



環境管理

Managing the Environment

提升轄下設施的環境表現，是渠務署環境管理策略的重要一環。除此以外，我們亦以不同方式鼓勵員工及供應商支持環保，例如推動綠色文化及環保採購。

Enhancing the environmental performance of our territory-wide facilities is a crucial part of the environmental management strategy. Apart from this, we also engage our staff and suppliers to protect the environment in various ways, such as promoting green culture and green procurement.





328,024

種植灌木數量

No. of Shrubs Planted

綠化與生態保育

Greening and Enhancing Ecology

昂船洲污水處理廠改善工程的可持續發展措施

Sustainable Initiatives in Stonecutters Island Sewage Treatment Works' Upgrading

渠務署竭力改善維多利亞港的水質，同時把握機遇試行新的可持續發展措施。昂船洲污水處理廠現正採用以下措施，為業界樹立良好典範。

排疏有道 — 引入可持續排水系統

我們引入了可持續排水系統的元素，包括生態草溝、雨水花園及多孔透水路面等，以紓緩地面徑流對排水系統造成的影響。渠務署完成了在本港使用多孔透水路面的可行性研究，並正在昂船洲污水處理廠進行實地試驗。

可持續建築 — 採用綠建環評認證

綠建環評是香港綠色建築議會認可，為建築物制訂的全面環境評估系統。我們正為昂船洲污水處理廠行政大樓進行綠建環評認證，評估大樓的表現，藉此探討減低建造和運作期間碳足印的方法。行政大樓通過認證後，將成為可持續建築的一個成功例子，供其他污水處理廠參考。

煥然一新 — 綠化稠密環境

昂船洲污水處理廠環境擠迫，每日各類機械運作不斷，重型車輛川流不息，要在廠內進行綠化誠非易事，綠化工程能順利完成，顯示了我們追求可持續發展的積極態度。過去一年，我們於昂船洲污水處理廠完成了1,500平方米的天台綠化工程，並計劃於來年進行更多水平和垂直綠化。

In addition to enhancing the water quality of Victoria Harbour, DSD endeavours to seize opportunities to carry out pilot sustainable initiatives. The following initiatives are being implemented at Stonecutters Island Sewage Treatment Works (SCISTW) and they have established good examples for the industry.

Drain Responsibly – Introducing Sustainable Drainage Systems

Elements of sustainable drainage systems, such as the provision of bioswale, rain garden, permeable pavement, have been introduced to minimise the impact of excessive runoff. DSD has completed a feasibility study on the application of permeable pavement in Hong Kong and is conducting site trials at SCISTW.

Build Sustainably – Undertaking BEAM Plus Assessment

Building Environmental Assessment Method (BEAM) Plus Assessment is a comprehensive environmental assessment scheme for buildings recognised by Hong Kong Green Building Council. The Administration Building of SCISTW is undergoing the BEAM Plus process to assess its building performance and to explore ways for improvement through reducing carbon footprint during both construction and operation phases. This will also establish a model of “build sustainably” for other Sewage Treatment Works (STW) to follow suit.

Plant Smartly – Applying Soft Landscaping in Congested Environment

SCISTW is a congested and busy STW with multiple machinery operation and heavy vehicular traffic every day. Greening within SCISTW is hence no easy task and the success has demonstrated DSD's commitment to sustainability. In the previous year, a total of 1,500 square metres of green roof have been constructed at SCISTW while more horizontal and vertical greening works are expected for the coming year.

蝴蝶谷道寵物公園綠化工程 Greening Works at Butterfly Valley Road Pet Garden

蝴蝶谷道寵物公園是渠務署、康樂及文化事務署和深水埗區議會三方合作的成功例子，公園於2014年3月開放後，區內的生活環境更青翠怡人。

Opened in March 2014, the Butterfly Valley Road Pet Garden was an example of successful collaboration between DSD, the Leisure and Cultural Services Department and Sham Shui Po District Council in enhancing the local living environment.



寵物公園佔地7,000平方米，建於荔枝角雨水排放隧道的靜水池上蓋，位處青沙公路高架天橋之下。一塊土地兼顧防洪、運輸及康樂多重功能。雨水排放隧道收集的雨水經過適當處理後，除會用於寵物公園的沖廁、灌溉及清潔外，亦供給食物環境衛生署作區內清洗街道，以善用水資源。

寵物公園內種有75棵樹和逾50,000棵灌木及地被植物，草地面積廣達600平方米。公園內除設有長木凳及寵物飲水器外，還有多種供寵物玩樂的設施，如模擬排水管、穿梭擺杆和跳躍圈環，讓寵物盡情玩耍。

The 7,000 square metres pet garden was built on top of the stilling basin of Lai Chi Kok Drainage Tunnel and beneath the viaduct of Tsing Sha Highway. This single piece of land serves the multi-purpose of flood prevention, transportation and recreation at the same time. To preserve water resources, the rainwater collected in Lai Chi Kok Drainage Tunnel will be used, upon suitable treatment, for non-potable uses such as for toilet flushing, irrigation and general cleansing within the pet garden, as well as for street cleansing by the Food and Environmental Hygiene Department in Sham Shui Po district.

The pet garden was planting with 75 trees and more than 50,000 shrubs/groundcovers on 600 square metres of lawn areas. Besides timber benches and pet drinking fountains, the garden was also equipped with pet recreation facilities such as drainage pipes, weave poles and jumping hoops to nurture a joyful atmosphere.



位於青沙公路高架天橋下的蝴蝶谷道寵物公園
Butterfly Valley Road Pet Garden under the viaduct of Tsing Sha Highway



寵物公園在夜間的景觀
Night view of the pet garden



砌有漣漪圖案的行人徑
Ripple-pattern footpath



寵物玩樂設施
Recreation facilities for pets

渠務署設施的天台綠化工程 Green Roofs for DSD Facilities

天台綠化是改善空氣質素、降低室內溫度及減少建築物耗能的好方法，同時可以美化建築物外觀及改善周邊環境的生物多樣性。於2013-14年度，我們在轄下9所廠房進行了總面積逾4,900平方米的天台綠化工程。此外，我們正為9所新建廠房和3所現有廠房進行天台綠化工程，預計於2014-15年度完成。

Roof greening can not only improve air quality, lower indoor temperature and reduce energy consumption of the building, but also enhance the building appearance and improve bio-diversity of the environment. In 2013-14, we have completed over 4,900 square metre roof greening works for nine facilities. Roof greening in other DSD facilities, including nine new facilities and three existing ones, are anticipated to be completed in 2014-15.

2013-14年度完成的天台綠化工程	Green roofs completed in 2013-14
九龍城一號及二號污水泵房	Kowloon City Sewage Pumping Station Nos.1 and 2
水蕉新村路污水泵房	Shui Tsiu San Tsuen Road Sewage Pumping Station
廈村污水泵房 (共兩座建築物)	Ha Tsuen Sewage Pumping Station (two nos. of buildings)
荔枝角雨水排放隧道	Lai Chi Kok Drainage Tunnel
昂船洲污水處理廠的污泥脫水房	Sludge dewatering building at Stonecutters Island STW
荃灣雨水排放隧道 (共3座建築物)	Tsuen Wan Drainage Tunnel (three nos. of buildings)
預計於2014-15年度完成的天台綠化工程	Green roofs for completion in 2014-15
九龍灣污水截流站及泵房	Kowloon Bay Interception Station and Pumping Station
屯門西部主幹污水泵房	Tuen Mun Western Trunk Sewer Sewage Pumping Station
深水埗一期和二期基本污水處理廠	Sham Shui Po Preliminary Treatment Works Nos. 1 and 2
望后石污水處理廠 (共6座建築物)	Pillar Point STW (six nos. of buildings)
觀塘中途污水泵房	Kwun Tong Intermediate Sewage Pumping Station

規劃中的天台綠化工程

將軍澳基本污水處理廠 — 隔篩大樓及入水泵房

我們現正計劃為將軍澳基本污水處理廠的隔篩大樓及入水泵房，進行天台綠化工程，以美化廠房的外觀並融入周邊環境。有關工程預計於2014年年中動工，為期一年。我們將栽種約26,000棵灌木和200棵攀援植物，總綠化面積約為1,500平方米。

Green Roofs under Planning

Tseung Kwan O Preliminary Treatment Works – Screens Building & Inlet Pumping Station

We are planning for retrofitting green roofs at the Screens Building and Inlet Pumping Station of Tseung Kwan O Preliminary Treatment Works to improve their outlooks and to harmonise them with the surrounding environment. The relevant works are scheduled for commencement in mid-2014 for one-year construction period. With a total greening area of about 1,500 square metre, about 26,000 shrubs and 200 climbers will be planted on the roofs.

最近完成的天台綠化工程

九龍城一號及二號污水泵房

九龍城一號及二號污水泵房位於啟德發展區毗鄰，以可持續發展的設計概念，創造城市綠洲。大樓加入了透水草坪路面、垂直綠化、天台花園和雨水花園等多項綠色元素，以達至最大的綠化面積；污水泵房佔地約5,600平方米，其中約4,300平方米為園境綠化地帶。此外，泵房亦加入了雨水回用的概念，收集雨水作廠內灌溉用途。綠化天台採用了兩種顏色和質感的植物，拼出鮮明的幾何圖案，令綠化效果更悅目。兩座污水泵房經過綠化後變得蒼翠柔和，不但改善了附近的景觀，亦豐富了市區的生物多樣性。

Green Roofs Recently Completed

Kowloon City Sewage Pumping Station Nos. 1 & 2

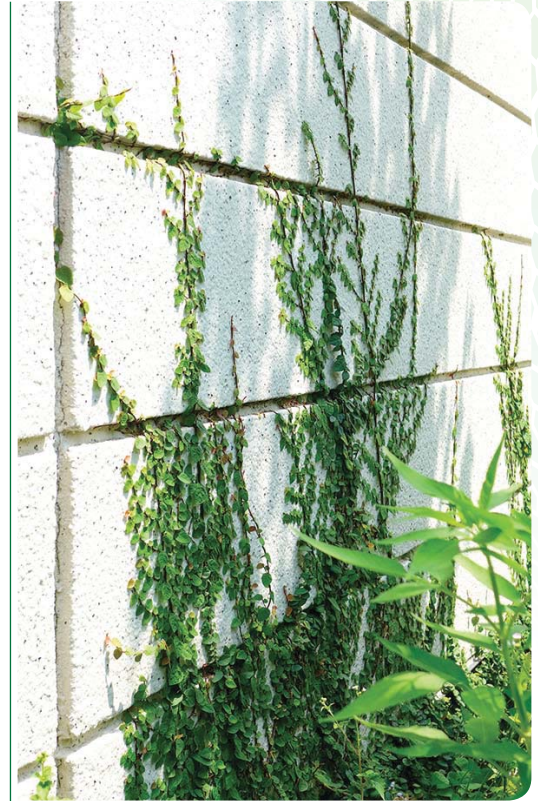
Kowloon City Sewage Pumping Station (SPS) Nos. 1 & 2 are located at the rim of Kai Tak Development Area. Aiming to achieve a sustainable design, the facilities have implanted the design concept of creating an urban oasis. The building surfaces are well integrated with green infrastructure elements such as pervious grass pavement, vertical greening, roof garden and rain garden to maximise the green coverage. The SPSs occupied an area of about 5,600 square metre, of which about 4,300 square metres are landscaping area. The concept of rainwater harvesting has also been introduced and the collected rainwater would be used for irrigation purpose within the facilities. The green roofs have adopted two different colours and textures to create a vivid geometry and to enhance the visual interest. With all these green elements, the SPSs provide a visual relief to the surrounding residents and enrich the urban biodiversity.



九龍城一號污水泵房鳥瞰圖
Bird's-eye view of Kowloon City SPS No. 1



九龍城一號污水泵房的水景
Water feature at Kowloon City SPS No. 1



圍牆的攀援植物
Creeping plant at fence wall



九龍城二號污水泵房的垂直綠化
Vertical greening at Kowloon City SPS No. 2



九龍城二號污水泵房的綠化天台
Green roof at Kowloon City SPS No. 2





九龍城二號污水泵房鳥瞰圖
Bird's-eye view of Kowloon City SPS No. 2



垂直綠化 Vertical Greening

赤柱污水處理廠的室內垂直綠化

自2014年1月，我們與香港中文大學合作，在赤柱污水處理廠進行室內垂直綠化系統的研究，評估不同系統的表現，以及在能源和維修保養方面的要求。研究結果將在成效、限制及設計等方面提供建議，有助我們日後推行室內垂直綠化，尤其是在岩洞污水處理廠。

我們正在面積約180平方米、超過60米長的岩洞牆壁上，試驗採用5種不同的垂直綠化系統。所有系統皆配置了自動灌溉和人工照明，並會全面監測和記錄栽培介質濕度、光度及其他生長參數等。我們預計可於2015年年初取得研究的中期結果及建議。

Study of Indoor Vertical Greening Systems in Stanley STW

The study of indoor Vertical Greening (VG) at Stanley STW has been carrying out in collaboration with the Chinese University of Hong Kong since January 2014. The purpose of the study is to evaluate the performance and the energy and maintenance requirements of various VG systems in an indoor environment. The study results will provide clues to practicability, limitation and design considerations for our future application of indoor VG systems, particularly for STW in caverns.

The study involved trial adoption of five different VG systems on an area of about 180 square metres with over 60 metres length on the cavern wall. Automatic irrigation and artificial lighting have been provided, and the substrate moisture, light intensity and other growth parameters are being closely monitored and recorded. Interim findings and recommendations of the study are expected in early 2015.



監測泥土濕度的感應儀
Moisture sensor for monitoring soil moisture



岩洞牆壁上的垂直綠化系統
Cavern wall with VG



赤柱污水處理廠的室內垂直綠化全貌
Overview of indoor VG at Stanley STW

能源管理及排放控制

Energy Management and Emissions Control

進行碳審計 Conducting Carbon Audit

碳審計是為機構內不同程序的溫室氣體（主要為二氧化碳）排放和減除，作出識別、核算及報告的方法。進行碳審計可確定主要排放源，並藉降低耗能、提高效率、使用可再生能源等，以減少溫室氣體排放量。

年內，我們分別在沙頭角污水處理廠、沙田污水處理廠、石湖墟污水處理廠、赤柱污水處理廠、昂船洲污水處理廠及大埔污水處理廠，進行了碳審計。

展望將來，我們計劃擴大碳審計範圍至其他污水處理廠及工程項目，並推行更多減碳措施，為公眾提供優質的防洪及污水處理服務的同時，竭力減少碳足跡，並在營運上提高環保效益。

Carbon audit is a method to identify, account and report the emission and removal of Greenhouse Gases (GHG), mainly carbon dioxide (CO₂), from different processes within the boundary of an entity. Carbon audit enables identification of the major sources of emission and exploration of ways of reduction through reducing energy consumption, improving efficiency, using renewable energy etc.

We conducted carbon audits for Sha Tau Kok Sewage Treatment Works (STW), Shatin STW, Shek Wu Hui STW, Stanley STW, Stonecutters Island STW and Tai Po STW this year.

Looking forward, we are planning to extend the scope of carbon audits and carbon emission reduction measures to other STW and construction works. We will strive to reduce our carbon footprint and to operate in a more environmentally friendly manner while maintaining high quality drainage and sewage treatment services for the public.

2012年的碳足跡

Carbon Footprint in 2012

廠房名稱 Name of plant	耗電所產生的 間接碳排放 Indirect emissions generated from the use of electricity	除氮過程中釋放的 氧化氮 N ₂ O emissions through nitrogen removal	直接燃燒燃料所 產生的碳排放 Emissions generated from direct combustion of fuels	其他 ^[1] Other ^[1]	總碳排放 Total emission	處理每立方米污 水產生的平均碳 排放 CO ₂ equivalent emitted per m ³ of sewage treated
(以公噸二氧化碳當量計算) (in tonnes of CO ₂ equivalent)						(公斤) (in kg)
沙頭角污水處理廠 Sha Tau Kok STW	116	13	11	0	140	0.41
沙田污水處理廠 Shatin STW	17,323	782	2,362	67	20,533	0.25
石湖墟污水處理廠 Shek Wu Hui STW	6,781	377	2	31	7,191	0.24
赤柱污水處理廠 Stanley STW	2,574	33	1	8	2,615	0.84
昂船洲污水處理廠 Stonecutters Island STW	36,498	0	8	329	36,835	0.07
大埔污水處理廠 Tai Po STW	8,538	368	17	92	9,016	0.26

[1] Sum of direct and indirect net GHG emissions resulted from planting of trees, refrigeration, methane release from sludge digester, electricity used for fresh water processing, and/ or methane generation at landfill due to disposal of paper waste.



沙田污水處理廠的電動車
EV in Shatin STW



使用電動車 Use of Electric Vehicles

電動車由電池驅動，不需要燃燒汽油，能做到零排放，有助改善香港的路邊空氣質素。截至2014年3月，渠務署有10部電動車在使用中，平均每日行車總里數約為500公里。我們計劃在日後更為廣泛使用電動車。

Electric vehicles (EVs) are powered by batteries without involving any combustion process. They have zero emission and help improve roadside air quality in Hong Kong. As at March 2014, DSD has engaged ten EVs and their average daily mileage was about 500 kilometres. We target to promote the wider use of EVs in future.

實施多項節能措施 Implementing Various Energy Saving Measures

我們於2007年成立能源及排放管理小組，小組由一位助理署長領導，成員包括來自各分科的高級專業人員。年內，我們在全港各區的工作中，均積極節能減排，成效令人滿意。在過去7年，我們透過下列措施節省了超過1,160萬度電：

- 優化污水處理流程；
- 在污水處理廠採用電熱聯供設施；
- 將各廠房的T8光管及戶外照明燈，分別更換為T5光管，以及發光二極管燈和風力太陽能照明燈；及
- 在污水處理設施使用高效能的水泵。

在2013-14年度，我們的節能表現令人滿意；其中沙田污水處理廠的優化曝氣系統及混合沉澱方案（節省約88萬度電）和昂船洲污水處理廠的離心式脫水機優化程序（節省約14萬度電），減幅尤為顯著。

Energy and Emission Management Team was established in 2007 and headed by an Assistant Director with members from all branches at senior professional level. We have made steady progress in energy saving and emission reduction in our city-wide operation. DSD has saved more than 11.6 million kilowatt-hours of electricity over the past seven years, through implementing the following measures:

- Optimisation of sewage treatment processes;
- Use of combined heat and power (CHP) plants at various sewage treatment works;
- Replacement of T8 fluorescent lamps and outdoor lights with T5 lamps, LED and wind solar hybrid lamps respectively at various plants; and
- Use of high-efficiency pump motors in sewage treatment facilities.

In 2013-14, our performance in energy saving was promising. In particular, the co-settling and optimisation of aeration system at Shatin STW (0.88 million kilowatt-hours) and the optimisation of operation of centrifuges at Stonecutters Island STW (0.14 million kilowatt-hours) were among the largest contributors.

使用可再生能源 Use of Renewable Energy

於污水處理設施安裝太陽能光伏板

我們已於元朗、西貢、石湖墟、昂船洲及沙灣的污水處理廠，安裝大規模的太陽能光伏系統，以供應電力給廠內設備使用。這些太陽能光伏板的總發電量約為128千瓦，每年輸出總電量達104,000度電。我們正計劃於未來兩年，在另外9座廠房安裝總發電量達891千瓦的太陽能光伏板。

Use of Photovoltaic Panels in Sewerage Facilities

We have installed large-scale photovoltaic (PV) systems supplying electricity to the equipment at some of our major facilities, including Yuen Long STW, Sai Kung STW, Shek Wu Hui STW, Stonecutters Island STW, Sandy Bay PTW, etc. The total capacity and annual electricity output of the PV panels were about 128 kilowatts and 104,000 kilowatt-hours respectively. In the coming two years, we plan to install PV panels in nine other sewage treatment facilities at a total capacity of 891 kilowatt.

元朗污水處理廠的太陽能光伏板
PV panels at Yuen Long STW



廈村污水泵房的太陽能光伏板
PV panels at Ha Tsuen Sewage Pumping Station

生物氣轉化為能

我們在轄下設施安裝電熱聯供發電機及微型渦輪系統，利用污水處理過程中產生的生物氣發電。兩者皆為較潔淨的發電技術，有助減少溫室氣體的排放。

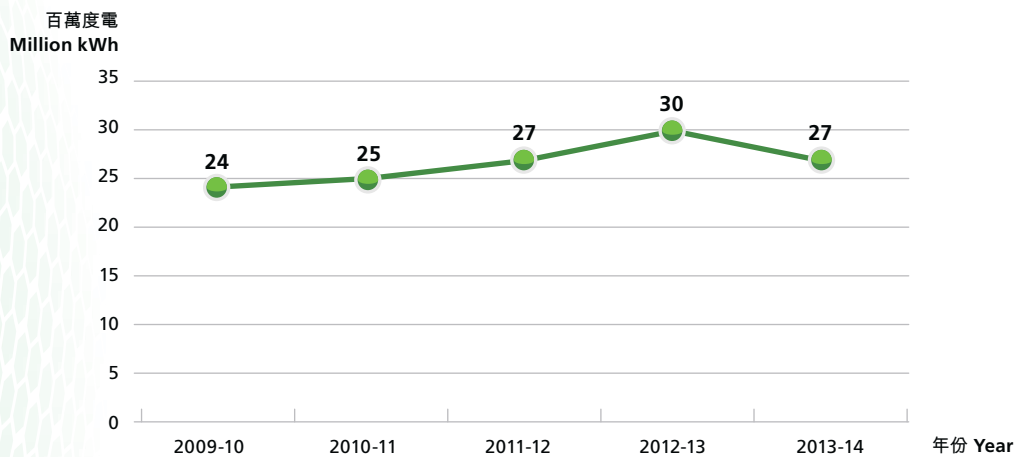
位於大埔污水處理廠（發電量為625千瓦）及石湖墟污水處理廠（發電量為635千瓦）的電熱聯供發電機，已分別於2010年及2011年啟用。於2013-14年度，我們在沙田及大埔污水處理廠安裝了新的電熱聯供發電機（總發電量為3,600千瓦），同時在元朗污水處理廠安裝了微型渦輪（發電量為30千瓦）。透過以上裝置，我們於2013-14年度利用生物氣共生產了約2,700萬度電。

Turning Biogas to Energy

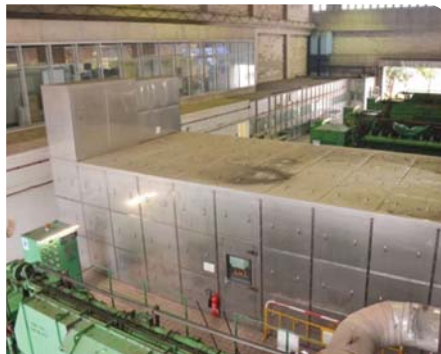
We have installed combined heat and power (CHP) generators and micro-turbine systems in our facilities for generation of renewable energy using biogas produced from the sewage treatment process. Adoption of CHP generator and micro-turbine fueled by biogas primarily are cleaner technologies that help reduce greenhouse gas emissions.

In 2013-14, we have completed installation of new CHP generators in Shatin and Tai Po STW (total capacity at 3,600 kilowatts), and micro-turbine in Yuen Long STW (capacity at 30 kilowatts). Together with the existing CHP generators of Tai Po STW (commissioned in 2010 with capacity at 625 kilowatts) and Shek Wu Hui STW (commissioned in 2011 with capacity at 635 kilowatts), the total amount of electricity generated from biogas in 2013-14 was about 27 million kilowatt-hours.

生物氣發電量（百萬度電）
Electricity Generated from Biogas (Million kWh)



沙田污水處理廠的電熱聯供發電機控制板
Control panel for CHP generator at Shatin STW



沙田污水處理廠的電熱聯供發電機
CHP generator at Shatin STW



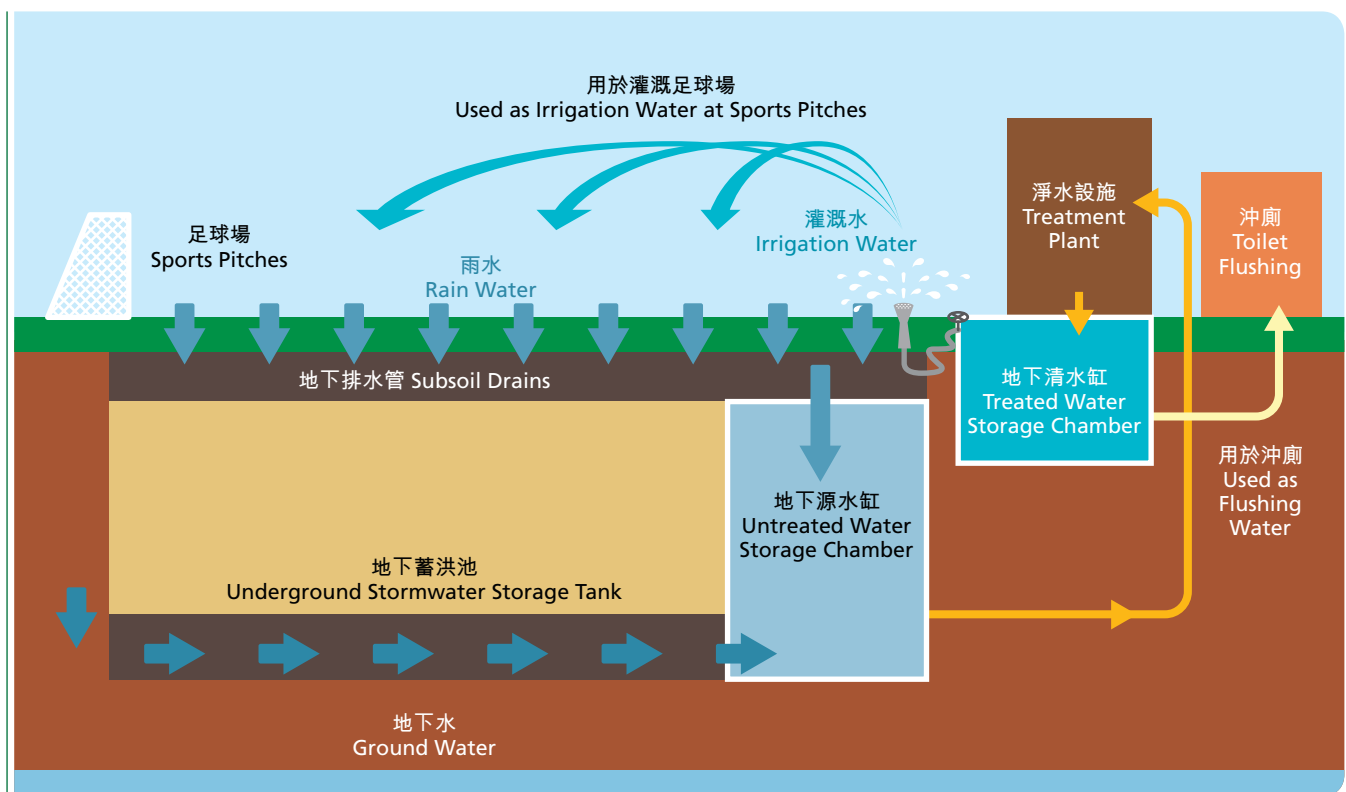
節約資源

Resources Conservation

跑馬地地下蓄洪計劃－水資源採集及回用系統、「草坡下的泵房」設計 Happy Valley Underground Stormwater Storage Scheme - Water Harvesting System and "Lawn on Top" Design

快活谷馬場是跑馬地的地標，該處的跑馬地遊樂場設有11個球場、緩跑徑、健身設施及大型綠化地帶。這些設施每日需要耗費大量水資源作灌溉和沖廁等用途。我們把握機會，在跑馬地地下蓄洪計劃中加設水資源採集及回用系統，回收地下水、過剩的灌溉水及雨水，將其適當處理後再用於灌溉和沖廁，系統啟用後將大幅減少食水的使用量。

Happy Valley Racecourse is a landmark of Happy Valley. The Happy Valley Recreation Ground consisted of 11 sports pitches, a jogging track, some fitness facilities and a large landscaped area. Substantial amount of water was required every day for irrigation and toilet flushing. Happy Valley Underground Stormwater Storage Scheme (HVUSSS) being carried out within the Happy Valley Recreation Ground provides an opportunity for installing a Water Harvesting System (WHS) to collect groundwater, excessive irrigation water and rainwater for reuse in irrigation and toilet flushing upon suitable treatment. The WHS, upon commission, will save a considerable amount of fresh water supply.



跑馬地遊樂場的水資源採集及回用系統
WHS at the Happy Valley Recreation Ground

由於工程位於跑馬地遊樂場內，我們採用了「草坡下的泵房」的設計概念，將泵房與周圍環境融為一體。擬建泵房和風扇房的外牆，均將設有綠化面或草坡，以減低對視覺的影響。泵房頂部的草坡及蓄洪池入水口上蓋的空間，亦將用作公眾休憩區。

Being located at the Happy Valley Recreation Ground, the proposed fan room and pump house have been designed to be covered by greenery to minimise visual impact. The "Lawn on Top" design concept has been adopted for the pump house to blend it with the surrounding environment. The sloping green roof of the pump house and the cover of the storage tank intake structure will be open to the public and served as sitting-out areas for spectators.

跑馬地地下蓄洪計劃的「草坡下的泵房」設計
“Lawn on Top” design of HVUSSS



除了注重園景綠化和建築設計外，工程中亦加入了環保元素，包括採用再造建材、環保多孔透水路磚、太陽能光伏板及高效能機電設備等，以盡量節能減排。跑馬地地下蓄洪計劃憑藉上述的可持續發展元素，成功取得香港綠色建築議會綠建環評中，新建築物類別的暫定鉅金評級。

In addition to the landscaping and architectural design, the construction works have also been implanted with environmentally friendly elements. These include the use of recycled exterior building materials, recycled porous paving blocks, solar panels and high energy efficient appliance to reduce energy consumption and carbon emissions. With the adoption of these sustainable constituents, HVUSSS has clinched the Platinum rating in the provisional assessment of BEAM Plus – New Building granted by the Hong Kong Green Building Council.

污水處理廠生產再造水 Water Reclamation in Sewage Treatment Works

再造水是「全面水資源管理策略」的重點措施之一，意指利用再造水取代高質食用水作非飲用用途。重用經處理的污水、回收洗滌用水及採集雨水回用，都是再造水的例子。

在2013-14年度，渠務署每日生產約1,200立方米的再造水。2013年12月，大埔污水處理廠新建的再造水設施投入運作，進一步提升再造水的生產量。



大埔污水處理廠的再造水設施
Water reclamation facility of Tai Po STW

Water reclamation is one of the key initiatives under the Total Water Management Strategy. It refers to the use of reclaimed water to replace high quality fresh water used for non-potable purposes. Reuse of treated effluent, grey water recycling and rainwater harvesting are examples of water reclamation.

In 2013-14, the daily use of reclaimed water used by DSD was about 1,200 cubic metres. The new water reclamation facility of Tai Po STW was commissioned in December 2013, further increasing the production of reclaimed water.

日常營運中採用環保物料和產品 Use of Green Materials and Products in daily operations

我們在日常營運中採用了以下環保物料和產品：

- 由回收碎玻璃製成的玻璃磚、路磚、渠管墊料、墊層混凝土原料和多孔排水物料；
- 由回收再造物料製成的合成沙井蓋、合成溝渠格柵及地台物料；及
- 再造木材。

We have adopted the use of the following green materials and products in our daily operations:

- Glass blocks, paving blocks, pipe bedding materials, ingredients of blinding concrete and porous drainage materials made of recycled glass cullet;
- Synthetic manhole covers, synthetic gully gratings and floor materials made of recycled materials; and
- Recycled timber.

環保採購及綠色辦公室

Green Procurement and Green Office

為提倡環保採購，政府於2011年擴充了政策局和部門的環保產品清單，並建議各政策局和部門在符合經濟原則的可行情況下，盡量選購環保產品，避免使用即棄物品。渠務署一直積極支持政府的環保採購政策。於2013-14年度，我們採購了多項符合環保規格的產品，包括電器用品(例如電腦、影印機、打印機、電風扇和雪櫃等)，以及辦公室耗材(如再造紙、塗改帶、鉛筆、充電電池、衛生紙和垃圾袋等)。

多年來，我們實施了多項辦公室節能措施，例如把室溫設定在攝氏25.5度、減少非必需的照明，以及使用時間掣將公用辦公室設備於非辦公時間關機等。

為使辦公室的運作更環保，我們積極減廢和節約資源。除了發出有關節約用紙的指引外，我們鼓勵同事重用信封，並設立回收站回收打印機碳粉盒、充電電池、廢紙、塑膠和金屬容器等。我們亦經常發放綠色資訊及巡查辦公室，以提高員工的環保意識。

我們鼓勵員工每逢星期一茹素，以推廣健康的低碳生活。此外，我們為會議室添置了小盆栽，既可綠化環境，也

可為員工和訪客提供更佳的室內空氣質素。



於會議室內擺放盆栽
Provision of potted plants in conference room

To support green procurement, the Government expanded the list of products with green specifications commonly used by bureaux and departments in 2011. All bureaux and departments are encouraged to, as far as feasible and where economically rational, preferentially purchase products with green specifications and avoid one-off disposable items. DSD has actively supported the Government's initiatives on green procurement. In 2013-14, we have purchased a wide variety of products in accordance with the green procurement specification. These products ranged from electrical appliances, such as computers, copying machines, printers, electric fans and refrigerators, to office consumables, including recycled paper, correction tapes, pencils, rechargeable batteries, toilet paper and garbage bags.

Over the years, we have implemented a number of energy saving initiatives in our offices. These include setting the room temperature at 25.5 degree Celsius, de-lamping unnecessary lights, installing timers to switch off common office equipment after office hours, etc.

To keep our office green, we have also adopted measures related to waste reduction and resource conservation. In addition to implementing guidelines on reducing paper use, we encourage our staff to reuse envelopes. We have also set up recycling stations to collect cartridge toners, rechargeable batteries, paper, plastic and metal containers. To further enhance awareness amongst our staff, we have regularly disseminated green tips and conducted environmental inspections for our workplace.

To promote healthy and low carbon life style, we encourage colleagues to choose vegetarian dishes for lunch on Mondays. Moreover, small potted plants were put in conference rooms to provide greener environment and cleaner air for staff and visitors.



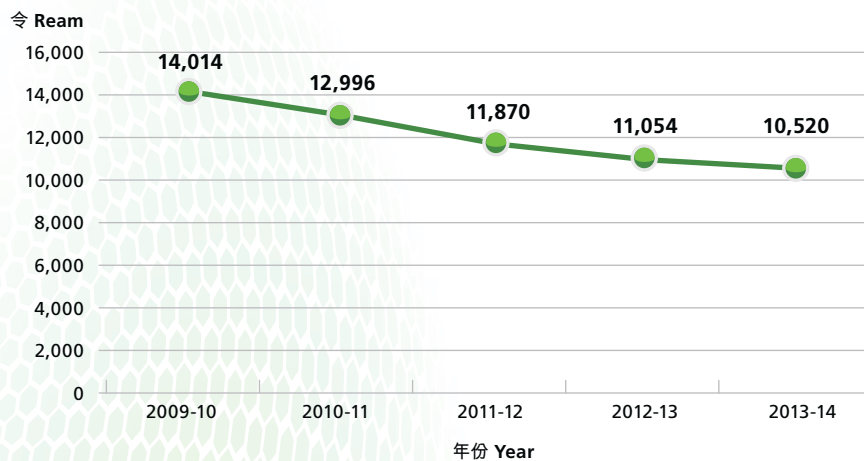
渠務署內聯網的「素食星期一」網站
"Go Green Mondays" website on DSD intranet



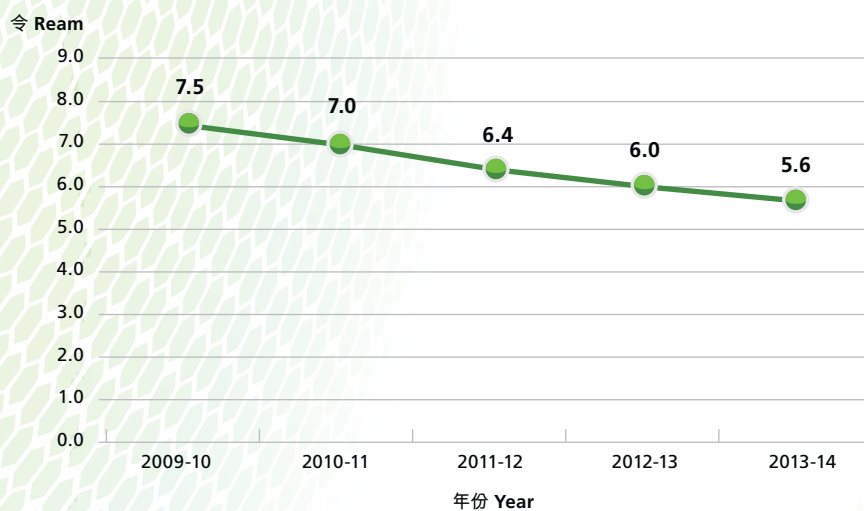
無線通訊科技發展一日千里，我們與時並進，推動「無紙會議」，於日常會議中廣泛使用平板電腦和手提電腦等電子產品進行簡報及討論，節約用紙。於2013-14年度，渠務署共舉行了約300次無紙會議，並以電子方式傳閱逾2,700份相關文件。透過電子傳閱和雙面打印等環保措施，本署的用紙量自2009-10年度持續下降，我們於2013-14年度的用紙量約為10,500令，較2009-10年度減少約25%。

With the fast development of wireless communication technology, we have introduced a "paperless meeting" system, using electronic devices such as tablet computers and notebooks for presentations and discussions at meetings. About 300 paperless meetings were conducted in 2013-14 with more than 2,700 documents circulated and viewed through this system. Together with other green measures, such as electronic circulation and double-sided printing, DSD's paper consumption has been constantly decreasing since 2009-10. Our paper consumption in 2013-14 was about 10,500 reams, i.e. about 25 per cent reduction as compared with 2009-10.

用紙量 (令)
Total Paper Consumption (Ream)



每名員工用紙量 (令)
Paper Consumption per Staff (Ream)



氣味管理

Odour Management

小濠灣污水處理廠的氣味管理措施

Odour Control Measures at Siu Ho Wan Sewage Treatment Works

自2007年，渠務署一直監察小濠灣污水處理廠的氣味水平，並推行以下氣味管理措施：

- 在污水處理過程使用氯化鐵代替明礬，藉此去除難聞氣味，同時令污泥更易沉澱；
- 增設兩座化學洗滌塔和一台活性碳除味裝置，更有效控制污泥處理系統產生的氣體；
- 覆蓋紫外光消毒設施的渠道；
- 派員每周進行氣味巡查，並委託香港實驗所認可計劃下的化驗所定期測量氣味水平；
- 設立全天候收集廠內硫化氫水平和風速的氣象站，以監察氣味情況；及
- 以密封玻璃纖維強化塑膠蓋覆蓋初級沉澱池，並安裝生物滴濾塔除味裝置（預計2014年年底完工）。

DSD has been monitoring and controlling the odour level at Siu Ho Wan STW since 2007. The control measures employed include:

- Dosing ferric chloride as a replacement of Alum in the sewage treatment process for suppressing unpleasant smell and increasing the efficiency of sludge sedimentation;
- Installation of two water scrubbers and one carbon filter system for more effective control of the exhaust from sludge treatment system;
- Covering channels of the Ultraviolet Disinfection System;
- Carrying out weekly odour patrols by in-house staff and regular odour surveys by a Hong Kong Laboratory Accreditation Scheme accredited laboratory;
- Installation of a weather station to collect 24-hour data of hydrogen sulphide levels and wind speed for monitoring the odour situation; and
- Installation of airtight fibreglass reinforced plastic covers and Biotrickling Filters on primary sedimentation tanks (anticipated completion by end 2014).



初級沉澱池的密封玻璃纖維強化塑膠蓋
Fiberglass reinforced plastic covers for primary sedimentation tanks



生物滴濾塔除味裝置
Biotrickling Filters



昂船洲污水處理廠－已覆蓋的沉澱池
SCISTW - sedimentation tanks with covers



淨化海港計劃的氣味管理

Odour Management for Harbour Area Treatment Scheme

我們於淨化海港計劃第二期甲工程的設計階段，已為昂船洲污水處理廠擬定氣味管理計劃，並建議所有會產生氣味的現有和新建設施，包括主泵房、沉澱池、污泥脫水設施、筒倉及流量分配池等，均應採用獨立設計和配置除味裝置，以消除潛在的氣味問題。

淨化海港計劃第二期甲工程的氣味管理措施，包括防洩系統、通風系統及除味裝置。其設計主要考慮了氣味的濃度、換氣速率、生命周期成本及空間要求等。以下為部分已完成或正在進行的氣味管理措施：

- 1) 我們於2012年6月完成沉澱池的覆蓋工程，現時已將池中氣體抽至生物滴濾塔除味。這類除味裝置的優點是處理量大，能夠去除超過99%的硫化氫，而且可以減少使用化學品。
- 2) 我們在污泥脫水設施裝使用化學洗滌塔作為主要的除味技術，因為所需空間較少，而且可處理不同強度的氣味。
- 3) 流量分配池產生的氣味相對較輕微，因此我們採取被動式方案，將其圍封並經管道連接至活性碳除味裝置。這方式耗能較少，亦免卻經常維修。

During the design stage of Harbour Area Treatment Scheme (HATS) Stage 2A, an odour management plan was formulated for Stonecutters Island Sewage Treatment Works which recommended all major existing and planned odour-emitting facilities, such as the main pumping stations, sedimentation tanks, sludge dewatering facilities, silos and flow chambers, to be self-contained and deodourised with a view to eliminating potential odour nuisance.

The main components of odour control measures under HATS Stage 2A include the containment system, ventilation system and deodourisation units. Key considerations in odour control design include odour strength, air-change rates, life-cycle costs and footprint requirements. Below are some of the odour control measures that have been implemented or are being implemented under HATS Stage 2A:

- 1) The sedimentation tanks have been covered since June 2012, and the odourous gas is now extracted and transferred to the biotrickling filters for deodourisation. Biotrickling filter has been adopted as it can minimise chemical consumption and handle large-volume deodourisation at a high hydrogen sulphide removal performance of over 99 per cent.
- 2) The sludge dewatering facility has adopted chemical scrubber as the prime deodourisation technology as it can handle foul air of varying odour strengths within a compact footprint.
- 3) At flow chambers where the chance of odour emission is relatively low, a passive approach of containment with pipe work connected to activated carbon deodourisation units has been adopted. This approach requires less energy consumption and minimises maintenance requirement.

昂船洲污水處理廠－已覆蓋的沉澱池
SCISTW - sedimentation tanks with covers

