渠務署
Drainage Services Department

海綿城市：適應氣候變化
Sponge City: Adapting to Climate Change

2016-17
可持續發展報告
Sustainability Report

摘要 Executive Summary

60,000 立方米 m^3
跑馬地地下蓄洪計劃
Happy Valley Underground Stormwater Storage Scheme

1,000 百萬立方米 M m^3
年度污水總處理量
Annual Volume of Sewage Treated

1.1 百萬度電 M kWh
全港最大太陽能發電場
Hong Kong's Largest Solar Farm

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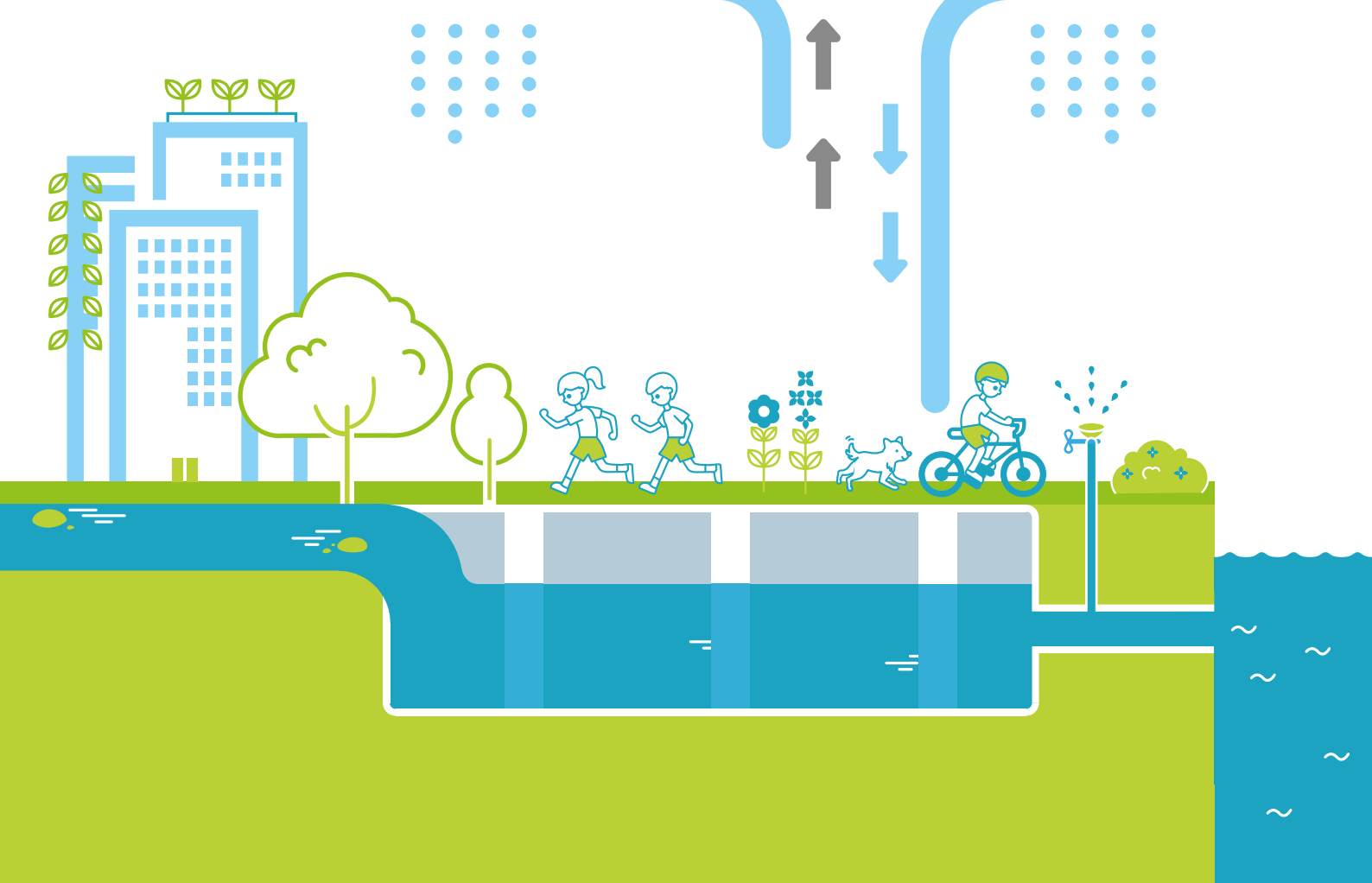

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About this Report

渠務署發表題為「海綿城市：適應氣候變化」的第5份可持續發展報告(本報告)，闡述2016-17財政年度期間(即2016年4月1日至2017年3月31日)，我們在經濟、環境及社會三方面的表現。本報告是我們向持份者匯報可持續發展表現的重要溝通工具。

DSD publishes its 5th Sustainability Report, titled "Sponge City: Adapting to Climate Change" (the Report), in which we elaborate our economic, environmental and social performance during the fiscal year 2016-17 (i.e. 1 April 2016 to 31 March 2017). The Report serves as a significant means of communication to report our sustainability performance to our stakeholders.

本報告摘要概述我們主要的工作成果，以及在可持續發展方面的表現。如欲查看報告全文，請瀏覽本署網頁www.dsd.gov.hk。

This executive summary of the Report provide you with an overview of our key achievements and sustainability performance. To view the full report, please visit our website at www.dsd.gov.hk.

署長序言
Director's Statement

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Director's Statement

二十多年來，渠務署的防洪及污水處理設施默默支撐著市民的生活及香港的發展。我非常榮幸與大家分享，2016-17年度，渠務署多項工程都有良好的進展，其中兩項別具意義的工程項目－跑馬地地下蓄洪計劃，以及小蠔灣污水處理廠內的全港最大太陽能發電場－亦於年內啟用；這兩個項目，引證了我們在加強本港防洪能力，以及發展可再生能源的決心。然而，回顧2016年極端天氣的情況，我和大家同樣都真切感受到氣候變化為香港帶來的嚴峻挑戰。因此，我們不能自滿，更要時刻提高警覺，加倍努力做好適應（推展防洪工程）及減緩（發展可再生能源）氣候變化的工作。

For more than two decades, the flood prevention and sewage treatment facilities of the Drainage Services Department (DSD) have been silently supporting the livelihood of citizens and the development of Hong Kong. It is my pleasure to share the good progress achieved in various projects of DSD in the year 2016-17. Among these, two of particular significance, namely the Happy Valley Underground Stormwater Storage Scheme (HVUSSS) and the Hong Kong's largest Solar Farm at the Siu Ho Wan Sewage Treatment Works (SHWSTW), were commissioned during the year. These two projects demonstrate our determination to strengthen the flood prevention capacity of Hong Kong and to develop renewable energy. However, revisiting the extreme weather situation in 2016, I, like you, can truly appreciate the severe challenges that climate change had inflicted upon Hong Kong. Therefore, we cannot be complacent, but need to heighten our vigilance at all times and put more efforts in our work of adaptation to (by taking forward flood prevention projects) and mitigation of (by developing renewable energy) climate change.

雨季防洪

根據世界氣象組織的評估，2016年可能是全球有紀錄以來最溫暖的一年，而香港全年降雨量高達3,027毫米，較氣候正常值高出約26%。極端天氣頻繁出現，使我們更需要全面完善防洪設施。我們在過去廿多年消除了超過120個水浸黑點，今年初亦再剔除一個，使現時全港只餘下7個水浸黑點。另外，我們現正規劃、設計及建造約126億元的防洪工程，包括施工中的啟德河改善工程及深圳河治理第四期工程。

海綿城市

渠務署近年積極將「藍綠建設」的概念融入各工程項目中。在提高防洪能力的同時，保育周邊的生態環境，以及把握機會促進生物多樣性及親水文化。我們亦於多個工程項目引入「海綿城市」的理念－順應自然、彈性適應，通過滲透、蓄洪、滯洪等自然方式疏導雨水，從而避免進行大規模的渠道工程。其中，容量達60,000立方米、剛於今年初全面啟用的跑馬地地下蓄洪計劃，可以說得上是在香港落實「海綿城市」理念的顯例；計劃中有多項創新元素，包括「智能水閘」、「水資源採集及回用系統」，以及地盡其用的設計等。

新工程合約

跑馬地地下蓄洪計劃，同時亦是「新工程合約」的成功典範，為未來的工務工程提供了堅實的基礎和寶貴的經驗。「新工程合約」講求互助互信的伙伴關係，著重團隊精神和盈虧與共；計劃在工程團隊的共同努力下，不但比原定時間提前一年完工，更節省了約9,000萬的工程費用。工程團隊勇於承擔、敢於創新，同時與各持份者緊密連繫、衷誠合作，令跑馬地地下蓄洪計劃在部門內外都獲得高度的讚揚。

污水處理

隨著本港各區持續發展及人口不斷增長，渠務署亦須適時提升轄下設施，應付未來的需求。報告期內，我們開展了新圍污水處理廠的第一期改善工程，增加其處理量至每日200,000立方米，同時將污水處理級別提升至化學強化一級處理。另外，為了使污水收集系統更為可靠，我們亦已開展工程，於東涌至小蠔灣鋪設一條長達6.5公里、直徑1.2米的加壓污水管。我們亦會繼續積極探討搬遷污水處理廠往岩洞的計劃，並爭取盡快開展搬遷沙田污水處理廠往岩洞的前期工程。

Flood Prevention in Rainy Season

According to the assessment by the World Meteorological Organization, 2016 was likely the warmest year on record in the world. The annual rainfall in Hong Kong was up to 3,027mm, about 26% higher than the Climate Normal. Due to the frequent occurrence of extreme weather, there is a pressing need to optimise our flood prevention facilities across the board. Over the past two decades or so, we have eliminated more than 120 flooding blackspots. In early 2017, we eliminated one more, further reducing the number of flooding blackspots in the territory to seven. Besides, flood prevention works costing about $12.6 billion are currently under planning, design and construction. Among them are the Kai Tak River Improvement Works and Shenzhen River Regulation Project Stage IV, both of which are in progress.

Sponge City

In recent years, DSD has actively incorporated the concept of "Blue-Green Infrastructure" into various projects. While enhancing the flood prevention capacity, we place emphasis on protecting the ecological value of the surrounding environment and seize the opportunities to promote biodiversity as well as water-friendly culture. Meanwhile, we have introduced the "Sponge City" concept of "following the nature with resilience" to a number of projects in order to divert stormwater through natural means, such as infiltration, flood storage and retention, to avoid undertaking large-scale drainage works. Among these, the HVUSSS, which has a total storage capacity of 60,000 cubic metres and was fully commissioned just earlier this year, sets an obvious example of implementing the "Sponge City" concept in Hong Kong. Various innovative elements, including "smart" (i.e. movable) weirs, water harvesting system, and land co-use design, were incorporated in the HVUSSS.

New Engineering Contract

The HVUSSS is also a successful example in adopting the "New Engineering Contract" (NEC), which has provided a solid foundation and valuable experience for future public works projects. NEC stresses a partnering relationship with mutual trust and co-operation, team spirit as well as pain-gain share mechanism. With the concerted effort of the project team, the works were completed a year in advance, resulting in a saving of construction cost by approximately $90 million. The HVUSSS project is highly commended within and outside the Department, which was attributed to the project team's strong commitment and innovative spirit, coupled with its close liaison and sincere cooperation with stakeholders.

Sewage Treatment

In view of the continuous development and population growth in various districts in Hong Kong, DSD needs to upgrade the drainage facilities in good time to cope with future needs. During the reporting period, we commenced the upgrading of San Wai Sewage Treatment Works Phase 1 to increase the capacity of the plant to 200,000 cubic metres per day while upgrading its treatment level to chemically enhanced primary treatment. Besides, to make the sewerage system more reliable, we have commenced the construction of a sewage rising main of 6.5km long with a diameter of 1.2m from Tung Chung to Siu Ho Wan. Furthermore, we will continue the active study on the relocation of sewage treatment works to caverns and strive for the early commencement of the advance works for the relocation of Sha Tin Sewage Treatment Works to caverns.

可再生能源

由於污水處理設施需要24小時運作，渠務署的用電量因而佔政府總用電量約10%；就此，我們無時無刻都在尋找節能減排、轉廢為能的機會。以沙田污水處理廠為例，我們利用污泥消化過程中產生的生物氣發電、發熱，過去三年為廠房提供接近四成的能源需求，平均每年節省相當於約1,800萬度電的能源！另外，於上年底啟用的小蠔灣污水處理廠太陽能發電場，更是現時全港最大的太陽能發電設施，每年發電量高達110萬度。

展望未來－創新、協作、互動

渠務署會繼續以大膽創新的精神，把握設計新設施和改善現有設施的機會，更廣泛應用可再生能源，期望在十年內將其提供部門總能源需求的比率，由10%逐步增加至15%。我們亦會與持份者緊密協作，在開展各項渠務工程的同時，推展活化水體的計劃，以及積極應對氣候變化所帶來的挑戰。

我能夠在這份報告和大家分享渠務工作的成果，全賴部門所有同事一直謹守崗位，竭誠服務市民；作為署長，我對同事的專業態度時刻感到驕傲。我亦在此感謝市民大眾一直以來對渠務署的信任和支持。我們會透過開放日、傳媒專訪等活動，讓市民更加了解渠務署的工作；與此同時，我們亦會與學生及年輕人，保持多方面的互動，包括走進學校舉辦講座、邀請學校參觀渠務設施，以及協辦青少年工作影子計劃等，加強與學生及年輕人的交流溝通，攜手締造更宜居的香港！

渠務署署長
唐嘉鴻
2017年12月

Renewable Energy

As sewage treatment facilities need to operate round the clock, the electricity consumption of DSD constitutes about 10% of the overall electricity consumption of government departments. Hence, we constantly look for opportunities to save energy and reduce emission, as well as convert waste to energy. Take the Sha Tin Sewage Treatment Works as an example, biogas from the sludge digestion process is used to generate electricity and heat required, providing nearly 40% of the energy consumption of the plant in the past three years. As such, about 18 million kWh of electricity can be saved a year on average. Besides, the SHWSTW Solar Farm, which was commissioned in late 2016, is the largest of its kind in Hong Kong at present. It can generate as much as 1.1 million kWh of electricity annually.

Way Forward – Being Innovative, Collaborative and Interactive

DSD will continue to be bold and innovative in order to seize the opportunities in the design of new facilities - and improvement of existing facilities to make wider use of renewable energy. We hope to progressively increase our usage of renewable energy, from constituting 10% of the overall energy consumption of the Department to 15% in 10 years. We will also collaborate closely with stakeholders. While unfolding various drainage projects, we will take forward schemes to revitalise water bodies and proactively address the challenges arising from climate change.

I would like to express my sincere appreciation for my colleagues' continuous commitment to work and dedication to serving the public, without which I would not have been able to share with you the success of our work. As the Director, I am proud of their professionalism. I would also like to take this opportunity to thank the public for their constant trust and support towards DSD. We will arrange open days, media interviews and other activities so that the public can learn more about our work. At the same time, we will maintain interaction with students and teenagers through holding seminars in schools, inviting schools to visit our facilities, as well as co-organising job shadowing programme for teenagers, etc., with a view to strengthening communication and joining hands with them to make Hong Kong a more livable city.

Edwin TONG Ka-hung
Director of Drainage Services Department
December 2017

海綿城市：適應氣候變化

Sponge City : Adapting to Climate Change

「海綿城市」是現代雨水管理模式，有助解決排水問題、充分利用土地資源並促進可持續發展。為應對氣候變化，渠務署鼓勵新發展項目採用「海綿城市」的理念，以滲、滯、蓄、淨、用、排為原則，更有效疏導和回用雨水，加強城市應對洪水的能力。

"Sponge City" is a modern stormwater management approach to help solve drainage problems, fully utilise land resources and promote sustainable development. To combat climate change, DSD encourages the "Sponge City" concept to be adopted in new developments for more effective drainage and rainwater reuse to enhance urban flood resilience by the principle of infiltration, retention, storage, purification, reuse and discharge.

跑馬地地下蓄洪池
Happy Valley Underground Stormwater Storage Tank

海綿城市：適應氣候變化
Sponge City: Adapting to Climate Change

香港地處熱帶風暴的常規路徑，是亞太區內降雨量最高的城市之一，每年平均降雨量達到2,400毫米。基於這個氣候環境，香港過往經常發生大規模的水浸。渠務署自1989年成立以來，一直致力防治洪患，利

Hong Kong is on the common track of tropical cyclones. It is one of the cities with the highest rainfall in the Asia Pacific region with an average annual rainfall of about 2,400 millimetres. Under this climatic setting, Hong Kong always experienced substantial flooding in the past. Since the establishment of DSD in 1989, it has been striving to prevent flooding by adopting a three-

用「防洪三招」，即截流、蓄洪、疏浚的方法，有效減低暴雨及洪水對本港的影響，令水浸黑點由1995年的90個減少至2017年的7個。

但隨着全球氣候變化加劇，引致海平面加速上升、極端暴雨及風暴潮增加，香港需要作出更多新嘗試，以便有效應對未來的防洪挑戰。配合香港的可持續發展及應對氣候變化，渠務署除參與政府跨部門小組，聯手應對氣候變化的影響，及檢討各區的雨水排放整體計劃外，近年亦開始參照「海綿城市」理念，以順應自然、彈性適應的方法，在渠務設施加入綠化天台、多孔透水路面，以促進滲透，減少地面徑流；規劃河畔公園及蓄洪湖等具蓄洪功能的休閒設施，以減低流量，達到蓄洪和滯洪的效果；採用雨水收集及回用系統，以增強城市的水循環效應，提高城市的耐洪能力。

pronged approach: stormwater interception, flood storage, and drainage improvement, which are proven effective in mitigating the impact of rainstorm and flooding hazards, resulting in reducing the number of flooding blackspots in the city from 90 in 1995 to 7 in 2017.

As global climate change worsens, sea level rise will be accelerated, extreme torrential rains and storm surges will become more frequent. Hong Kong has to make more new attempts to tackle these challenges for flood prevention in the future. To support the sustainable development of Hong Kong and combat the climate change, in addition to jointly tackle the impact of climate change with other government departments by participating in the Inter-departmental Working Group on Climate Change, and reviewing the Drainage Master Plans (DMPs) of various districts, we adopt the "Sponge City" concept of "following the nature with resilience" when planning and constructing new facilities. For instance, green roofs and porous pavements are included in DSD facilities to facilitate infiltration and reduce surface runoff. Leisure facilities with stormwater storage capacity, such as riverside parks and flood retention lakes, are also planned to reduce water flow and achieve the effect of flood storage and detention, while stormwater harvesting systems are in place to reuse rainwater to optimise water recycling across the city and enhance the flood resilience level of the city.

「海綿城市」理念示意圖
Schematic Drawing of the "Sponge City" concept

什麼是海綿城市？
What is Sponge City?

海綿城市是指城市像海綿一樣，於適應環境變化、應對自然災害等方面具有良好「彈性」。雨天時能夠吸水、蓄水、滲水、淨水，需要時將蓄存的水「釋放」並加以利用，提升城市生態系統功能和減少城市洪患的發生。

海綿城市是現代雨水管理模式，讓城市在下雨時收集雨水，並在有需要的時候把蓄存的雨水釋放並加以利用。此概念主張減少城市開發，通過自然排走雨水，而避免進行大規模的人工渠道改善工程。

Sponge City means that a city could function like a sponge that has great "resilience" to environmental changes and natural disaster. The stormwater could be absorbed, stored, infiltrated and cleaned during rainy days, and could be "released" and utilised as needed to enhance the ecological function of the city and reduce the flooding in the city.

Sponge City is a modern stormwater management approach which allows the city to collect rainwater and use the stored rainwater when needed. This concept advocates reducing urban development through natural drainage of rain to avoid large-scale artificial channel improvement works.

下列項目體現「海綿城市」概念融入設計的成果：

The following projects vividly illustrate the result of the "Sponge City" concept in practice:

地下蓄洪計劃

蓄洪計劃的原理是暫時將暴雨期間的雨水儲存於地下蓄洪池，從而紓緩下游雨水排放系統的壓力。當下游雨水排放系統的雨水退去後，蓄洪池內的雨水便會被抽走，騰出空間以準備下次暴雨。現時香港有3個地下蓄洪池，分別位於大坑東、上環及跑馬地。

Underground Stormwater Storage Scheme

The principle of stormwater storage scheme is to temporarily store stormwater during heavy rainstorm in an underground tank, thus relieving the burden of downstream drainage system. When the stormwater in the downstream drainage system recedes, the stormwater stored in the tank will be pumped out to relieve storage space for the next rainstorm. Currently there are 3 underground stormwater storage tanks located at Tai Hang Tung, Sheung Wan and Happy Valley respectively.

綠化天台及垂直綠化

我們於轄下的渠務設施（包括污水處理廠及污水和雨水泵房）共建造了30,000平方米綠化天台及垂直綠化，並每年繼續增建4,000平方米綠化天台及垂直綠化。

Green Roof and Vertical Greening

We have built a total of 30,000 square metres of green roofs and vertical greening within our drainage facilities including sewage treatment works as well as sewage and stormwater pumping stations, and continued to build 4,000 square metres of green roofs and vertical greening each year.

九龍城二號污水泵房綠化天台
Green roof at Kowloon City No.2 Sewage Pumping Station

沙田污水處理廠綠化天台
Green roof at Shatin Sewage Treatment Works

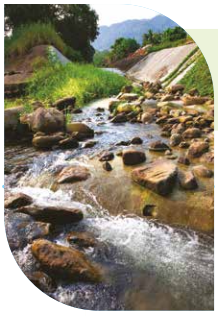
活化河道

部份河道治理工程，如已完成的蠔涌河和林村河，以及進行中的深圳河和啟德河，除了提升河道的排洪能力外，我們在設計河道改善工程時，同時為項目注入綠化、生態保育及水景元素，如盡量保留河道的自然生境、在河床加設魚洞穴、導流板和石塊，改善微生境及生物多樣性。在深圳河治理工程中，我們將在深圳河上興建一個蓄洪湖，它不僅為野生動物提供一個自然的生境，大大提高河流的生態價值，在暴雨期間，還可暫存洪水，從而控制下游河道水位。

River Revitalisation

For some river training works such as the completed Ho Chung River and Lam Tsuen River, and the on-going projects like Shenzhen River and Kai Tak River, in addition to upgrading drainage capacities, when designing the river improvement works, greening, ecological conservation and water landscape elements have been incorporated into the projects, such as preserving the rivers' natural habitat, installing fish shelters, deflectors and boulders in the riverbed to improve microhabitats and biodiversity. For the Shenzhen River Regulation Project, a flood retention lake will be constructed on Shenzhen River not only to provide a habitat for wildlife that greatly enhances the river's ecological value but also to help store floodwater, thus keeping the downstream water level under control.

深圳河治理工程
Shenzhen River Regulation Project



林村河的魚梯
Fish ladder at Lam Tsuen River

雨水收集及回用系統

本署轄下的荔枝角雨水排放隧道及跑馬地地下蓄洪計劃均設有雨水收集及回用系統，收集到的雨水經適當處理後可用作灌溉、沖廁及洗滌用途，節省珍貴水資源。

Rainwater Harvesting Systems

We have also implemented Rainwater Harvesting Systems at Lai Chi Kok Drainage Tunnel and Happy Valley Underground Stormwater Storage Scheme. The harvested rainwater can be used for irrigation, toilet flushing and cleaning after suitable treatment as far as possible to save precious water resources.

跑馬地地下蓄洪計劃
Happy Valley Underground Stormwater Storage Scheme

展望將來

除了在現有的渠務設施中體現「海綿城市」的概念，展望將來，渠務署亦積極於新發展項目中加入具有「海綿」效應的設計元素。

Looking Forward

Apart from embodying the concept of "Sponge City" in existing drainage facilities, in the future, DSD will also actively introduce design elements with "sponge" effect to the new projects.

香港首個蓄洪湖

在安達臣道石礦場用地發展規劃中，我們將興建香港首個蓄洪湖。蓄洪湖集防洪、休憩和雨水收集重用於一身，在大雨時將部分雨水儲存，減低下游水浸的風險，部分湖水經適當處理後，會供區內作灌溉及其他非飲用用途。此項工程還為市民提供優美的水景環境，供公眾作為休憩用途。

The First Flood Retention Lake in Hong Kong

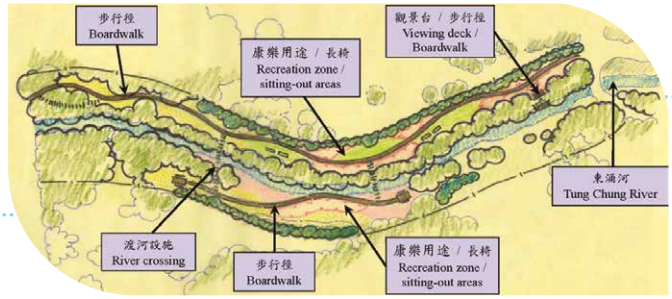
In the plan of the Development of Anderson Road Quarry Site, we will construct the first flood retention lake in Hong Kong. The flood retention lake serving flood control, leisure and rainwater harvesting functions. It will store stormwater during heavy rains to reduce the flood risk downstream, and some of the lake water will be used as irrigation and other non-potable purposes after suitable treatment. This project also provide scenic waterscape environment to residents for public enjoyment.

全港首個河畔公園

藉著東涌新市鎮擴展的機遇，政府計劃活化一段現有的東涌河，提升其排洪能力之餘，更將其打造為全港首個河畔公園。河畔公園會以綠化和親水為主題，落成後將是個讓市民進行親水活動，享受自然環境的好地方。

The First River Park in Hong Kong

With the Tung Chung New Town extension under way, the Government has seized the opportunity with plans to revitalise a section of the existing Tung Chung River, upgrading its drainage capacity and transforming it into the first river park in Hong Kong. The river park is poised to be green and water-friendly for residents who enjoy water sports and natural sceneries.



東涌河畔公園的初步設計
Preliminary Design of Tung Chung River Park

水塘間轉運隧道計劃

我們亦正計劃興建一條全長約2.8公里的輸水隧道連接九龍副水塘與下城門水塘，轉運九龍水塘群的溢流至下城門水塘。計劃除有效提升西九龍地區排洪能力，減低水浸風險外，估計平均每年額外提供約250萬立方米原水，以達致防洪及保護水資源的雙重目標。

Inter-Reservoirs Transfer Scheme (IRTS)

We are also planning to construct a water tunnel with a total length of about 2.8 kilometres connecting Kowloon Byewash Reservoir and Lower Shing Mun Reservoir, which will transfer overflow of Kowloon Group of Reservoirs to Lower Shing Mun Reservoir. Apart from improving the drainage capacity of West Kowloon effectively and reducing flood risk, the scheme will supply an estimated 2.5 million cubic metres of extra raw water yearly on average to achieve the goals of both flood prevention and water conservation.

年度大事
重點輕描
Highlights of the Year

渠務署多項重點工程已於本年內相繼竣工並投入運作，當中包括跑馬地地下蓄洪計劃和小蠔灣污水處理廠太陽能發電場。我們致力在提高城市抗洪排污能力的同時，引入創新元素，務求在城市發展和環境保護上取得平衡，以促進香港的可持續發展及提升市民生活質素。渠務署全體同事上下一心、眾志成城，積極面對未來的挑戰。我們藉此章節，與各位分享本署於2016-17年內的年度大事。

DSD has completed several significant projects which are now in full operations during the year, including the Happy Valley Underground Stormwater Storage Scheme and Solar Farm at Siu Ho Wan Sewage Treatment Works. We are committed to improving our drainage and sewage capacity and at the same time introducing innovative elements to our services, with the aim to seek a balance between urban development and environmental protection, so as to promote the sustainability development in Hong Kong and enhance the quality of life of the public. DSD staff has always been a tight-knit team that strategises and strives together, and that has enabled us to overcome every challenge. In this chapter, we are honoured to share our highlights in 2016-17.

跑馬地地下蓄洪計劃
Happy Valley Underground Stormwater Storage Scheme

跑馬地地下蓄洪計劃啟用典禮
Commissioning Ceremony of Happy Valley Underground Stormwater Storage Scheme (HVUSSS)

2017年3月16日，本署舉行跑馬地地下蓄洪計劃啟用典禮，宣布容量達60,000立方米（容量相等於24個標準游泳池)的跑馬地地下蓄洪池正式投入使用。「蓄洪拓源 綠建宜居」為是次啟用典禮的主題。「蓄洪拓源」是指蓄洪計劃中的創新設計，包括令蓄洪池更有效地暫存和排放雨水的智能水閘，及全港最大型的地下水及雨水回收重用系統；而「綠建宜居」則指蓄洪計劃中的綠色建築設計及提供的新建休閒空間。在同一片土地下，地下蓄洪池為市民帶來防洪保護的作用，而在地面的綠化空間及蓄洪池的附屬設施亦會對外開放，為公眾提供一個舒適恬靜的休憩空間。

On 16 March 2017, DSD held the Commissioning Ceremony of HVUSSS and announced the full commissioning of the 60,000 cubic metres (which is equivalent to the total volume of about 24 standard swimming pools) Happy Valley Underground Stormwater Storage Tank. "Smart Drainage • Green Living" is the theme of the Commissioning Ceremony. "Smart Drainage" refers to the innovative design, featuring both of the Movable Weir for more effective stormwater storage and drainage and the largest groundwater and rainwater harvesting system in Hong Kong; "Green Living" refers to the green building designs and the provision of new leisure areas in HVUSSS. On one hand, the underground stormwater storage tank alleviates the flood risk and offers protection to the citizens; and on the other hand, the ancillary facilities above the tank offer a comfortable and relaxing zone for the public.

財政司司長陳茂波先生(中)、時任發展局局長馬紹祥先生(右三)和本署署長唐嘉鴻先生(左三)一同主持啟用典禮

Mr. Paul CHAN Mo-po (middle), Financial Secretary, Mr. Eric MA Siu-cheung (third right), then Secretary for Development and Mr. Edwin TONG Ka-hung (third left), Director of Drainage Services, officiated at the Commissioning Ceremony

跑馬地地下蓄洪計劃於2012年展開，工程包括於跑馬地遊樂場地底興建一個地下蓄洪池、長約650米的箱形暗渠，以及一個抽水量達每秒1.5立方米的雨水泵房。暴雨時，箱形暗渠內的雨水溢流會被引進蓄洪池作暫時儲存，從而減輕下游的水浸風險。計劃分兩期進行，整個計劃投入運作後，跑馬地及鄰近灣仔地區的排洪能力提高至可抵禦50年一遇的暴雨，保障該區市民的生命及其財產。此項工程亦是本港首個結合智能水閘和數據採集與監控系統的防洪工程。整項工程的核準工程預算總值約10億7千萬元。

The construction works for the Scheme commenced in 2012 comprising the construction of a stormwater storage tank underneath the Happy Valley Recreation Ground, a box culvert of about 650 metres long and a stormwater pump house with a peak flow rate of 1.5 cubic metres per second. It will serve as a storage tank to collect and temporarily store the runoff during heavy rainstorms to relieve the discharge load of the downstream drainage system and thereby alleviate flooding risks. The Scheme is divided into two phases. After the commissioning of the project, the flood protection level in Happy Valley and Wan Chai districts will be increased to withstand heavy rainstorms of a 1 in 50-year return period, safeguarding the lives and properties of citizens in the districts. This is also the first flood prevention project in Hong Kong to combine the use of Movable Weir and the Supervisory Control and Data Acquisition (SCADA) System. The Approved Project Estimates for the entire project is about $1.07 billion.

全港最大太陽能發電場正式投入運作
Full Commissioning of the Largest Solar Farm in Hong Kong

本署於小蠔灣污水處理廠設置全港最大的太陽能發電場，並已於2016年12月9日正式投入運作。發電場由超過4,200塊多晶硅太陽能光伏板組成，佔地超過11,000平方米，預計每年發電量可達110萬千瓦時，相當於230個家庭每年的用電量。太陽能發電場產生的可再生能源，透過污水處理廠的配電網絡輸送到廠內不同的機電設施，包括隔篩和污泥處理設施，以及紫外光消毒系統等，預計每年能減少770噸二氧化碳排放量。

Being the largest of its kind in Hong Kong, the Solar Farm at Siu Ho Wan Sewage Treatment Works came into operation on 9 December 2016. The Solar Farm comprises over 4,200 polycrystalline photovoltaic panels occupied 11,000 square metres. It is anticipated that the Solar Farm can generate as much as 1.1 million kilowatt-hours of electricity annually, equivalent to the annual electricity consumption of 230 households. The renewable energy generated is fed to various facilities and systems inside the plant, including screening and sludge treatment facilities and a ultra-violet disinfection system etc., which is expected to reduce 770 tonnes of carbon dioxide emissions annually.

為了提高公眾對氣候變化的意識，本署於2016年12月9日舉行了太陽能發電場的啟用典禮，並邀請300多名嘉賓一同見證發電場正式投入運作。本署於啟用典禮後安排導賞團，向嘉賓進一步介紹發電場的資訊。

To raise the public awareness of climate change, we held a commissioning ceremony on 9 December 2016 and invited more than 300 guests to witness the successful commencement of the Solar Farm. A tour was arranged for guests after the commissioning ceremony to further introduce the information of the Solar Farm.

小蠔灣污水處理廠鳥瞰圖

Aerial Photo of Siu Ho Wan Sewage Treatment Works

環境局局長黃錦星先生(中)和本署署長唐嘉鴻先生(左二)一同主持啟用典禮

Mr. WONG Kam-sing (middle), Secretary for the Environment, and Mr. Edwin TONG Ka-hung (second left), Director of Drainage Services, officiated at the commissioning ceremony

環境局局長黃錦星先生(左四)和本署署長唐嘉鴻先生(右四)與學生進行交流

Interaction between Mr. WONG Kam-sing (forth left), Secretary for the Environment, Mr. Edwin TONG Ka-hung (forth right), Director of Drainage Services, and the students

渠務署2016研究及發展論壇 「氣候變化 香港行動」
DSD Research & Development Forum 2016: Climate Ready@HK

本署2016研究與發展論壇「氣候變化 香港行動」於2016年11月8日假香港科學館舉行，吸引逾500名本地學者、專業人士和業界代表參與。我們更邀請業界翹楚、教授和專家就「致力創新可持續雨水排放系統」及「污水處理走向可持續能源使用」兩節主題發表演說，分享他們在氣候變化、活化水體、可持續排水系統和污水處理節能的經驗，促進業界的合作和技術創新。

On 8 November 2016, we organised the Research & Development Forum 2016: Climate Ready@HK at the Hong Kong Science Museum, attracting more than 500 local academics, professionals and industry representatives. The Forum invited industry leaders, professors, and professionals to deliver two thematic speeches on "Striving for Innovation in Sustainable Stormwater Drainage" and "Towards Sustainable Energy Utilisation in Sewage Treatment". They shared their experiences in climate change, revitalising water bodies, sustainable drainage systems, and energy reduction initiatives in sewage treatment to foster collaboration and technological innovation in the industry.

本署署長唐嘉鴻先生致歡迎辭

Mr. Edwin TONG Ka-hung, Director of Drainage Services, delivering a welcome speech

發展局常任秘書長(工務)韓志強先生(右六)、本署署長唐嘉鴻先生(左六)和本署副署長麥嘉為先生(右五)與上午論壇的講者合照

Group photo of Mr. HON Chi-keung (sixth right), Permanent Secretary for Development (Works), Mr. Edwin TONG Ka-hung (sixth left), Director of Drainage Services, Mr. MAK Ka-wai (fifth right), Deputy Director of Drainage Services, and speakers of the morning session

時任環境局副局長陸恭蕙女士(右五)、本署署長唐嘉鴻先生(右六)、本署副署長麥嘉為先生(右四)與下午論壇的講者合照

Group photo of Ms. Christine LOH Kung-wai (fifth right), then Under Secretary for the Environment, Mr. Edwin TONG Ka-hung (sixth right), Director of Drainage Services, Mr. MAK Ka-wai (fourth right), Deputy Director of Drainage Services, and speakers of the afternoon session

獎項及殊榮
Awards and Honours | 2016

4月 Apr

2016年4月19日
19 April 2016

淨化海港計劃第二期甲聯同環保署的污泥處理設施「源·區」榮獲2016年全球水獎年度污水處理專案類別的卓越級殊榮

Harbour Area Treatment Scheme (HATS) Stage 2A and EPD's sludge treatment facility T. PARK jointly won the distinction award in the category of Wastewater Project of the Year at the Global Water Awards 2016

2016年4月28日
28 April 2016

榮獲英國新工程合約用戶組織頒發的工程委託機構冠軍大獎

Won the New Engineering Contract (NEC) Client of the Year award from the United Kingdom's (UK) NEC Users' Group

8月 Aug

2016年8月26日
26 August 2016

本署機電工程師潘慕孺女士(右一)榮獲香港工程師學會2016年年輕工程師 / 研究員傑出論文獎

Ms. Stephanie POON Mo-yu (first right), Electrical and Mechanical Engineer, received The Hong Kong Institution of Engineers Outstanding Paper Award for Young Engineers / Researchers 2016

8月 Aug

渠務署可持續發展報告2014-15榮獲多項殊榮，其中包括：
DSD Sustainability Report 2014-15 received a number of awards, including:

獎項 Awards	主辦機構 Organisers
2015 Vision Awards 可持續發展報告組別 - 金獎 Gold Award in the category of Sustainability Report 2015年度最優秀中文可持續發展報告前50名 Top 50 Chinese Sustainability Reports of 2015 亞太區最優秀可持續發展報告前80名 Top 80 Sustainability Reports in the Asia-Pacific Region	美國傳媒專業聯盟 League of American Communications Professionals LLC
2015 Inspire Awards 銀獎 Silver Award 2015年最優秀企業出版刊物前25名 Top 25 Corporate Publishing Materials of 2015	美國傳媒專業聯盟 League of American Communications Professionals LLC
2016 International ARC Awards 銅獎(專業年報：綜合年報和可持續發展報告) Bronze Award (Specialized Annual Report: Combined Annual and Sustainability Report)	MerComm, Inc.
2016 APEX Awards for Publication Excellence 卓越獎(電子媒體 - 綠色) Awards of Excellence (Electronic Media - Green)	Communications Concepts, Inc.
香港管理專業協會的2016年度最佳年報獎 **2016 HKMA Best Annual Reports Awards** 可持續發展報告獎 Sustainability Reporting Award	香港管理專業協會 The Hong Kong Management Association

9月 Sep

2016年9月28日
28 September 2016

「石湖墟污水處理廠－進一步擴建工程計劃第1A及1B期」及「機電資產管理BIM應用先導計劃－馬鞍山第108區污水泵房」兩個工程項目均獲頒「Autodesk香港建築信息模擬設計大獎2016」，在五個獲獎工程項目中佔了兩個席位

"Shek Wu Hui Sewage Treatment Works (SWHSTW) – Further Expansion Phases 1A and 1B" and "Adoption of Knowledge-based BIM for E&M Asset Management Supplemented with Mobile Technology – A Case Study in Public Sewage Pumping Facilities", were selected as two out of the five award winners of "Autodesk Hong Kong BIM Awards 2016"

10月 Oct

2016年10月27日
27 October 2016

時任高級工程師李康年先生(右一)及工程師余偉昌先生(左一)榮獲2016年申訴專員嘉許獎(公職人員獎)

Mr. Robin LEE Hong-nin (first right), then Senior Engineer, and Mr. Henry YU Wai-cheong (first left), Engineer, received awards in The Ombudsman's Awards 2016

11月 Nov

2016年11月22日
22 November 2016

本署「綠化河道的生態水力學研究」和「研究、策劃及推廣在建築環境設置應對氣候變化及提升城市耐洪的可持續排水系統」項目分別榮獲2016年度園境設計大獎銀獎和2016年度環保建築大獎優異獎

"Eco-hydraulics Study on Green Channels" and the "Research, Planning and Promotion of Sustainable Drainage System for Climate Change and Flood Resilience in Built Environment", were granted the Silver Award of the Hong Kong Institute of Landscape Architects (HKILA) Landscape Awards 2016 and the Merit Award of the Green Building Award 2016

12月
Dec

2016年12月13日
13 December 2016

「佐敦谷箱形雨水渠污水截流設施的泵房」及「石涌凹污水泵房」分別榮獲綠建環評新建建築最終鉑金級和暫定鉑金級的評級

"Provision of Interception Facilities at Jordan Valley Box Culvert – Pumping Station" and the "Shek Chung Au Sewage Pumping Station" were awarded the Final Platinum rating and Provisional Platinum rating under BEAM Plus respectively

獎項及殊榮 Awards and Honours | 2017

3月
Mar

2017年3月17日
17 March 2017

本署機電工程師梁志滔先生(右一)榮獲香港工程師學會傑出青年工程師榮譽證書

Mr. Vincent LEUNG Chi-to (first right), Electrical and Mechanical Engineer, received The Hong Kong Institution of Engineers' Young Engineer of the Year Award 2017 Certificate of Merit

2017年3月10-19日
10-19 March 2017

以「愛-賞花@濕地」為題參與2017年香港花卉展覽，獲得最佳設計(園林景點)大獎

DSD's exhibit "Blossoms of Love - Wetland" was awarded the Grand Award for Design Excellence (Landscape Display) in the Hong Kong Flower Show 2017

管治方針
Governance Approach

自1989年成立至今，渠務署的工作一直以公眾利益為依歸。建基於良好的機構管治，我們恪守管治守則，並設有多個事務委員會及管理系統，適時優化管治及發展策略。同時，我們亦廣立溝通渠道，務求聽取市民意見，有助本署推行和提供更優質的服務。

Since its establishment in 1989, DSD has always conducted its work with due consideration of public interest. Guided by the sound corporate governance, we abide by stringent governance principles and establish various committees and management systems to ensure timely optimisation of governance and development strategies. Meanwhile, we also establish a variety of communication channels to collect the opinions from the public to help us excel in service excellence.

小蠔灣污水處理廠
太陽能發電場
Solar Farm at Siu Ho Wan Sewage Treatment Works

抱負、使命和信念
Vision, Mission and Values

抱負 Vision

- 提供世界級的污水和雨水處理排放服務，以促進香港的可持續發展
- To provide world-class wastewater and stormwater drainage services enabling the sustainable development of Hong Kong

使命 Mission

- 以具經濟效益和合乎環保的方式改善服務
- 致力關懷員工，營造安全、和諧及身心健康的工作環境，培育員工的發展和創新思維
- 強化與社區、業界和各地相關機構的關係
- Improving drainage services in a cost effective and environmentally responsible manner
- Enhancing a caring, harmonious, safe and healthy work environment that fosters staff development and a mindset for change
- Strengthening relationships with community, industry and worldwide counterparts

信念 Values

- 以客為本
- 優質服務
- 勇於承擔
- 群策群力
- Customer Satisfaction
- Quality
- Commitment
- Teamwork

渠務署的高級管理層
DSD's Senior Management

1 **渠務署署長**
Director of Drainage Services
唐嘉鴻先生 Mr. Edwin TONG Ka-hung

2 **渠務署副署長**
Deputy Director of Drainage Services
麥嘉為先生 Mr. MAK Ka-wai

3 **助理署長/操作維修**
Assistant Director/Operations & Maintenance
簡炎輝先生 Mr. Fedrick KAN Yim-fai

4 **助理署長/設計拓展**
Assistant Director/Projects and Development
方學誠先生 Mr. Michael FONG Hok-shing

5 **助理署長/機電工程**
Assistant Director/Electrical & Mechanical
崔偉誠先生 Mr. CHUI Wai-sing

6 **助理署長/污水處理服務**
Assistant Director/Sewage Services
周國銘先生 Mr. Henry CHAU Kwok-ming

7 **主任秘書**
Departmental Secretary
黃球年先生 Mr. Tony WONG Kau-nin

管理方針
Management Approach

本署積極採用合適的國際標準及管理系統，為管理模式注入新元素，妥善管理風險，並協助達致持續提升可持續發展表現的目標。此外，有鑑於持份者的參與對機構制定及執行可持續發展策略愈見重要，我們於近年積極回應相關國際指引的要求，加強與持份者的互動，聽取並回應他們對本署發展的意見。

DSD actively adopts suitable international standards and management systems, thereby introducing new elements to our management approach and better manage risks to improve our sustainability performance steadily. Given the growing importance of engaging stakeholders in planning and executing organisational sustainability strategies, we have actively strengthened our interactions with stakeholders in recent years, listening and responding to their feedback on our development, in order to respond to the requirements of relevant international guidelines.

2002 取得ISO 9001品質管理系統認證
Obtained ISO 9001 Quality Management System certification

2007 取得ISO 14001環境管理系統認證
Obtained ISO 14001 Environmental Management System certification

2012 取得OHSAS 18001職業安全衛生管理系統認證
Obtained OHSAS 18001 Occupational Health and Safety Management System certification

2014 元朗污水處理廠取得ISO 50001能源管理標準認證
Obtained ISO 50001 Energy Management System certification for Yuen Long Sewage Treatment Works

2014 轄下9所設施取得ISO 55001資產管理標準認證
Obtained ISO 55001 AMS standard certification for 9 DSD facilities

2016 轄下16所設施取得ISO 55001資產管理標準認證
Obtained ISO 55001 AMS standard certification for 16 DSD facilities

2017 轄下124所設施取得ISO 55001資產管理標準認證
Obtained ISO 55001 AMS standard certification for 124 DSD facilities

渠務署主要職責
Our Core Responsibilities

「夏天為大地帶來雨水，疏導雨水，需要暢通的渠道……」不論是處理污水或疏導雨水，都與市民日常生活息息相關。本署致力提供世界級的污水和雨水處理排放服務，面對日益頻繁的極端天氣，本署會不斷加強應對能力，為市民締造更宜居的生活環境。

"Summer always brings rain. To carry away rainwater, we must keep our drains clear…" Both sewage treatment and rainwater drainage are closely tied to the daily lives of citizens. While endeavouring to provide world-class sewage and rainw ater drainage services, we boost our resilience to increasing extreme weather. It is our goal to create a more livable environment for the public.

石湖墟污水處理廠改善工程
Shek Wu Hui Sewage Treatment Works Improvement Project

2016-17年度防洪概要
Overview of Flood Prevention in 2016-17

巡查逾2,200公里的雨水渠及河道

Inspected over 2,200 kilometres of drains and rivers

進一步剔除黃竹坑道與南朗山道交界的水浸黑點

Removed the flooding blackspot at the junction of Wong Chuk Hang Road and Nam Long Shan Road

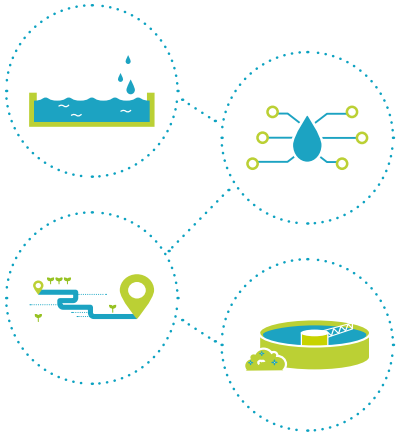
現正檢討大嶼山及離島、沙田及西貢、大埔和香港島北的雨水排放整體計劃

Currently reviewing the DMPs for antau and Outlying Islands, Shatin and Sai Kung, Tai Po and Northern Hong Kong Island

2016-17年度污水處理概要
Overview of Sewage Treatment and Sewerage System 2016-17

1,015
年度污水總處理量(百萬立方米)
Annual sewage treatment volume (million m^3)

1,755
污水收集網絡總長度(公里)
Total length of sewerage network (km)



93.5%
公共污水收集網絡覆蓋(佔人口百分率)
Coverage of public sewerage (Population percentage)

以有繳付排污費的住宅水務帳戶計算
Based on the no. of domestic water bill accounts with sewage charges levied

304
污水處理設施總數
Total no. of sewage treatment facilities

管理地下排水及污水收集網絡
Managing Underground Drainage and Sewerage Networks

本署現時管理逾4,100公里地下雨水渠及污水渠，這些渠管平均使用年期為29年，當中已使用30年或以上的渠管長逾1,800公里，不少出現老化及損耗情況。我們設有定期檢查計劃，以監察管道狀況，並按需要進行復修工程。2016-17年度，我們復修了總長約22公里的雨水渠及污水渠，費用約1億3千8百萬元。

一些嚴重耗損的渠管或會塌陷引致土壤流失而路陷，這不但會影響渠管正常運作，亦對交通、環境及公眾安全帶來影響。有見及此，我們正致力推行風險為本的全港性修復老化雨水渠及污水渠工程計劃，分階段勘查及修復被評為高風險的渠管。與此同時，我們會研究及採用先進技術，務求更有效地保養管道網絡，以及提高工程的成本效益。

DSD currently manages more than 4,100 kilometres of underground drains and sewers . These underground pipes have been put in service for 29 years on average and over 1,800 kilometres of these pipes have been used for 30 years or more, many of them show signs of wear and tear. We schedule regular inspection plans to monitor the conditions of these underground pipes and conduct rehabilitation works as and when necessary. In 2016-17, we rehabilitated about 22 kilometres of drains and sewers at a cost of about $138 million.

Structural failure of seriously deteriorated pipes may result in road subsidence. Apart from the impact on the operation of the pipelines, it may bring about adverse impacts on traffic, environment and public safety. In view of this, we are striving to implement a territory-wide rehabilitation programme for aged stormwater drains and sewers using risk-based approach. Condition survey and rehabilitation of high risk underground pipes are being implemented in phases. At the same time, we will study and apply various cutting-edge R&R techniques to efficiently maintain our underground pipe networks and achieve greater cost-effectiveness of our works.

環境管理
Environmental Management

渠務署一直在轄下廠房設施加入可持續發展元素，透過推行「藍綠建設」，致力提倡綠化景觀、節能減排。我們推行每項工程時均十分重視環境管理，務求保護環境和節約用水。

DSD has been incorporating sustainability elements into our facilities at all plants. With the implementation of "Blue-Green Infrastructure", we actively promote green landscaping, energy conservation and emission reduction. We put environmental management a very high priority in each of our work projects in order to protect the environment and conserve water, etc.

沙田污水處理廠
Shatin Sewage Treatment Works

藍綠建設
Blue-Green Infrastructure

渠務署多項渠道及河道工程中，積極引進綠化和生態保育元素的活化水體意念(包括在河道兩旁或河道種植、營造天然溪澗環境、保育河道生態、促進各種類生物繁衍，以及引入園景設計等)，不但能美化環境，更可促進河溪生態多樣化。

DSD has been striving to implement the concept of revitalising water bodies by incorporating green and eco-conservation elements into channel and river training works. These include planting in river channels and along river banks, engineering natural stream settings, preserving river ecosystems, enhancing wildlife growth and introducing landscape designs, which not only beautify the environment, but also promote rivers and streams biodiversity.

藍綠建設 Blue-Green Infrastructure

- **藍指河道水體，綠則指綠化景觀。**
  Blue refers to rivers and water bodies; green refers to landscape greening.
- **建設集自然環境、社區特色和現代化功能於一身的都市排水布局。**
  Building an urban drainage system that interweaves the natural environment with community characteristics and modern functions.

活化河道及明渠
Revitalising Rivers and Nullahs

活化翠屏河
Revitalisation of Tsui Ping River

翠屏河完工構想圖
Illustration of the completed Tsui Ping River

啟德河改善工程
Kai Tak River Improvement Works

啟德河改善工程完工構想圖
Illustration of the revitalised Kai Tak River

林村河上游河道改善工程
River Improvement Works in Upper Lam Tsuen

經改善的林村河
Lam Tsuen River after the Improvement Works

綠化天台
Roof Greening

跑馬地地下蓄洪計劃
Happy Valley Underground Stormwater Storage Scheme

紅磡灣污水泵房
Hung Hom Bay Sewage Pumping Station

建造新廠房時，我們亦會優先考慮環保設計。2016年，九龍灣污水截流泵房獲頒綠建環評新建建築[1]最高評級－最終鉑金級，是渠務署第二個獲此殊榮的基建設施。此外，石涌凹污水泵房亦成為渠務署第四個獲頒綠建環評新建建築暫定鉑金級評級的基建設施。

Green design is also our priority consideration when constructing new plants. In 2016, the Kowloon Bay Sewage Interception Pumping Station was bestowed the highest Final Platinum Rating under BEAM Plus Assessment for New Buildings[1], being DSD's second infrastructure facility to obtain this award. Furthermore, the Shek Chung Au Sewage Pumping Station became DSD's fourth infrastructure facility awarded with the Provisional Platinum Rating under BEAM Plus Assessment for New Buildings.

九龍灣污水截流泵房
Kowloon Bay Sewage Interception Pumping Station

石涌凹污水泵房
Shek Chung Au Sewage Pumping Station

能源管理及排放控制
Energy Management and Emission Control

處理污水消耗大量能源，為節能減碳，本署於2007年成立能源及排放管理小組，以便制定及推行各類節能措施和應用可再生能源。

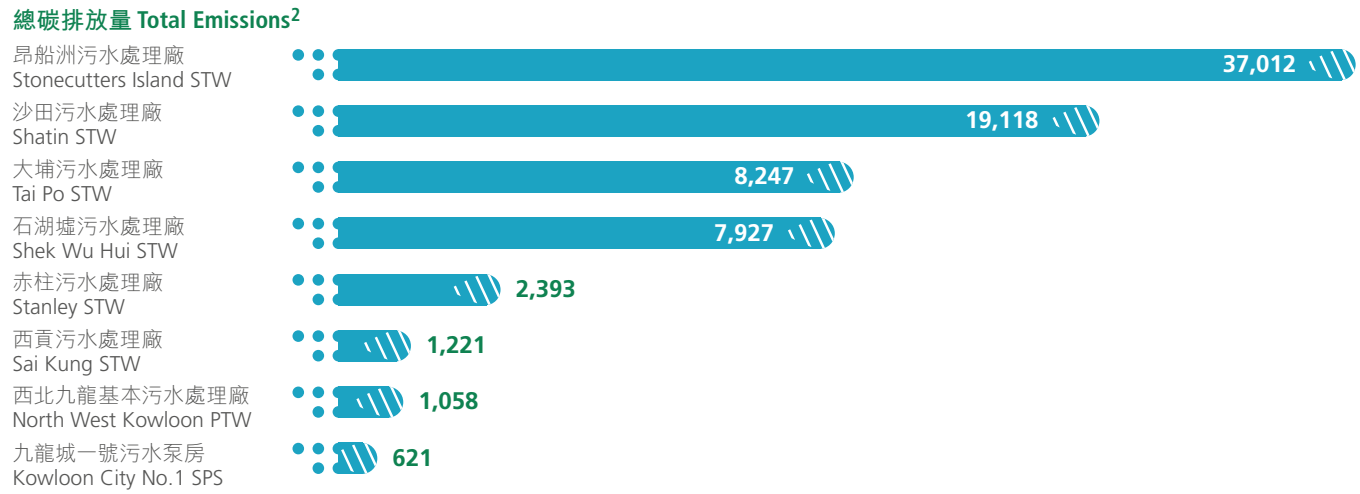
Sewage treatment is an energy intensive process. To save energy and reduce carbon emission arising from sewage treatment, DSD formed the Energy and Emission Management Team in 2007 to formulate and implement various energy saving measures and steer the application of renewable energy.

碳審計
Carbon Audit

本署進行碳審計，以確定轄下廠房的主要排放源，並透過降低機器耗能、提升運作效率及利用可再生能源等方法減少溫室氣體排放量。

Carbon audit enables DSD to identify our plants' major sources of emission and mitigate greenhouse gas emissions by reducing energy consumption, enhancing operation efficiency and using renewable energy, etc.

2015年的碳排放量（以公噸二氧化碳當量計算）
Carbon Footprint in 2015 (in tonnes of CO_2 equivalent)



1 *綠建環評新建建築是香港綠色建築議會認可的建築物全面環境評估系統。*
BEAM Plus New Buildings is a comprehensive environmental assessment system for buildings recognised by the Hong Kong Green Building Council.

2 *由於四捨五入關係，各項目數字相加未必等於總和。*
Figures are rounded up and may not add up exactly to the total.

節能措施
Energy Saving Measures

2016-17年度，本署繼續優化污水處理廠及污水泵房的運作，並以更高能源效益的機電設備取替老化設備，以節省能源。透過我們各項節能措施，節省約154萬度電（相當於減碳約1,078噸[3]）。

In 2016-17, we continued to optimise the operation of the sewage treatment works and sewage pumping stations, while replacing ageing equipment with more energy efficient types in order to save energy. We saved about 1.54 million kilowatt-hours (kWh) of electricity (equivalent to carbon reduction of about 1,078 tonnes[3]).

電動車
Electric Vehicle

電動車由電池推動，無須燃燒汽油，不會排放廢氣，有助改善香港路面的空氣質素。截至2017年3月，本署車隊共有35部電動車。2016-17年度，本署在各區污水處理廠及污水泵房增設10多台中速充電器，方便司機隨時充電。

Powered by batteries, the operation of electric vehicles (EV) does not involve gasoline combustion or produce emission, which helps improve roadside air quality in Hong Kong. As at March 2017, there are 35 EVs in our fleet. In 2016-17, an additional of more than 10 medium EV chargers were installed in our sewage treatment works and sewer pumping stations in various district across Hong Kong making charging more convenient and readily available.

可再生能源
Renewable Energy

污水處理設施裝設太陽能光伏板

本署轄下主要設施，包括沙田污水處理廠、深井污水處理廠、元朗污水處理廠、西貢污水處理廠、石湖墟污水處理廠、沙灣基本污水處理廠、昂船洲污水處理廠、小蠔灣污水處理廠等，均採用大型太陽能光伏系統供電，預計總發電量可達1,320千瓦。

Installation of Photovoltaic Solar Panels in Sewage Treatment Facilities

We have deployed large-scale photovoltaic (PV) systems to supply electricity to our major facilities, including the Shatin STW, Sham Tseng STW, Yuen Long STW, Sai Kung STW, Shek Wu Hui STW, Sandy Bay PTW, Stonecutters Island STW and Siu Ho Wan STW. Estimated total generation capacity is 1,320 kilowatts (kW).

小蠔灣污水處理廠太陽能光伏板系統
PV System at Siu Ho Wan STW

2016-17年度，全港最大型太陽能光伏系統已於小蠔灣污水處理廠完成安裝並投入運作，預計每年發電量可達110萬度。

The largest PV system in Hong Kong was installed and commissioned at Siu Ho Wan STW during 2016-17. It is anticipated that the Solar Farm can generate as much as 1.1 million kilowatt - hours of electricity annually.

3 *使用全港性預設值0.7千克/千瓦時計算減碳量。*
Using Hong Kong-wide default values of 0.7kg CO2 equivalent per kWh.

生物氣轉化為能

我們在沙田、大埔和石湖墟污水處理廠共安裝5台電熱聯供發電機(總發電量為3.6兆瓦)。另外，我們亦在沙田及元朗污水處理廠安裝了渦輪發動機(總發電量為280千瓦)。2016-2017年度，各污水處理廠由生物氣所產生的當量電力約為2,100萬度電。

Turning Biogas to Energy

We installed a total of five CHP generators (with a combined capacity of 3.6 MW) at the Shatin STW, Tai Po STW and Shek Wu Hui STW. Gas-turbines (with a total capacity of 280kW) were also installed at Shatin STW and Yuen Long STW. The total equivalent electricity generated by biogas in our STWs achieved about 21 million kWh in 2016-17.

減緩與適應氣候變化
Climate Change Mitigation and Adaptation

為應對氣候變化帶來的全球威脅，我們積極與其他城市和地區保持緊密聯繫。渠務署是國際組織C40城市氣候領導聯盟旗下連結三角洲城市的成員，代表香港特區政府與其他三角洲城市在防洪工作方面進行技術交流；亦是粵港應對氣候變化聯絡協調小組成員，於2016年接待廣東省政府代表到訪，交流排水系統規劃的經驗。

To address global challenges arising from climate change, we maintain close connection with other cities and regions. DSD is a member of Connecting Delta Cities, a subsidiary of the international organisation C40 Cities Climate Leadership Group, and represents the HKSAR Government to exchange views and experience on flood prevention with other delta cities. DSD is also a member of the Hong Kong/Guangdong Joint Liaison Group on Combating Climate Change. Representatives of the Guangdong Provincial Government visited DSD in 2016 to exchange proven experience in drainage system planning.

水資源管理
Water Resources Management

本署在新建設施引進可持續發展水資源管理概念，提高水資源的使用效率，當中的主要設計元素包括雨水集蓄系統、地下蓄洪系統、雨水花園及多孔透水路面等。2012至2016年間，完成的相關工程項目包括九龍城一號及二號污水泵房、荔枝角雨水排放隧道，以及跑馬地地下蓄洪計劃。

為支持政府在全面水資源管理策略下使用再造水的建議，本署繼續在轄下設施生產及使用再造水，並提高再造水設備在運作方面的可靠性。2016-17年度，本署平均每日生產約1,300立方米再造水作非飲用用途。

DSD has incorporated concepts of sustainable water resources management into our newly constructed facilities to improve the utilisation rates of water resources. Major design elements include rainwater harvesting systems, underground stormwater storage systems, rain gardens and porous pavements, etc. Between 2012 and 2016, associated projects completed included the Kowloon City No. 1 and No. 2 Sewage Pumping Stations, Lai Chi Kok Drainage Tunnel, and Happy Valley Underground Stormwater Storage Scheme (HVUSSS).

In line with the Government's initiative to use reclaimed water under the Total Water Management Strategy, DSD continues to produce and use reclaimed water within its facilities while improving the operational reliability of its water reclamation facilities. In 2016-17, DSD generated reclaimed water at an average rate of approximately 1,300 cubic metres per day for non-potable purposes.

氣味管理
Odour Management

污水在厭氧過程中會產生硫化氫，帶來令人厭惡的氣味。為減低渠務署轄下污水處理設施對附近居民的影響，我們採取以下3項氣味管理措施：

Septic process of sewage will produce hydrogen sulphide which has a repulsive odour. To reduce the impact of DSD's facilities on nearby residents, we have undertaken the following three odour control measures:

- 在污水源頭加入除味劑，從而抑制氣味產生；
- 覆蓋可能散發氣味的設施和組件；以及
- 安裝除味系統。

此外，我們會定期量度廠房的硫化氫水平，以監察氣味管理措施的成效及適時調整廠房操作。

- Adding deodourising agents into sewage to suppress odour at its source;
- Covering facilities and components which are likely to emit odour; and
- Installing deodorising systems.

In addition, we regularly measure the levels of hydrogen sulphide in our plants to monitor the effectiveness of the odour control measures and to timely adjust the plant operations as necessary.

小蠔灣污水處理廠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 at Siu Ho Wan Sewage Treatment Works

生物滴濾塔
Biotrickling filters

綠色辦公室
Green Office

我們致力在總部實踐綠色辦公室概念，在日常工作中滲入綠色文化，因此推行環保政策及措施，以提高員工的環保意識。

相比2010-11年度，2016-17年度的用電量減少約17%，顯示渠務署持續節能降耗的決心。我們更於日常會議中使用平板電腦和手提電腦等電子產品，進行簡報和討論，積極推廣「無紙會議」，減少用紙。

We make every effort to put the green office concept into practice at DSD headquarters. Green culture is introduced to every aspect of our day-to-day operation. Therefore, we have in place a series of green policies and measures to raise the environmental awareness of our staff.

In 2016-17, we recorded approximately 17% reduction in energy consumption compared with 2010-11, demonstrating DSD's commitment to energy saving and consumption reduction. We have also been actively promoting "paperless meetings" by using electronic devices such as tablets and laptop computers for presentations and discussions in day-to-day meetings to reduce paper consumption.

在2016-17年度，本署
In 2016-17, we

共舉行了約**183**次無紙會議，並以電子方式傳閱逾**1,513**份文件
held 183 paperless meetings and circulated over 1,513 documents electronically

用紙量相約為**9,285**令，較2009-10年度減少約**34%**
Paper consumption was approximately 9,285 reams, down about 34% when compared with 2009-10

關愛員工
Care for Our Staff

本署深明部門的優勢來自人才。為此，我們一直將資源優先投放在員工發展上，讓他們提升技能，促進他們的事業及個人發展。同時，我們亦著重為員工提供安全及愉快的工作環境，並在工餘時舉辦各類康樂活動，鼓勵員工取得工作與生活之間的平衡。

Fully recognising that DSD's advantage is built on our people, we have always prioritised resources to support staff development. We are committed to capacity building as a means to promote career and personal development of staff. At the same time, we also place great emphasis on providing a safe and pleasant working environment, as well as organising a variety of recreational activities at leisure time to bolster work-life balance.

龍舟競賽
Dragon Boat Race

員工培訓與發展
Staff Training and Development

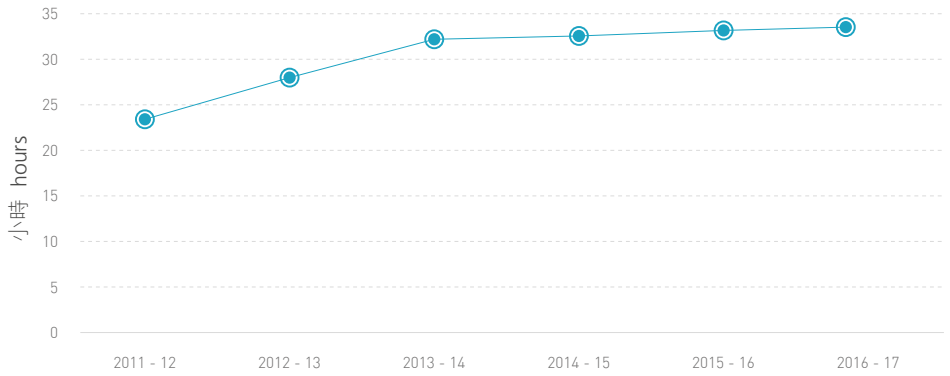
2016-17年度，我們一共為員工舉辦了674個培訓課程，當中包括入職培訓、內部培訓、職務考察、海外會議和各類研討會及工作坊等。這些多元化的培訓計劃，有助提升員工的專業技能和知識。

本署員工年內的平均培訓時數為33.4小時，遠超過香港人力資源管理學會2016年僱員培訓及發展需求調查公布的全港僱員平均培訓時數（18.3小時）。

In 2016-17, we organised a total of 674 training courses for our staff, including induction courses, in-house training, duty visits, overseas conferences, as well as seminars and workshops. Such diverse training is instrumental in enhancing professional skills and knowledge of the DSD team.

During the year, the average number of training hours per capita was 33.4, far exceeding the territory-wide average of 18.3 announced in the 2016 Training and Development Needs Survey published by the Hong Kong Institute of Human Resource Management.

員工平均培訓時數
Average number of training hours per staff



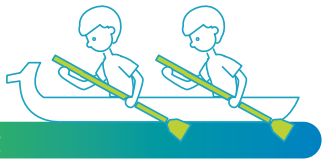
職業安全與健康(職安健)
Occupational Safety and Health (OSH)

我們致力提升員工的安全意識及培育安全文化。年內，我們舉辦和參與多項職安健推廣活動、運動及獎項計劃。

To raise safety awareness and nurture a culture of safety amongst our staff, we organised and participated in a variety of OSH promotion drives, campaigns and incentive programmes.

- 轄下28項工程項目參與發展局主辦的2016年公德地盤嘉許計劃
  28 DSD projects participated in the Development Bureau's Considerate Contractors Site Award Scheme 2016
- 舉辦2016年工地整潔獎勵計劃，共36項工程項目參與
  36 projects participated in the Construction Sites Housekeeping Award Scheme 2016 organised by DSD
- 為本署員工、顧問公司駐工地人員及承建商人員舉辦了2個安全講座
  Two safety talks were organised for DSD colleagues, site supervisory staff and representatives of contractors

員工培訓與發展
Staff Training and Development



本署於跨部門籃球比賽勇奪季軍
DSD won the second runner-up in the interdepartmental basketball competition

2016沙田龍舟競賽
2016 Shatin Dragon Boat Race

行山活動
Hiking session

周年晚宴
Annual Dinner

媒體參與活動
Media Engagement Activities

渠務署不時舉行傳媒簡報會和接受專訪，並應邀參與資訊節目，以發布最新動態消息，藉此加強與各界交流，提升部門的公眾形象。本章節與大家分享本署年內的重點傳媒活動。

From time to time, DSD holds media briefings, attends interviews, and participates in informational programmes on invitation to announce its latest development, in order to enhance knowledge sharing with different parties and promote our public image. Some highlights during the year are presented in this chapter.

渠務署年度傳媒簡報會 2017
DSD Annual Media Briefing 2017

年度傳媒簡報會
Annual Media Briefing

年度傳媒簡報會
Annual Media Briefing

本署於2017年3月16日舉行年度簡報會，向傳媒簡介防洪及污水處理工作的最新情況，並帶領記者參觀新建成的跑馬地地下蓄洪池。

DSD held the Annual Media Briefing on 16 March 2017 to introduce our recent work on flood prevention and sewage treatment to the media and tour them around the newly constructed Happy Valley Underground Stormwater Storage Tank.

署長唐嘉鴻先生向傳媒簡介本署工作
Mr. Edwin TONG Ka-hung, Director of Drainage Services, briefed the media on DSD's work

渠務署工程及工作傳媒訪問
Media Interviews on DSD Projects and Works

《文匯報》就「活化水體」專訪本署
Wen Wei Po Interviewed DSD about Revitalising Water Bodies

高級工程師梁華明先生簡介「活化水體」概念
Mr. Richard LEUNG Wah-ming, Senior Engineer, introduced the concept of revitalising water bodies

2016年5月4日，《文匯報》就「活化水體」專訪高級工程師梁華明先生，並實地視察經活化的大埔林村河上游。高級工程師何大昌先生及工程師鄭敏煒先生視察時，介紹河道各種綠化和生態保育措施，並分享保育香港瘰螈的經驗與成果。專訪刊於2016年5月16日的《文匯報》。

On 4 May 2016, Wen Wei Po conducted an interview with Mr. Richard LEUNG Wah-ming, Senior Engineer, on the topic of Revitalising Water Bodies. The interview was followed by a site visit to the revitalised upper Lam Tsuen River in Tai Po. During the site visit, Mr. Patrick HO Tai-cheong, Senior Engineer, and Mr. Marcus CHENG Man-wai, Engineer, introduced the ecological and greening elements incorporated in the river channel and shared their experience and achievements in conserving Hong Kong Newts. The interview was published in Wen Wei Po on 16 May 2016.

新華社及鳳凰衛視就香港防洪工作專訪本署
Xinhua News Agency and Phoenix TV Interviewed DSD about Flood Prevention Works

總工程師何耀光先生(右)介紹本署的防洪策略
Mr. HO Yiu-kwong (right), Chief Engineer, introduced DSD's flood prevention strategy

新華社及鳳凰衛視分別於2016年7月8日、14及21日派員到訪本署跑馬地地下蓄洪池及荔枝角雨水排放隧道，訪問內容涵蓋本署的防洪策略、經驗和相關工程。

The Xinhua News Agency and Phoenix TV visited our Happy Valley Underground Stormwater Storage Tank and Lai Chi Kok Drainage Tunnel on 8 July, 14 July and 21 July 2016 respectively. The interviews covered DSD's flood prevention strategy, experience and related projects.

風暴潮措施傳媒簡報會
Media Briefing on Measures to Tackle Storm Surge

副署長麥嘉為先生向傳媒簡介本署「防洪三招」，即疏浚、蓄洪及截流
Mr. MAK Ka-wai, Deputy Director of Drainage Services, introduced the "three-pronged flood prevention strategy", namely drainage improvement, flood storage and flood interception

工程師黃文達先生(右)介紹大澳可拆卸式防洪屏障的操作及功能
Mr. Albert WONG (right), Engineer, presented the operation and function of removable flood protection devices in Tai O

本署於2016年10月20日在大澳舉行簡報會，向傳媒講述本署應對風暴潮的具體措施。

DSD held a media briefing in Tai O on 20 October 2016 to introduce the media about DSD's concrete measures of tackling storm surge.

渠務署員工傳媒訪問
Media Interviews on DSD's Colleagues

2016年10月 Oct 2016

《經濟日報》訪問工程師梁皓觀先生
Hong Kong Economic Times Interviewed Mr. Michael LEUNG Ho-kwun, Engineer

2016年10月13日，經濟日報專訪工程師梁皓觀先生，以了解其日常職務、學習心得及公餘興趣。其間，梁先生介紹其負責監督的石湖墟污水處理廠改善工程及廠內設施。專訪載於同年11月2日的《經濟日報》TOPick網站。

On 13 October 2016, Hong Kong Economic Times conducted an interview with Mr. Michael LEUNG Ho-kwun, Engineer, about his work, learning tips and after-work interests, in which he introduced the facilities and improvement works of the Shek Wu Hui Sewage Treatment Works under his supervision. The interview was published in TOPick of Hong Kong Economic Times on 2 November 2016.

工程師梁皓觀先生介紹石湖墟污水處理廠的設施及進行中的工程

Mr. Michael LEUNG Ho-kwun, Engineer, introduced the facilities and on-going improvement works of Shek Wu Hui Sewage Treatment Works

高級工程師梁華明先生和園境師唐翠珊女士(右)接受《今日VIP》訪問

Mr. Richard LEUNG Wah-ming, Senior Engineer, and Ms. Sandy TONG Chui-shan (right), Landscape Architect, were interviewed by TVB's "The Green Room" programme

2016年10月 Oct 2016

電視廣播有限公司《今日VIP》專訪本署同事
TVB's "The Green Room" Programme Interviewed DSD Colleagues

2016年10月18日，高級工程師梁華明先生和園境師唐翠珊女士於接受《今日VIP》專訪，分別介紹本署的「活化水體」和園境工作。專訪分別於同年11月10日及17日播出。

On 18 October 2016, Mr. Richard LEUNG Wah-ming, Senior Engineer, and Ms. Sandy TONG Chui-shan, Landscape Architect, attended an interview with TVB "The Green Room" programme, respectively introducing DSD's work on "Revitalising Water Bodies" and landscape architecture. The interviews were broadcast on 10 and 17 November 2016 respectively.

2016年12月 Dec 2016

《香港01》訪問本署總工程監督黎超良先生
HK01 Interviewed Mr. Sammy LAI Chiu-leung, Chief Technical Officer

2016年12月2日，總工程監督黎超良先生就本署直屬員工隊工作接受《香港01》專訪。專訪載於同月7日的《香港01》專頁。

On 2 December 2016, Mr. Sammy LAI Chiu-leung, Chief Technical Officer, gave an interview to HK01 about the work of our Direct Labour Force. The interview was published on HK01's page on 7 December 2016.

本署總工程監督黎超良先生向記者介紹本署緊急控制中心的運作

Mr. Sammy LAI Chiu-leung, Chief Technical Officer, introduced to the reporter the operation of Emergency Control Center of the Department

持份者參與活動
Stakeholder Engagement Activites

渠務署一直重視持份者的意見，年內積極透過不同渠道，舉行多元化的持份者參與活動，與社會上不同團體交流，介紹本署近期的重點工程項目，增加公眾對本署的認識。為了回饋社會，本署的員工亦積極舉辦不同的義工服務及慈善活動，為社會送上關懷。

DSD has always treasured stakeholders' comments. During the year, we staged a wide range of stakeholder engagement activities through various channels to facilitate exchange with all sectors of society and introduce our latest key projects in order to broaden public awareness of the Department's work. DSD staff also played an active role to show kind concern for the community through organising volunteer services and charity events.

渠務署開放日 2016
DSD Open Day 2016

渠務署工程項目的公眾參與活動
Public Engagement Activities of DSD Projects

啟德河改善工程
Kai Tai River Improvement Works

1.

2.

1. 2017年1月，香港工程師學會(土木分部)會員參觀啟德河改善工程工地
   HKIE (Civil Division) members visited the site of Kai Tak River Improvement Works in January 2017
2. 2017年3月，香港工程師學會(土木分部)舉辦有關啟德河改善工程的技術研討會
   Technical seminar on Kai Tak River Improvement Works hosted by HKIE (Civil Division) in March 2017

活化翠屏河
Revitalisation of Tsui Ping River

1. 社區工作坊
   Community workshop
2. 與綠色團體、專業團體及學術團體進行專題小組會議
   Focus group meeting with green groups, professional bodies and academia

1.

2.

淨化海港計劃第二期甲
Harbour Area Treatment Scheme (HATS) Stage 2A

技術參觀及研討會
Technical Site Visits and Seminars

2016年6月23日，浙江大學參觀昂船洲污水處理廠，了解工程建造技術

On 23 June 2016, a delegation from Zhejiang University visited SCISTW with particular focus on the construction technique

2017年1月25日，於香港工程師學會舉辦淨化海港計劃第二期甲啟用研討會

On 25 January 2017, a Technical Seminar on the Commissioning of HATS Stage 2A was conducted at the HKIE

2017年2月17日，深水埗區議會議員及鄰近居民參觀昂船洲污水處理廠，了解污水處理過程及最新除味技術

On 17 February 2017, members of Sham Shiu Po District Council and nearby residents visited SCISTW were briefed on the sewage treatment process and the latest odour control techniques

其他持份者參與活動
Other Stakeholder Engagement Activities

與工作夥伴攜手合作
Joining Hands with Working Partners

1. 本署同事、駐工地督導人員和承建商代表出席經驗分享會

   DSD colleagues, site supervisory staff and representatives of contractors attended the experience sharing session

2. 本署為香港島北及新界北區小型渠務改善工程舉辦主要持份者參與的新工程合約夥伴工作坊

   DSD organised a NEC Partnering Workshop with the major stakeholders of Minor Drainage Improvement Works in Northern Hong Kong Island and North District

與區議員聯繫
Liaison with District Council (DC) Members

1. 2016年5月18日灣仔區區議員參觀跑馬地地下蓄洪計劃

   Wan Chai District Council Members visited HVUSSS on 18 May 2016

2. 2017年3月1日離島區區議員參觀小蠔灣污水處理廠太陽能發電場

   Island District Council Members visited the Solar Farm at Siu Ho Wan Sewage Treatment Works (STW) on 1 March 2017academia

與環保團體保持溝通
Ongoing Communication with Green Groups

帶領環保團體代表參觀本署河道工程

Guided tour to river improvement work site for green group members

展覽
Exhibitions


1. 本署同事在創新科技嘉年華使用擴增實景技術介紹跑馬地地下蓄洪計劃
   Using Augmented Reality (AR) in InnoCarnival to showcase the Happy Valley Underground Stormwater Storage Scheme
2. 2017年香港花卉展覽本署展區夜景 — 象徵四季濕地樹木之藝術品
   Night view of DSD's exhibit at Hong Kong Flower Show 2017 - colourful art pieces mimic wetland trees of the four seasons

社區活動
Community Activities

1. 「綠化數碼港海濱」植樹活動
   Planting event "Greening the Cyberport Seafront"
2. 渠務處開放日2016
   DSD Open Day 2016


參觀及外展教育活動
Educational Visits and Outreach


1. 小學生參觀荔枝角雨水排放隧道
   Primary school students visiting Lai Chi Kok Drainage Tunnel
2. 於本地學校進行外展教育計劃
   Educational outreach programme at local schools

義工服務及慈善活動
Voluntary Services and Charity Activities




1. 沙田污水處理廠「污水處理之旅」導賞團
   "Sewage Treatment Journey" guided tour at Shatin STW
2. 小朋友參觀中文大學賽馬會氣候變化博物館
   Kids on their visit to the Chinese University of Hong Kong's Jockey Club Museum of Climate Change
3. 本署義工隊探訪麗瑤白普理護老院
   The DSD Volunteer Team visiting the Helping Hand Lai Yiu Bradbury Care Home
4. 本署同事踴躍參與捐血活動
   Many colleagues support blood donation

本報告的完整版及所有附頁可於以下網址下載：
The full version of the report with appendices can be downloaded at the following link:

http://www.dsd.gov.hk/TC/Publicity_and_Publications/Publicity/DSD_Sustainability_Reports/index.html (繁體中文版)
http://www.dsd.gov.hk/SC/Publicity_and_Publications/Publicity/DSD_Sustainability_Reports/index.html (簡體中文版)
http://www.dsd.gov.hk/EN/Publicity_and_Publications/Publicity/DSD_Sustainability_Reports/index.html (English Version)

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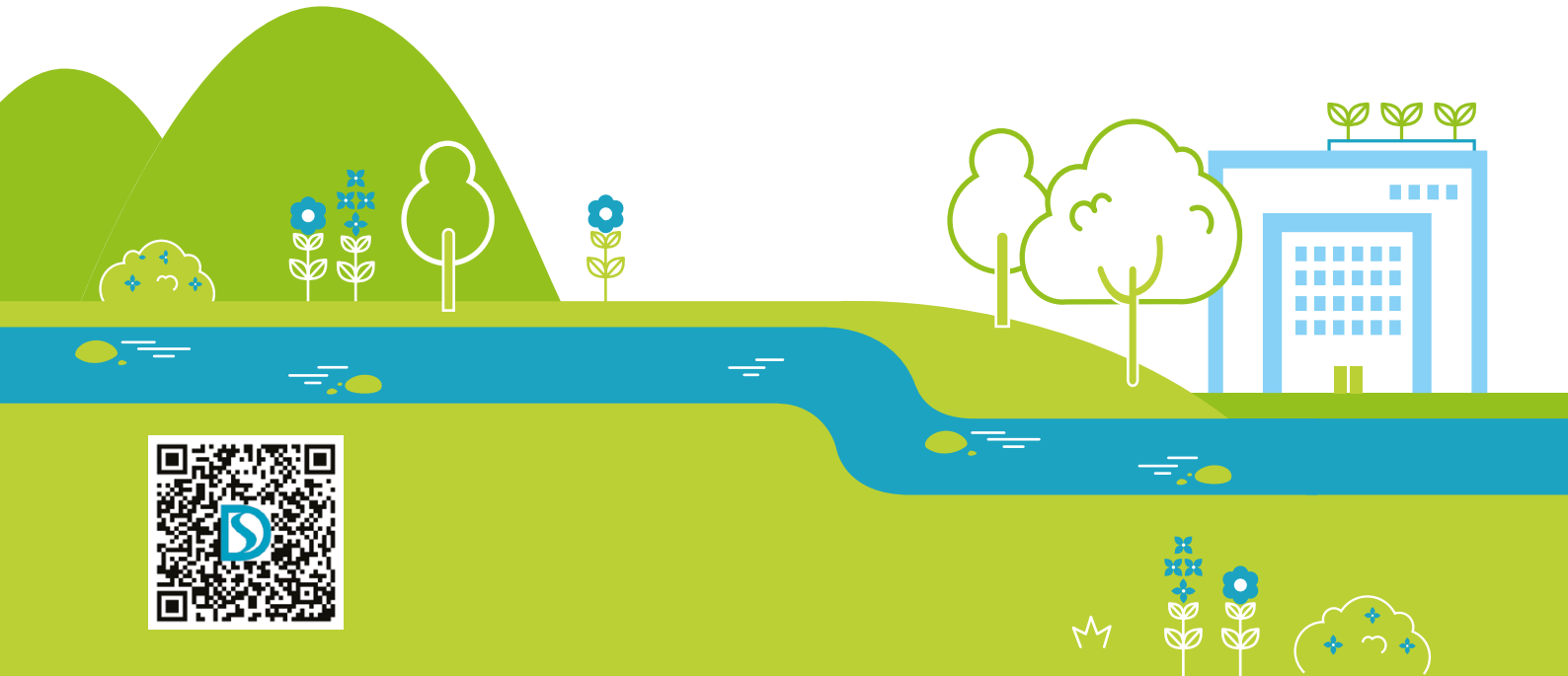

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