可持續運作
Sustainable Operations

經驗及準確理解供水所需的條件是我們維持可持續運作的重要元素。

本署致力：

- 嚴格遵守環保規例
- 善用能源和燃料
- 限制氣體排放
- 盡量減少辦公室用品的消耗
- 盡量減少處理食水過程中使用的化學品
- 盡量減少供水系統的用水流失量
- 盡量減少建築工程對環境造成的影響
- 減少化驗室、工場和濾水廠的固體、液體及化學廢物
- 盡量減少污水排放，並盡可能循環再用
- 減少抽水站發出的噪音
- 提倡安裝綠化屋頂
- 提倡使用再造紙

Experience and a precise understanding of what is required in terms of viable water supplies are key elements that enable us to operate in a sustainable manner.

The WSD is committed to:

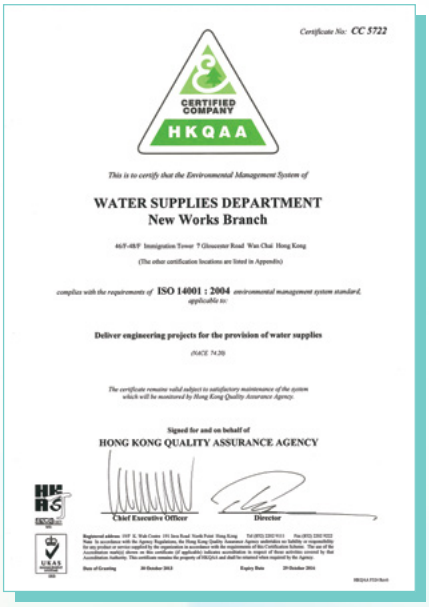
- Working in strict compliance with environmental regulations
- Optimising the use of energy and fuel consumption
- Limiting gaseous emissions
- Minimising the consumption of glossary items in offices
- Minimising the use of chemicals in the water treatment process
- Minimising water loss across the distribution system
- Minimising environmental impacts that can arise from construction work
- Reducing the quantities of solid, liquid and chemical wastes generated by our laboratories, workshops and treatment works
- Minimising the discharge of effluent and where possible recycle effluent
- Reducing noise generated from pumping stations
- Encouraging the establishment of green roofs
- Encouraging the use of recycled paper

關注環境

本署的抱負是致力滿足客戶對優質供水服務的需求，務求每天取得卓越表現。作為以上承諾的一部分，我們願意承擔對維持環境清潔應負的責任。為此，本署的設計及建設科肩負重任，力求盡量減低水務規劃、設計及建設對環境造成的任何影響。自二零一三年年初至今，設計及建設科一直奉行嚴格規約，作為按照ISO 14001所制訂環境管理體系的一部分。環境管理體系要求：「為已規劃及新增的工程項目、發展項目、產品及服務提供供水服務時，妥善做好環境管理工作」。於二零一三年十月，設計及建設科獲頒ISO 14001: 2004環境管理體系標準認證，有關認證適用於供水工程項目推展。其後本署制訂多項環境管理計劃，並每年進行檢討，以幫助實現環境清潔目標。

Environmental Focus

The vision of the Department is to excel each day in satisfying the need to provide quality water supply services to our customers. As part of that commitment, we fully appreciate the responsibilities we have in maintaining a clean environment. For this reason, the New Works Branch of the Department is tasked to ensure that all impacts to the environment are minimised in planning, designing and building waterworks. Since early 2013, The New Works Branch has followed a strict protocol as part of the Environmental Management System (EMS) in accordance with ISO Standard 14001. The EMS mandate is: "Environmental management while providing water supply services from planned and new engineering projects, developments, products and services". In October of 2013, the New Works Branch obtained ISO14001:2004 Environmental Management System Standards certification applicable to the delivery of engineering projects for the provision of water supplies. A host of environmental management programmes have subsequently been developed and reviewed annually to assist in achieving our environmental objectives and targets.



嶄新技術和設備

熱成像安全監測系統

熱成像安全監測系統試驗項目已在北港濾水廠成功推行，我們希望在沙田濾水廠(南廠)項目等其他設施應用該系統。該系統有助減少水務設施的安全設施和區域照明的耗電量，同時盡量減輕光污染對附近居民的滋擾。

New Technology and Equipment

Thermal Vision-based Security Surveillance System

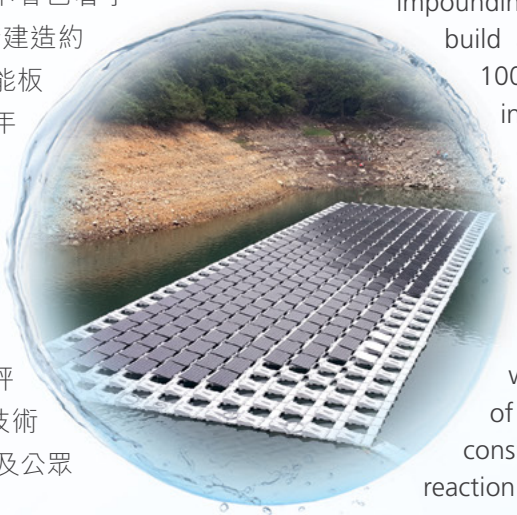
With the successful implementation of the pilot thermal vision-based security surveillance system at the Pak Kong Water Treatment Works, we are looking to apply this system at other installations such as the Sha Tin Water Treatment Works (South Works) project. The system reduces electrical consumption of the security and area lighting of waterworks installations as well as helps minimise the nuisance of light pollution on residents living nearby.

在水塘鋪設浮動太陽能板發電系統

為應對氣候變化及節省寶貴的土地資源，過去數年，全球各地已開展興建大型的浮動太陽能發電場，通過在水塘和灌溉池塘的水面上安裝浮動太陽能板收集太陽能發電。為檢視在香港水塘安裝大型的浮動太陽能板發電系統的可行性，本署已著手計劃於二零一六年在石壁水塘建造約100千瓦容量的試驗浮動太陽能板發電系統，以及於二零一七年在船灣淡水湖建造容量相若的試驗浮動太陽能板發電系統。除了發電外，大型浮動太陽能發電場還將有助減少水塘的水蒸發，抑制海藻生長，提高水質。我們將在試驗項目中評估浮動太陽能板發電系統的技術性能，同時亦會考慮環境問題及公眾的反應。

Floating Solar Power Systems at Impounding Reservoirs

To combat climate change and save precious land resources, the last few years have seen the rapidly growing construction of floating solar farms around the world to harvest solar energy by installing floating Photovoltaic (PV) panels over the water surface of reservoirs and irrigation ponds. To examine the feasibility of the deployment of large scale floating PV power systems at our impounding reservoirs, plans are in the works to build a pilot floating solar system of about 100kW capacity at the Shek Pik Reservoir in 2016 and another one with similar capacity at the Plover Cove Reservoir in 2017. Apart from generating electricity, large floating solar farms will also help reduce water evaporation of reservoirs and improve water quality by inhibiting algae growth. In the pilot project, we will evaluate the technical performance of the floating PV power system, as well as consider the environmental issues and public reaction.

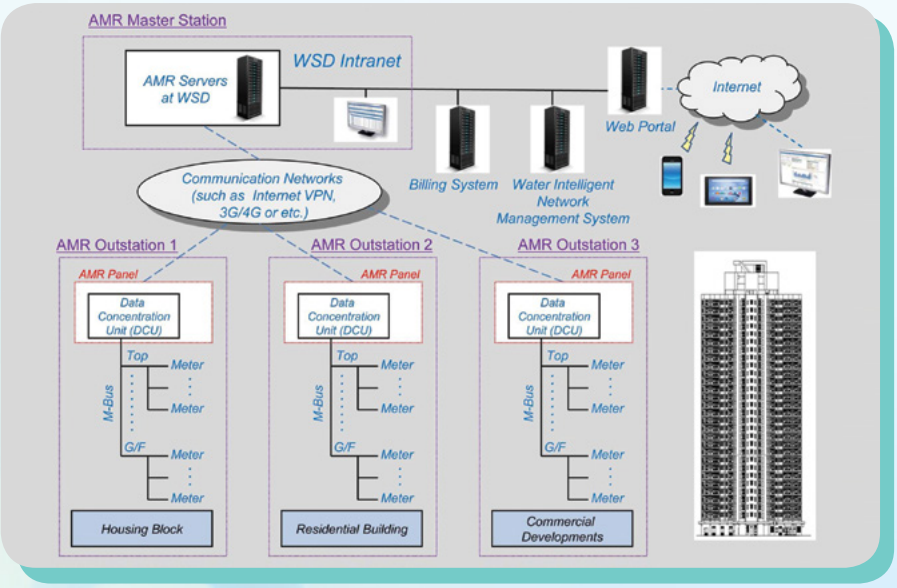


推行自動讀錶，發展智慧城市

為配合政府發展智慧城市的計劃，我們將在東九龍及安達臣道石礦場用地發展區推行自動讀錶系統先導計劃。當中新的私人和公共發展項目會於二零一八/一九年起分階段安裝智能水錶。透過智能自動讀錶系統，能提高讀錶效率外，還可向用戶提供適時的用水資訊，以提升節約用水意識。

Automatic Meter Reading for Smart City

In support of the government's initiative to forge smart cities, a large scale Automatic Meter Reading (AMR) pilot project will be implemented at the Development of Kowloon East and Anderson Road Quarry Site as one of our smart water initiatives. New private and public developments at these development areas will be installed with smart water meters progressively starting from 2018/19. In addition to remote reading of water meters, the AMR system can provide timely water consumption data and related information to customers to raise their awareness about water conservation.



可持續發展

騰出一個分區辦事處，善用土地資源造福社群

規劃署二零零九年完成的旺角購物區地區改善計劃建議我們搬遷旺角洗衣街的新界西分區辦事處，以騰出現址用於造福社群。該分區辦事處將遷往天水圍。新分區辦事處樓宇建築工程已於二零一五年八月動工，預計將於二零一八年竣工。建築工程進度正如期進行，打樁工程現時正全力展開。該搬遷將改善新界西分區的運作效率及水務設施的維修保養工作。搬遷後，洗衣街的現址將騰出，用於旺角購物區地區及其他造福社群的用途。

Sustainable Development

Releasing a Regional Office to Optimise Land Use for the Public's Benefit

The Area Improvement Plan for the Shopping Area of Mong Kok (AIP), which was completed by the Planning Department in 2009, recommended that our New Territories West (NTW) Regional Office at Sai Yee Street, Mong Kok be relocated to release the site for the benefit of public use. The regional office will be relocated to Tin Shui Wai. The construction work for the new regional office building began in August 2015 with completion slated for 2018. The progress of the construction is on schedule with piling work now in full swing. The relocation will enhance operational efficiency and maintenance of waterworks facilities in the NTW region. After the relocation, the site at Sai Yee Street will be released for AIP and other beneficial uses for the community.

將水務設施遷往岩洞

為配合政府增加土地供應的政策，發展岩洞是滿足社會發展需要的可行方法。政府已提出方案搬遷現有設施至岩洞，以在岩洞安裝新設施，從而騰出現址作房屋或其他用途，滿足本港長遠的社會及經濟需要。鑽石山食水配水庫及鑽石山海水配水庫已確定適合搬遷至岩洞。本署就建議搬遷項目進行的可行性研究已接近完成。騰出的現址建議土地用途主要是提供房屋，以滿足社區需要，以及提供政府、機構或社區所需設施及休憩空間，以造福當地社群。

除該建議搬遷外，水務署亦正聯同土力工程處，確定具可行性且經濟上可行、適宜遷往岩洞的其他潛在配水庫。

Caverning of Waterworks Installations

In line with the Government's policy of increasing land supply, rock cavern expansion is a practical approach for meeting the developmental needs of our society. The Government has initiated proposals to relocate existing facilities to caverns so that the released sites can be used for housing or other uses to meet Hong Kong's long- term social and economic needs. The Diamond Hill Fresh Water Service Reservoir and Diamond Hill Salt Water Service Reservoir were identified as suitable facilities for relocation to caverns. The feasibility study for the proposed relocation project is nearing completion. The proposed land uses of the released site focus on the provision of housing in meeting the community demand and the needed facilities comprising Government, institution or community facilities and open space in serving the local community.

In addition to this relocation proposal, the WSD is also working with Geotechnical Engineering Office to identify other potential service reservoirs that may be feasible and economically viable for relocation to caverns.

延伸海水供應系統，節約寶貴的食水

華富邨、貝沙灣和數碼港的海水供應現已投入使用，而有關薄扶林區將沖廁用水由食水轉為海水的工程仍在密鑼緊鼓展開。

新界西北部(包括屯門東、元朗及天水圍)的新供水核心系統已於二零一五年竣工，元朗的七個屋邨已於二零一五至一六年將沖廁用水由食水轉為海水。有關樓宇的水管系統檢查工作目前正在進行，而天水圍、元朗工業邨及元朗區等地的屋邨的改建工程隨後將會展開。

此外，東涌的新海水供應項目現處於規劃階段。

Extending the salt water supply system to save precious fresh water

Salt water delivery to Wah Fu Estate, Bel-Air and Cyberport is now in operation and the conversion to salt water for flushing in Pok Fu Lam continues apace.

The new core system for water supply to the North West New Territories, serving Tuen Mun East, Yuen Long and Tin Shui Wai was completed in 2015. Seven housing estates in Yuen Long have now been converted to salt water for flushing in 2015-16. Plumbing inspections for those relevant buildings are currently in progress and conversion works, including estates in Tin Shui Wai, Yuen Long Industrial Estate and the Yuen Long area, will follow afterwards.

Moreover, a new salt water supply system for Tung Chung is currently in the planning stage.

樹木管理及樹木風險評估

為綠化我們的城市，保持斜坡、集水區、水塘和通道等水務設施的安全及可持續景觀，本署一直努力不懈，確保公眾得以享用，並維持環境的原生態。為此，我們繼續實施全面的樹木風險評估和管理計劃，確保識別存在結構或健康問題的樹木，以及時採取減低相關風險的措施，並對有問題的樹木進行定期監測和檢查。倘若當前並無有效措施將樹木風險降至可接受水平，則只能移除樹木，並另外種植樹木，彌補景觀損失。在可行情況下，我們會對現有樹木加以保護，選擇及種植能保護生態和節約用水的本土樹木，並進行不同主題種植，美化景觀。

Tree Management and Tree Risk Assessment

We have long contributed toward making our city greener as well as maintaining healthy and sustainable landscape within WSD's installations, including slopes, catchments, impounding reservoirs and access roads in order to ensure the public's enjoyment and to maintain a pristine environment. To this end, we have continued to implement a comprehensive tree risk assessment and management scheme to ensure that trees with structural or health problems are being identified for timely risk mitigation procedures and undergo regular monitoring and inspections for any identified problematic trees. In cases where no effective measures are present to reduce tree risks to an acceptable level, tree removal is the last resort and replacement tree planting is undertaken to compensate for the landscape loss. Where practical, we incorporate existing tree preservation and protection, select and plant native species for ecological conservation and water saving, and carry out thematic planting to enhance the landscape.

使用及節約能源

作為全港其中一個最大的耗能用戶，本署在制定可行再生能源計劃的同時，仍不斷採取全面措施減少能源足跡。過去一年，我們已成功將辦事處的耗電量減少4.0%。

Energy Use and Savings

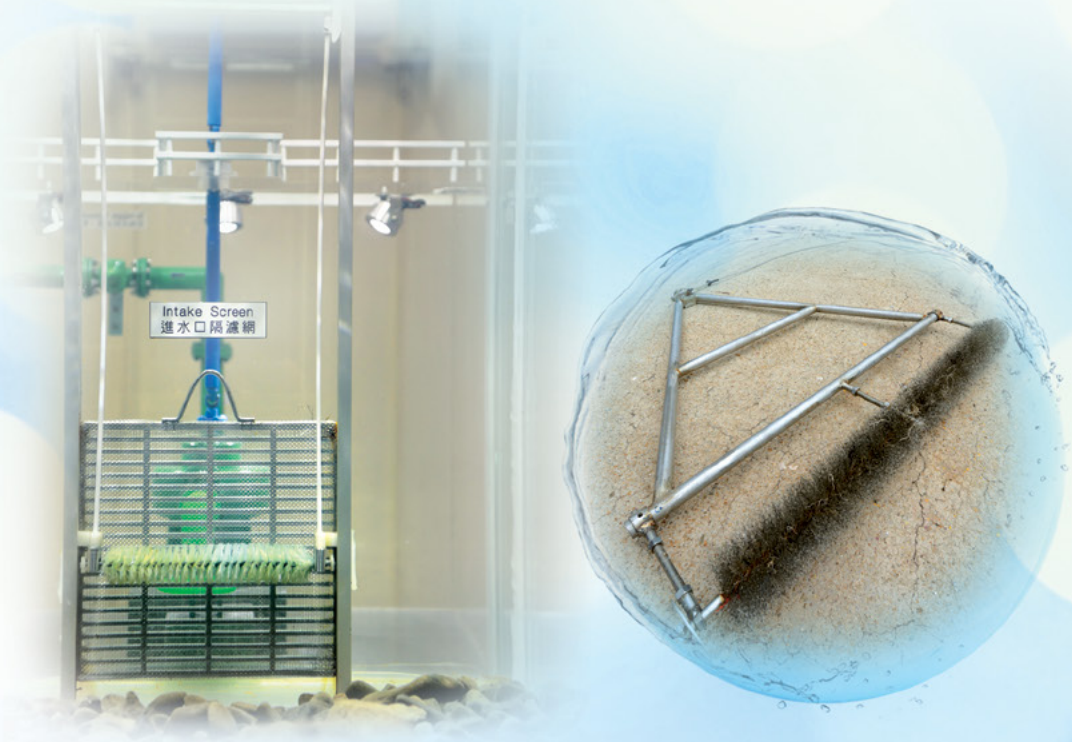
As one of the largest energy consumers in Hong Kong, the Department is implementing comprehensive measures to reduce its energy footprint while developing viable renewable energy initiatives. Over the past year, we have successfully reduced electricity consumption in our offices by 4.0 per cent.

海浪推動刷網裝置

本署自行開發的創新海浪推動刷網裝置，是借助浪潮自動清潔海旁抽水站的進水口濾隔網，以防止海洋生物依附生長，此舉大幅節省人力及能源成本。目前，大部份海旁海水抽水站已陸續加設該裝置。

Wave-powered Cleaning Device

The Department has developed an innovative wave-powered cleaning device driven by sea waves to prevent marine organisms from growing on the intake screens of seafront salt water pumping stations. This has resulted in significant manpower and energy savings. The majority of seafront salt water pumping stations have been installed with this device.



ISO 50001能源管理系統

二零一四年十二月，本署獲得ISO 50001能源管理系統認證，適用於香港特別行政區的集水、儲水、運水、濾水、分配水源及食水和海水供應方面。我們是首個獲得此項認證的香港政府部門。但我們深知，不應因此而鬆懈。我們將繼續推進多個正在實施的能源管理計劃，並每年作出檢討，務求達致節能目標。

環氧樹脂塗料工程的第一個階段已經完成，幾乎所有水泵的抽水效率均有所提高。我們將繼續為水泵加添環氧樹脂塗料。

ISO 50001 Energy Management System

In December 2014, the WSD was awarded the ISO 50001 Energy Management System certification applicable to the collection, storage, transfer, treatment, distribution and supply of fresh water and sea water within the Hong Kong, SAR. We were the first government department in Hong Kong to have received the certificate. We understand that there is certainly no room for complacency and we will continue a host of on-going energy management programmes, and make annual reviews to assist in achieving our energy saving objectives and targets.

Stage one of ceramic epoxy coating work has been completed and nearly all pump efficiency has improved as a result. We will continue to apply ceramic epoxy coating to water pumps.

水力發電站

屯門濾水廠首個水力發電機順利投入服務後，我們已展開第二期工程，著手於現址安裝第二台發電機。於二零一七年初完成整個工程後，我們預計每年將節省用電量3,000,000千瓦時，而二氧化碳排放量將減少2,000公噸。此外，在首個水力發電站成功興建的基礎上，我們將在沙田濾水廠重置工程中再建一個水力發電站。該工程的設計已於二零一五年十月啟動，預計將於二零一九年之前竣工。

Hydropower Generation plant

After the successful commissioning of the first hydropower generator at the Tuen Mun Water Treatment Works, we are now proceeding to Phase II of the project to install the second generator at the site. Upon completion of the entire project in early 2017, we estimate an annual savings in electricity of 3,000,000 kWh with a reduction of 2,000 tonnes of CO_2 emissions. Moreover, building on the success of installing the first hydropower generator, we plan to build another hydropower plant in the reprovisioning project of the Sha Tin Water Treatment Works. The design stage of this project began in October 2015 and is expected to be completed by 2019.

內聯閉式水力發電裝置

本署致力與香港理工大學(理大)合作研發內聯閉式水力發電裝置。適用於250毫米口徑水管使用的發電裝置原型已通過嚴格的實驗室測試，現正計劃於未來幾年增加這裝置的產量，在本署的智管網監測區域進行安裝。理大已申請創新科技署創新及科技支援計劃的項目撥款，而本署則作為公營機構身份，為其申請提供支援。內聯閉式水力發電裝置將為實時監測供水網絡的地下監測設備持續供電，以管理供水水壓及檢測水管是否存在滲漏。

In-line hydropower harnessing devices

The WSD has been collaborating with the Hong Kong Polytechnic University (PolyU) in the research and development of inline hydropower harnessing devices (IHHD). The prototypes suitable for use in the 250mm diameter pipes have passed vigorous laboratory tests and a plan is underway in the coming years to increase the production of the IHHD for deployment in the district metering areas (DMA) of the WSD's Water Intelligent Network.

PolyU has applied for project funding under the Innovation and Technology Support Programme (ITSP) of the Innovation and Technology Commission (ITC) with WSD serving as the supporting public sector body for the application. The IHHD will continuously power the underground monitoring equipment for real-time monitoring of the water distribution network in order to manage water supply pressure and detect water leakage in distribution pipework.

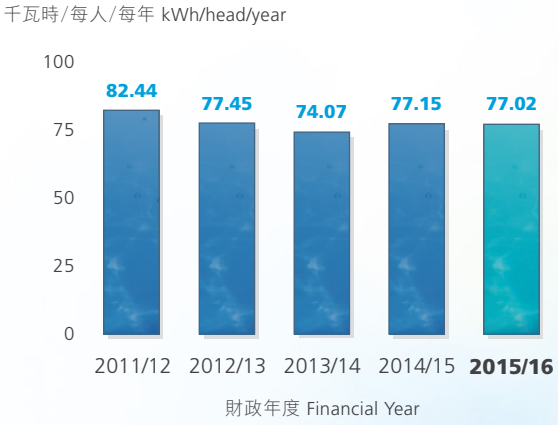
實施變速抽水裝置

變速抽水泵運作是現有及新建抽水站中的其中一項重要的節能措施。本署已在新建的華富海水抽水站展開一項試驗項目，以變速抽水泵運作模式供應沖廁海水給相關的供水區域。本署亦計劃在小西灣海水抽水站的提升工程及建議重置的夏慤道食水抽水站等新建設備亦將採用類似設計。

Implementation of variable speed pumping

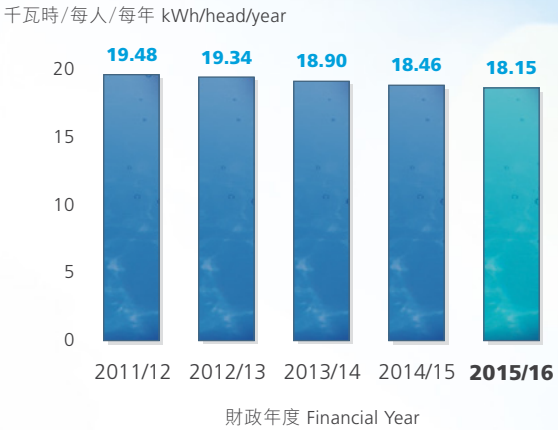
Variable speed pump operation is one of the key initiatives that can cut a pump's energy consumption for both existing and new pumping stations. A pilot scheme has been implemented at the newly commissioned Wah Fu Salt Water Pumping Station to supply sea water for toilet flushing in the related supply zone. A similar design will also be adopted for uprating work at the Siu Sai Wan Salt Water Pumping Station and new installations such as the proposed reprovisioned Harcourt Road Fresh Water Pumping Station.

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

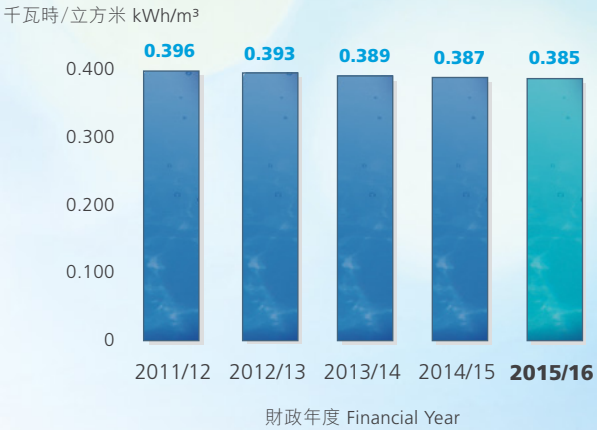


每單位耗電量(食水及原水)
Unit Electricity Consumption (Fresh Water and Raw Water)

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



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



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

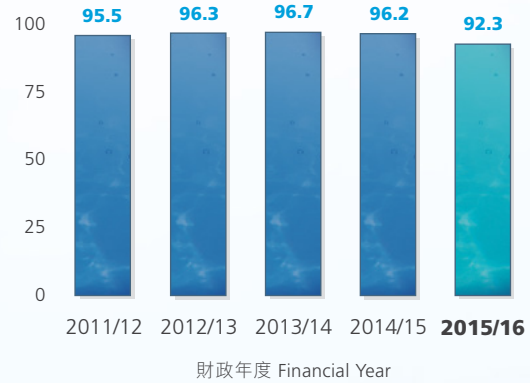
千瓦時/平方米 kWh/m²

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 & Sea Water)

公升/日 Litres/day



耗紙量
Paper Consumption

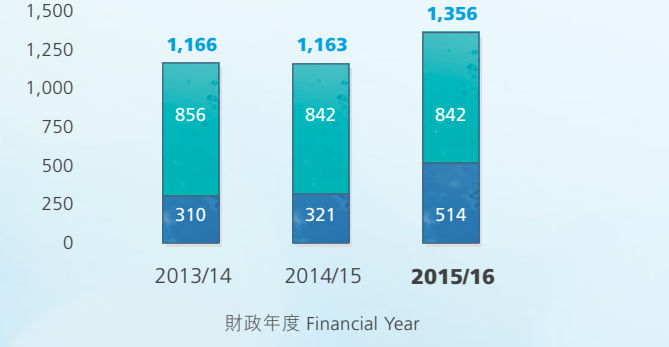
令 Reams

註：人均沖廁水耗用量(食水及海水)包括住宅及非住宅沖廁耗水量

Note: Per Capita Flushing Water Consumption (Fresh Water & Sea Water) consists of domestic and non-domestic flushing water consumption.

內部工作所需揮發性有機化合物耗用量
VOC Consumption for In-house Work

公斤 kg



公用集調車輛資料
Information on Vehicle Pool Transport

	公務用車數量 No of Government Vehicles in Operation			總燃料耗用量(公升) Total Fuel Consumption (Litres)			總車程(公里) Total mileage (km)		
	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16
柴油 Diesel	16	16	19	22,569	18,581	23,386	116,082	85,058	117,327
汽油 Petroleum	190	186	181	534,972	534,440	497,598	2,732,005	2,641,642	2,287,717
混合(汽油/電力) Hybrid (Petrol/Electric)	18	18	18	15,265	14,920	12,435	246,496	239,631	204,159
液化石油氣 LPG	13	13	13	35,187	53,802	57,218	107,640	157,962	165,590
電力 Electricity	9	13	15	-	-	-	74,572	82,740	97,188

廢氣排放
Emissions

(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		
	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16
直接廢氣排放 Direct Emissions												
公務用車(柴油) Vehicle fleet (Diesel)	59	48	55	-	-	-	1	-	1	-	-	-
公務用車(汽油) Vehicle fleet (Petrol)	1,299	1,216	1,114	-	-	-	1	1	1	-	-	-
公務用車(液化石油氣) Vehicle fleet (LPG)	59	88	85	-	-	-	-	-	-	-	-	-
間接廢氣排放 Indirect Emissions												
耗用電(九龍及新界) Electricity Consumed (Kowloon and New Territories)	371,581	391,276	332,732	209	250	78	455	482	313	13	15	7
耗用電(港島) Electricity Consumed (Hong Kong Island)	50,394	51,587	50,737	17	17	18	52	56	52	1	1	1
總量 Total	423,392	444,215	384,723	226	267	96	509	539	366	14	16	8