

# 保護環境 OUR ENVIRONMENT

水很清澈，我舉起水杯，  
完全可以一眼看透。

Water is so clear. I can hold  
up my glass and see straight  
through it.











水資源、可持續發展及環境……這些因素均與生活息息相關。談到水資源時，應優先考慮可持續發展及我們的決策對環境的影響。

Water, sustainability and the environment ...they are deeply interwoven elements of our life. Where water is concerned, sustainability and the effects our decisions have on the environment, are our priority.

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### 環保目標

本署力求以符合環保的方式供水給用戶，並以此為己任。為此我們致力：

- 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；
- 減輕因建築工程對環境所造成的影響；
- 減少濾水廠的排污量；
- 減少工場和化驗室的固體、液體及化學廢物的數量；及
- 減少柴油機的廢氣排放及抽水站的噪音。

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### Environmental Objectives

It is our responsibility to ensure that Hong Kong's water is channelled to customers in an environmentally safe and friendly manner. With this in mind, we are committed to :

- strictly enforce compliance with all environmental regulations ;
- optimise the use of electricity and fuel consumption and improve air emissions to meet the operational needs and the commitments under the Clean Air Charter;
- cut down on the consumption of glossary items in offices and the use of chemicals such as chlorine, lime and alum in water treatment;
- minimise water loss in the distribution system;
- minimise the environmental impact resulting from construction works;
- minimise 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.

## 致力開發環保能源

本署的目標是及時向本港市民供應足夠的清潔食水，同時支持本港的可持續發展。簡而言之，使用環保燃料有助本港保持空氣清新和藍天常現，我們深明此理。

本署使用電力作為能源，將濾水廠及抽水站的廢氣排放量減至最低。柴油水泵僅於三處設施作備用用途，運作時間亦盡量縮短。

去年，我們研究在水務設施上應用可再生能源。本署已開發多個獨立太陽能及風能發電裝置，在沒有電力供應的偏遠水務設施使用，為儀器及設備提供電源。

本署一直並將繼續研究較大型系統連接電網的可行性。我們相信，這些大型系統具備可確保供水設備持續可靠運作的潛質。在北港濾水廠，我們採用新技術改裝一組10千瓦光伏裝置，並加裝了另一個使用太陽能的系統原型，該系統的效能評估在短期內即將進行。

## Focusing on Clean Energy

Our goal is to deliver clean, timely and adequate water supplies to Hong Kong's residents in a manner that supports the sustainable development of the city. Put simply, we understand the importance of using clean fuel resources to keep Hong Kong's air fresh and its skies clear.

Electric power is used to minimise gas emissions from water treatment works and pumping stations. Diesel engine pumps are used only on a contingency basis in just three installations and their operational hours are kept to a minimum.

Over the past year, we explored the application of renewable energy sources in waterworks installations. A number of standalone solar and wind powered units have been developed to power up instruments and equipment at remote WSD sites where the supply of electricity is not readily available.

The viability of larger systems designed to connect to the power grid has been and continue to be studied. We believe these systems have the potential to ensure reliable and sustainable plant operations. At Pak Kong Water Treatment Works, we have retrofitted a 10 kW photovoltaic unit using new technology. Another prototype based on the use of solar energy will be added shortly for performance evaluation.



置於北港濾水廠的光伏裝置。  
Photovoltaic units at Pak Kong Water Treatment Works.



水塘附近風景怡人。  
Scenic environment around our impounding reservoir.

位於欣澳海水抽水站的一個2千瓦風力發電機組正在建設中，預計於二零零七至零八財政年度進行測試。我們亦就在屯門濾水廠建設一座500千瓦水力發電裝置完成了相關的可行性研究。這些試驗計劃為本署在現有供水基建及新增項目中擴大使用可再生能源的發展方向。

### 提升能源效益

本署的目標是以既環保又具經濟效益的方式向用戶供水。去年，我們成功減省了耗電量，從而降低發電產生溫室氣體的排放量。過去四年，我們的能源效益已提高約6%，符合特區政府於二零零三年制定的目標。我們亦致力履行《清新空氣約章》的承諾。

上述節能成效全賴一系列管理措施，包括密切監察能源使用情況及於水務設施進行能源審核。我們亦根據壽命週期成本原理，進行水泵狀態監察維修計劃，並更換老化的供水設施及器材。我們不時更新設計標準，以改善新技術的應用。

除供水設備更新外，本署亦提升照明及冷氣設施，確保在這些設施方面採用最新的節能技術。

A 2 kW wind turbine is being built at the Sunny Bay Salt Water Pumping Station. This will be tested during the financial year 2007/08. We have also completed a feasibility study into the construction of a 500 kW hydropower generation plant at the Tuen Mun Water Treatment Works. These pilot schemes indicate the direction we are moving in terms of widening the use of renewable energy sources in both existing water services infrastructure and new projects.

### Enhancing Energy Efficiency

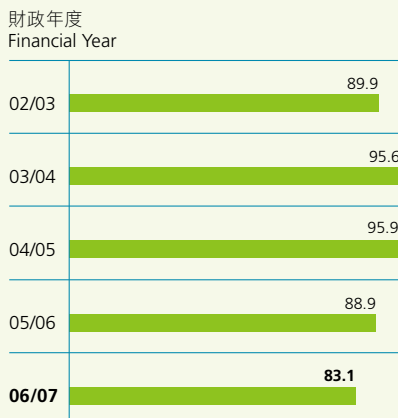
Our aim is to supply water to customers in an environmentally-friendly and cost-effective manner. Over the past year, we have achieved a reduction in power consumption and in turn reduced the greenhouse gas emissions from power generation. We are well in line with targets set by the SAR Government in 2003 having improved energy efficiency by about six per cent over the past four years. We are determined to fulfill our commitments under the Clean Air Charter.

These energy savings stem from a range of management measures that include close monitoring of energy use and the application of energy audits at waterworks installations. We have also adopted condition-based maintenance programmes for pumps and the replacement of aging plant and equipment in line with the life-cycle cost principles. We constantly update our design standards in order to optimise the application of new technologies.

Apart from plant renovation, the department has also upgraded lighting and air conditioning facilities to ensure that they too incorporate the latest energy saving features.

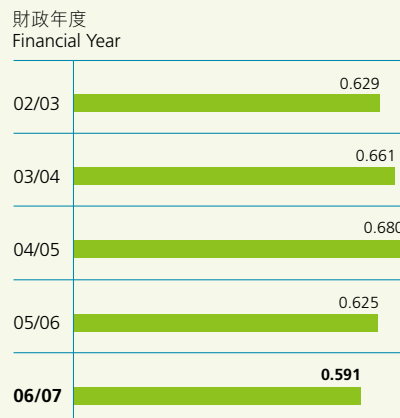
#### 人均耗電量(食水及原水)\* Per Capita Electricity Consumption (Fresh Water and Raw Water)\*

千瓦時/每人/每年 kWh/head/year



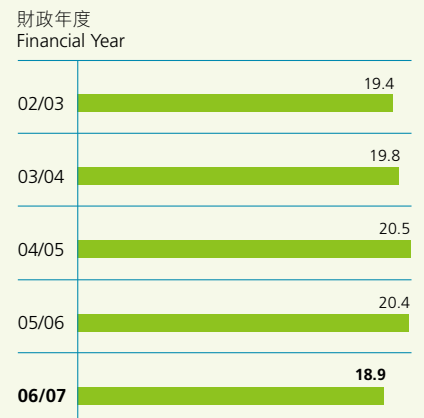
#### 每單位耗電量(食水及原水) Unit Electricity Consumption (Fresh Water and Raw Water)

千瓦時/立方米 kWh/m<sup>3</sup>



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

千瓦時/每人/每年 kWh/head/year







左上：獨立太陽能及風能發電裝置。  
Left upper: Standalone solar and wind powered unit.



左下：把濾水過程產生的廢料製成泥餅的壓濾機。  
Left lower: Filter press for converting treatment waste into sludge cakes.



水務署負責維修的6000多個斜坡中其中一個。  
One of the over 6000 slopes for which WSD is responsible.

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

千瓦時／立方米 kWh/m<sup>3</sup>

財政年度  
Financial Year

02/03	0.435
03/04	0.425
04/05	0.417
05/06	0.411
<b>06/07</b>	<b>0.390</b>

**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/m<sup>2</sup>

財政年度  
Financial Year

02/03	165.1
03/04	139.9
04/05	139.5
05/06	142.5
<b>06/07</b>	<b>141.0</b>

**水泵測試次數**  
**No. of Pump Tests**

次數 Nos.

財政年度  
Financial Year

02/03	313
03/04	221
04/05	264
05/06	256
<b>06/07</b>	<b>265</b>

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

公升／日 Litres/day

財政年度  
Financial Year

02/03	125.5
03/04	130.0
04/05	129.0
05/06	127.2
<b>06/07</b>	<b>127.6</b>

**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

財政年度  
Financial Year

02/03	82.7
03/04	82.8
04/05	89.9
05/06	89.1
<b>06/07</b>	<b>91.7</b>

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

公升／日 Litres/day

財政年度  
Financial Year

02/03	208.3
03/04	212.7
04/05	218.9
05/06	216.3
<b>06/07</b>	<b>219.4</b>

本署為將抽水成本降至最低，其中一項措施是定期檢討供水安排。更改木湖與沙田之間輸水管道的安排，可將自廣東省輸入的食水直接抽入最大規模的濾水廠，減少大埔頭抽水站額外抽水的需要。我們將沙田濾水廠部份供水量轉撥至新建的大埔濾水廠，兩間濾水廠的能源效益均有所提升。我們同時亦改善了供水網絡，以節省向客戶供水所需的能源。

**廢物排放**

本署持續尋求方法，減少供水設施及器材的廢物排放，主要針對化學及固體廢料，以減輕對環境所造成的影響。北港及上水濾水廠分別正在加裝及更換壓濾機，新機組投入使用後，可提升兩間濾水廠廢物處理的能力，將所有在濾水過程中產生的廢物製成泥餅，然後棄置。

二零零七年初，我們成功將北角海傍一個重960公噸的已廢棄的抽水站變成西貢外牛尾海的人工魚礁。是次拆卸及處理建築廢物的方法既經濟，又符合環保要求，實屬非凡成就。

Water supply arrangements are reviewed on a regular basis as part of our efforts to minimise pumping costs. Adjusting the aqueducts running between Muk Wu and Sha Tin has enabled us to pump the water piped in from Guangdong directly to our largest water treatment works, reducing the need for additional pumping at the Tai Po Tau pumping stations. With part transfer of the output from the Sha Tin Water Treatment Works to the latest Tai Po Water Treatment Works, we have been able to improve energy efficiency at both plants. At the same time, our water supply network has been improved to reduce the necessary energy required to supply water to customers.

**Waste Discharge**

The department continued to seek ways to mitigate or reduce the impact of waste discharge from our plant and equipment. Chemical and solid waste materials are our principal targets. The installation of additional and replacement filter presses at the Pak Kong and Sheung Shui water treatment works respectively is in the pipeline. After commissioning, these filter presses will enhance our capacity to convert treated waste into sludge cakes before disposal.

In early 2007, we successfully turned a 960-tonne decommissioned pumping station on the North Point waterfront into an artificial reef in Outer Port Shelter, Sai Kung, a remarkable achievement in economising measures for demolition and disposal of building structure while fulfilling environmental protection requirements at the same time.

### 用紙量 Paper Consumption

令 Reams

財政年度  
Financial Year

財政年度 Financial Year	用紙量 Paper Consumption (Reams)
02/03	33 920
03/04	38 959
04/05	29 764
05/06	33 608
06/07	31 484

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

千張 1000 Sheets

財政年度  
Financial Year

財政年度 Financial Year	通用表格及部門表格的用量 Government Forms and Departmental Forms Consumption (1000 Sheets)
02/03	20 550
03/04	20 460
04/05	20 992
05/06	20 127
06/07	18 450

### 信封用量 Envelopes Consumption

個 Nos.

財政年度  
Financial Year

財政年度 Financial Year	信封用量 Envelopes Consumption (Nos.)
02/03	225 457
03/04	323 770
04/05	211 051
05/06	193 336
06/07	176 941



在有需要時，水塘存水會用作救火。  
If necessary, the water in impounding reservoirs will be used for fire fighting.

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

小時/年 Hours/year

財政年度  
Financial Year

財政年度 Financial Year	柴油驅動泵組的操作時數 Running Hours of Diesel-driven Pumpsets (Hours/year)
02/03	3 997
03/04	3 493
04/05	3 269
05/06	4 481
06/07	4 768

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

個 Nos.

財政年度  
Financial Year

財政年度 Financial Year	配有柴油驅動泵組的抽水站 Pumping Stations with Diesel-driven Pumpsets (Nos.)
02/03	4
03/04	3
04/05	3
05/06	3
06/07	3

## 辦公室的環保措施

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。除了繼續提倡節約用紙，及在總部和分區辦事處，增強員工適當使用冷氣、照明及其他電器的意識之外，我們更配合政府的最新政策，鼓勵員工在炎夏穿著輕便的衣服上班。

\* 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。經修訂數據已計入有關人口變化的更多估計數字，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。

## Office Initiatives

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 means for communication and documentation. We will continue the drive to consume less paper, to promote greater sensitivity to the use of air conditioners, lighting and electrical appliances at head office and regional offices and, in line with the latest Government policy, we encourage staff to wear lighter clothes to work during the hot summer.

\* 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.