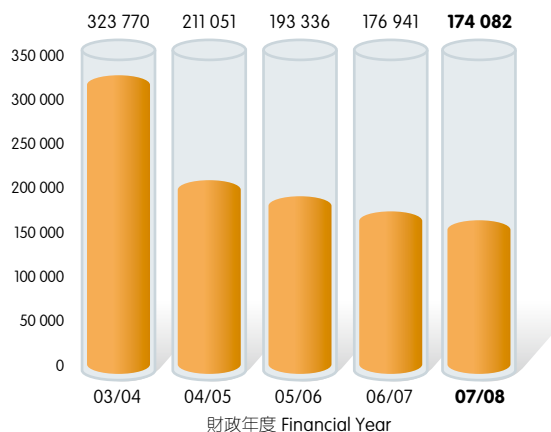
通用表格及部門表格的用量
Government Forms and Departmental Forms Consumption

千張 1000 sheets



信封用量
Envelopes Consumption

個 nos.





上：利用電子傳媒廣告傳遞節約用水的信息。
Upper: Multi-media advertisement on water conservation.



下：貼在公共巴士上有關慎防食水滲漏的宣傳海報。
Lower: Poster regarding prevention of water leaks on a bus.



本署每年舉辦的「珍惜點滴·積聚未來」研討會，吸引來自物業管理公司、業主立案法團、酒店及學術機構代表出席。The "Save Water for the Future - Every Drop Counts" seminar, organised annually by the Department, drew representatives from property management companies, owners' corporations, hotels and academic institutions.

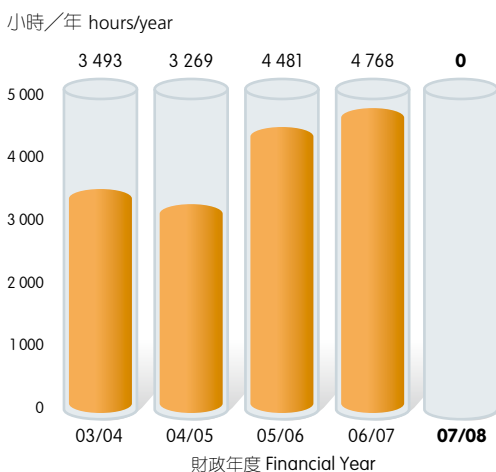
節約用水活動

本署積極推行節約用水活動，專注鼓勵客戶思考如何適當用水。推廣活動涵蓋多媒體公開宣傳、廣告及刊物，鼓勵業主及發展商定期檢查維修水管，以防滲漏。所有水費單上都附有節約用水的訊息，並籌辦一系列研討會、講座及其他推廣活動，旨在向學校、物業管理公司以至住宅項目業主立案法團等各方團體宣揚相關訊息。去年，瀘水廠的學校參觀日及公眾開放日吸引了大批市民參加。

Conservation Campaigns

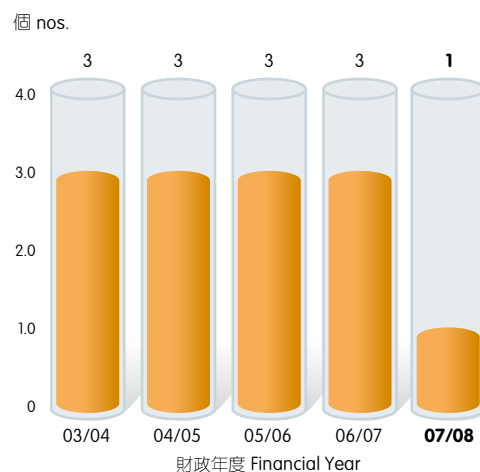
The Department operates a proactive water conservation campaign with a clear focus on encouraging customers to think about how they use water. Promotional activities range from multi-media public announcements, advertisements and literature encouraging home owners and developers to regularly inspect and maintain plumbing to prevent water leaks. All water bills carry a water conservation message. Seminars, talks and other promotional events have been designed to target various groups – from schools to property management companies and residential property owners' corporations. Over the past year education visits and public opening days at water treatment plants have drawn a broad community response.

柴油驅動泵組的操作時數
Running Hours of Diesel-driven Pumpsets



* 根據二零零六年中期人口統計所得人口基準，二零零一年中至二零零六年中的人口數據已經修訂。經修訂數據已納入更多有關人口變化的估計數字，而這些估計數字在編製先前人口數據時尚未能提供。因此，二零零一年以來人均耗水量數字及所服務的人口均已經修訂。

配有柴油驅動泵組的抽水站
Pumping Stations with Diesel-driven Pumpsets

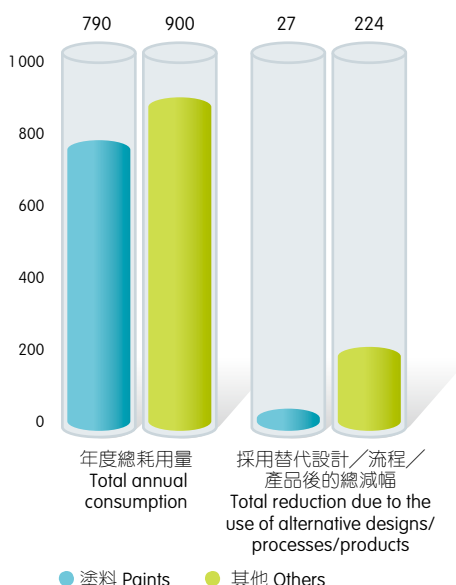


* Based on the population benchmark from the results of the 2006 Population By-census, the population figures from mid-2001 to mid-2006 have been revised. The revision has incorporated more estimates of population changes that were not yet available at the time when the previous population figures were prepared. Consequently, the per capita consumption figures and population served as from 2001 onwards have been revised as well.

二零零七／零八年度室內工作所需揮發性有機化合物耗用量

VOC Consumption for In-house Work 2007/08

公斤 kg



減少廢物排放

在管理供水設施及器材所排放的廢物方面，化學及固體廢物仍是我們的主要減少的對象。北港及上水濾水廠已分別加裝及更換壓濾機。此裝置將所有在濾水過程中產生的廢物製成泥餅，然後棄置。裝置已投入使用。

運輸革新意念

由本署機械及電機科設計的太陽能電池車，外型優美，於年內屢獲殊榮。這部擬在沙田濾水廠作巡邏之用的太陽能電池車，是本署參加可再生能源車比賽的設計作品。太陽能電池車利用行李箱的大型太陽能板供應能量，最高速度可達每小時45公里，在本次比賽中連奪三個大獎，包括全場總冠軍。如在沙田濾水廠的試行情況良好，我們會考慮在不同地點使用類似的高效環保車輛。

辦公室內的環境關注

在部門的日常工作上，我們繼續建立愛護環境的文化。我們的員工時刻警覺節約用紙的需要，盡量透過電子方式溝通及編撰文件。我們會繼續提倡節約用紙，以及在總部和分



由機械及電機科設計的太陽能電池車在「可再生能源車競賽」中囊括多個獎項。賽後，該車曾在香港會議展覽中心舉行的2007創新科技博覽會中展出。

A solar powered car, designed by the Mechanical and Electrical Branch, won numerous accolades in the Open Contest for Renewable Energy Powered Vehicles. It has been displayed in the Innovation Festival 2007 in Hong Kong Convention Centre after the competition.

Mitigating Discharges

Discharged chemical and solid waste materials remain our principal targets in the management of water discharge from plant and equipment. Additional and replacement filter presses for converting treated waste into sludge cakes before disposal had been installed and put into service at the Pak Kong and Sheung Shui water treatment works respectively.

Transport Innovations

A sleek solar powered car, designed by the Department's Mechanical and Electrical Branch, received awards and accolades during the year. The car, intended for use in patrolling the Sha Tin Water Treatment Works, was designed as the Department's entry in a competition for renewable energy vehicles. Powered by a large solar panel on its boot, the car could reach a maximum speed of 45 km. It won three of the awards including the grand prize at the event. If its trial at the Sha Tin plant proves successful, we will consider using similar environmentally efficient vehicles at various installations.

Environmental Care in Office

Department-wide, we continue to build up a culture of environmental care and awareness in our day-to-day business. There is always an awareness of the need to minimise paper consumption by increasing the use of electronic communication and documentation. We will continue the drive to consume less paper, to promote greater sensitivity to the use

區辦事處，增強員工適當使用冷氣、照明及其他電器的意識，以配合政府的最新政策。

以巖洞取代傳統的配水庫

我們實施一套涵蓋設施及系統的全盤策略，以提升環保效益。香港大學計劃在薄扶林道興建百周年校園，使我們有機會改善兩座地上鹹水配水庫及兩座地下食水配水庫。該址毗鄰郊野公園，具有重要環保價值。如採用常規方法興建新配水庫，將需進行大規模挖掘工程，砍伐樹木。相反，我們採用創新及環保的方案，將新的鹹水配水庫深藏於山坡內的巖洞結構中。這個方法不但可盡量減少對現有植物及生態的干擾，亦可將對現有自然環境的視覺影響減至最低。

百周年校園興建工程亦會保留兩座被列作歷史建築的高級職員宿舍及一座過時的濾水廠，讓其活化，以作具意義的用途。

of air conditioners, lightings and electrical appliances at the head office and regional offices and, in line with the latest Government policy.

Caverns Replace Traditional Service Reservoirs

We take a holistic approach to environmental efficiency that covers facilities as well as systems. Hong Kong University's redevelopment plans for its Centennial Campus in Pok Fu Lam has provided an opportunity to upgrade two above ground salt water reservoirs and two underground fresh water reservoir. The site, located next to a country park, has important environmental value. A conventional approach to building new service reservoirs would have involved significant excavation and loss of tree cover. Instead an innovative and environmentally sound solution has placed the salt water reservoirs into a cavern structure deep within the hillside. This will minimise both the disturbance to the existing vegetation and ecology and the visual impact on the existing natural environment.

The same campus redevelopment will see the conservation of two graded staff quarters and an obsolete water treatment works, revitalising them for meaningful use.

二零零七／零八年度公用集調車輛資料 Information on Pool Transport 2007/08

	柴油 Diesel	汽油 Petroleum	液化石油氣 LPG
公務用車數量 No of Government Vehicles in Operation	22	216	6
總燃料耗用量(公升) Total Fuel Consumption (Litres)	50 118	592 347	30 309
總車程(公里) Total mileage (km)	215 033	3 185 123	91 310

二零零七／零八年度廢氣排放 Emissions 2007/08

(以公噸計) Figures in Tonnes	二氧化碳 CO ₂	二氧化硫 SO ₂	氮氧化物 NO _x	可吸入懸浮粒子 RSP
直接廢氣排放 Direct Emissions				
公務用車(柴油) Vehicle fleet (Diesel)	131	-	1	-
公務用車(汽油) Vehicle fleet (Petrol)	1 398	-	1	-
公務用車(液化石油氣) Vehicle fleet (LPG)	51	-	-	-
間接廢氣排放 Indirect Emissions				
耗用電(九龍及新界) Electricity Consumed (Kowloon and New Territories)	355 725	644	560	28
耗用電(港島) Electricity Consumed (Hong Kong Island)	55 126	154	87	3
總量 Total	412 431	798	649	31