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# 關於本報告 **About This Report**

本報告題為「共享• 再用• 創新」詳述於2018年4月1日至2019年3 月31日期間(「報告期」)或2018-19財政年度渠務署在經濟、環境及 社會方面的可持續發展表現。除另外說明外,本報告範圍涵蓋本署 辦事處及轄下設施,包括本署主要工程顧問和承辦商的日常運作。

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 Report, titled "Co-use • Re-use • Innovation", evokes the sustainability performance of DSD in terms of our economic, environmental and social ethos from 1 April 2018 to 31 March 2019 ("Reporting Period") or during the fiscal year 2018-19. Unless otherwise stated, this Report covers DSD's offices and facilities, and the operations of our major consultants and contractors.

This executive summary of the Report provides 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

渠務署今年踏入30周年,與香港人風雨同路,繼續以提供世界級的污水 處理和雨水排放服務為己任。我們本着「勿畏難、勿輕略」的精神,上下 一心,迎難而上,以誠懇的態度工作。我深信,過去30年,市民已見證到 我們如何努力引入創新科技,以提升渠務基建。

Marking its 30th anniversary of serving the people of Hong Kong this year, the Drainage Services Department (DSD) remains committed to providing world-class wastewater treatment and stormwater drainage services. With the spirit of "being neither afraid of what is hard nor careless with what is easy", we have been united in rising to challenges at work in a sincere manner. I trust that over the past 30 years, Hong Kong citizens have witnessed the effort we have put into introducing innovative technologies to enhance drainage infrastructure.







#### 善用可再生能源 轉廢為能

政府深切關注全球氣候變化所帶來的影響,早於2007年便成立跨部門氣候變 化工作小組。工作小組由環境局主持,成員是16個部門(包括渠務署)的代表 為應對氣候變化而降低温室氣體排放量,我們積極推廣使用可再生能源並尋找 轉廢為能的契機

我們現時使用的可再生能源,包括水力能、太陽能和生物氣產能。以昂船洲污 水處理廠為例,我們於2018年10月首次在廠內裝設水力渦輪發電系統,利用污 水的流動轉化為電力,每年預計可生產高達12萬度電。此外,我們在多個污水 處理設施的戶外空間安裝了太陽能板,當中以小蠔灣污水處理廠的太陽能發 電場為目前政府設施內規模最大的太陽能發電系統,每年發電量可達110萬度 電。我們亦正積極使用污泥處理過程中產生的生物氣發電和產熱,在各個大型 二級污水處理廠設置生物氣發電機、鍋爐等,把生物氣轉化為電能及熱能 年度,生物氣所產生的能量約為2,700萬度電。因此我們的可再生能源設施合共 生產超過2,800萬度電,約佔渠務署用電量的9%。我們未來將繼續加強使用再 生能源、與香港一同邁向低碳智慧宜居城市。

另一方面,我們在大埔污水處理廠正試驗廚餘與污泥共消化技術,把在共消化 過程中產生的生物氣轉化為電力。我們正積極推行轉廢為能措施,研發適用於 渠務署設施的技術,以期減少依賴傳統化石燃料和舒緩堆填區的壓力,長遠達 至可持續發展的目標。

#### 共享空間

香港土地資源匱乏、渠務設施難免成為市民的近鄰。我們本着「與民共生、與民 共享」的精神、讓渠務設施與社區連結、並與市民建立緊密的關係。我們正把石 湖墟污水處理廠擴建成為三級處理水平的淨水設施。我們會於淨水設施中加入 「社區共融」元素,例如將開放予公眾享用的公共休憩空間、園景設施等。

### Utilising Renewable Energy Turning Waste into Energy

Deeply concerned about the impact of global climate change, the Government set up the Inter-departmental Working Group on Climate Change as early as 2007. Chaired by the Environment Bureau, the Working Group comprises representatives from 16 departments including DSD. To combat climate change by reducing greenhouse gas emissions, we have actively promoted the use of renewable energy and sought opportunities to turn waste into energy.

The renewable energy currently adopted by DSD includes hydropower, solar power, and biogas. Taking Stonecutters Island Sewage Treatment Works (STW) as an example, in October 2018, we installed a hydro-turbine system at the plant for the first time, converting the flow of sewage into electricity, which was expected to generate up to 120,000 kilowatt-hours of electricity per year. Furthermore, we have installed solar panels in the open space of numerous sewage treatment facilities, with the solar farm at Siu Ho Wan STW being the largest solar photovoltaic system among government facilities and generating as much as 1.1 million kilowatt-hours of electricity annually. We are also proactively utilising biogas produced during the sewage sludge treatment process to generate electricity and heat, with biogas generators, boilers, etc. installed in major secondary sewage treatment works for converting biogas into electricity and heat. During the year, energy equivalent to about 27 million kilowatt-hours of electricity was generated from biogas, and DSD's renewable energy facilities generated a total of over 28 million kilowatt-hours of electricity, which accounted for about 9% of DSD's electricity consumption. In the future, DSD will continue to increase the use of renewable energy, with Hong Kong progressing towards a low carbon smart livable city.

In addition, we are carrying out a trial on food waste and sludge co-digestion technology at Tai Po STW to convert the biogas produced during the co-digestion process into electricity. We are actively implementing waste-to-energy measures and developing technologies applicable to DSD's facilities, with a view to reducing dependency on conventional fossil fuels and easing pressure on landfills, thereby achieving sustainable development goals in the long run.

#### Co-use of Space

Since land resource in Hong King is scarce, drainage facilities inevitably become citizens' close neighbours. With the spirit of "coexisting and sharing", we connect drainage facilities with the community and build a close relationship with the public. We are now expanding Shek Wu Hui STW so that it will be turned into an effluent polishing plant of a tertiary treatment level. We will add to the plant "communion with the community" elements such as public open space and landscaped facilities which will be open to the public.

### 氣候變化帶來的挑戰

氣候變化帶來的極端天氣近年越趨明顯,正影響全球經濟和社會發展。因此, 香港難以獨善其身。超強颱風「山竹」於2018年9月襲港,本港多區錄得破紀錄 的風暴潮,海平面亦普遍升高超過兩米,導致低窪地區嚴重水浸。

為應對氣候變化帶來的挑戰,我們根據過往記錄,識別了七個容易受風暴潮影 響而出現海水淹浸情況的風暴潮點,以及三個容易因海浪超越海堤而出現水浸 情況的越堤浪點。誠然,渠務署單憑一己之力,難以有效應對氣候變化。因此, 政府與社會各方(包括企業)必須群策群力,制定可行的行動計劃,為突如其來 的情況作好準備,盡力減低相關地點的水浸風險。

未來,我們的團隊將繼續為市民提供高效優質的污水處理及防洪服務,並持開 放務實的態度研究可否引進新技術以利推展工程和營運設施,務求與時並進 我在此勉勵部門上下,在瞬息萬變的時代中,繼續一心一意、兢兢業業改善污 水處理和雨水排放服務。



盧國華 渠務署署長 2019年12月

### Challenges posed by Climate Change

Extreme weather brought about by climate change has become more and more obvious in recent years, affecting the global economic and social development. As a result, Hong Kong can hardly remain unscathed. When super typhoon "Mangkhut" struck Hong Kong in September 2018, record-breaking storm surges occurred in many districts, raising the water level generally by more than two metres, and leading to severe flooding in low-lying

To meet the challenges posed by climate change, we have taken into account the previous records and identified seven Storm Surge Spots vulnerable to seawater inundation caused by storm surges as well as three Overtopping Wave Spots vulnerable to flooding caused by waves overtopping the seawall. Indeed, it is difficult for DSD to effectively tackle climate change alone. Thus, the Government and various sectors of the community (including enterprises) must work together to develop viable action plans in preparation for unexpected situations so that the flood risks at the locations concerned can be reduced as far as possible.

In the future, our team will continue to provide the public with efficient and quality sewage treatment and flood prevention services, and to explore with an open and pragmatic attitude the possibilities of introducing new technologies to better take forward our projects and operate our facilities so as to progress with the times. I hereby encourage all members of the Department to continue improving sewage treatment and stormwater drainage services wholeheartedly and diligently in this ever-changing era.

Kelvin LO Kwok-wah Director of Drainage Services December 2019

# 節能減排 促進香港可持續發展

第一章 CHAPTER 1

## Energy Saving and Emission Reduction Promoting Sustainable Development of Hong Kong

Development of Hong Kong

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變化跨部門工作小組,制訂適應氣候變化的政策和措施,以降低溫室氣體排放和應對氣候變化。政府在2017年公布《香港氣候行動藍圖2030+》和(《行動藍圖》)·大力推動可再生能源的使用。本署積極配合推行節能措施,並投放額外資源,大力推動並廣泛應用可再生能源科技於現有和全新的設施上,以減少碳排放和保護環境,達至可持續發展。可再生能源系統所產生的電能和熱能,會供應給本署廠房內的設施使用。另外,本署會繼續致力應用不同技術善用可再生能源,包括太陽能、水力能和生物氣。

Continuous increase of greenhouse gas emission intensifies global warming and climate change. Since 2007, the

Drainage Services Department (DSD) has been a member of the Inter-departmental Working Group on Climate Change, set up by the Environment Bureau for formulating policies and measures to reduce greenhouse gas emissions and combat climate change. In support of "Hong Kong's Climate Action Plan 2030+" ("Action Plan") published by the Government in 2017 that encourages extensive use of renewable energy (RE), DSD has actively implemented energy-saving initiatives and deployed additional resources in promoting and adopting renewable energy technologies on a wider and larger scale in its existing and new facilities to reduce carbon emissions and protect the environment for achieving sustainable development. The renewable energy systems generate electricity and heat for the facilities in DSD's plants. To help with building a cleaner and more sustainable environment, DSD will continue with the efforts to adopt various technologies, to harness renewable energy, including solar power, hydropower and biogas.

小蠔灣污水處理廠太陽能發電<sup>5</sup> Solar Farm at Siu Ho Wan Sewa<u>c</u> Treatment Work





大埔污水處理廠的電熱聯供發電 系統 Combined heat and power generating system in Tai Po Sewage Treatment Works



## 節能和採用可再生能源措施 Implemented Measures for Saving Energy and Harnessing Renewable Energy

目前·本署廠房的可再生能源設施每年生產超過2,800萬度電·約佔本署能源需求量9%。從成效角度來看·本署目前每年的可再生能源產量相當於5,600個家庭的能源消耗量·並可減少約19,600公噸二氧化碳排放量。

此外·本署在2017-18年度和2018-19年度共獲得2億4,800萬元的資本撥款·以推行12個主要可再生能源項目·每年合共可生產600萬度電·本署已展開這些項目的建設工程。另外·渠務署會繼續優化各污水處理廠和污水泵房的運作·包括利用更佳的節能設備取代老化設備以節省能源。更新項目包括更換廠房的鼓風機、照明系統、泵和隔篩等。本署2018-19年的耗電量約為3億1,500萬度電·我們期望透過推行可再生能源項目和節能措施·可在2024-25年度或之前·將用電容量減少約4%。本署現正努力達成這目標。

At present, RE installations in DSD's plants generate over 28 million kilowatt-hours of electricity per annum, constituting around 9% of DSD's annual energy demand. In terms of efficiency, DSD's current annual RE contribution is equivalent to the energy consumption of 5,600 households and can reduce about 19,600 tonnes of carbon dioxide  $(CO_3)$  emission a year.

In addition, DSD obtained a capital funding of \$248 million in total for 12 major renewable energy projects in 2017–18 and 2018–19 to generate a total of 6 million kilowatt-hours of electricity a year. These projects are under construction. Besides, DSD has been optimising the operation of various sewage treatment works (STWs) and sewage pumping stations (SPSs), including replacement of ageing equipment with more efficient energy saving units. The items being replaced include the plants' air blowers, lighting systems, pumps, and screens. With these RE projects and energy saving initiatives, DSD has set an electricity saving target of 4% by 2024-25, with respect to the baseline electricity consumption of about 315 million kilowatt-hours in 2018-19. DSD is striving to achieve this target.



### 太陽能 - 污水處理設施裝設太陽能光伏板 Solar Energy – Installation of Photovoltaic Panels in Sewage Treatment Facilities

本署多年來一直致力在各污水處理廠和污水泵房的戶外空間安裝太陽能光伏系統。截至2019年3月底·我們已在轄下主要設施·包括沙田污水處理廠、元朗污水處理廠、石湖墟污水處理廠和昂船洲污水處理廠等·共15所污水處理廠和13所污水泵房·安裝太陽能光伏板·以盡量利用廠房空間收集太陽能。當中·在2016年年底投入服務的小蠔灣污水處理廠太陽能發電場由超過4,200塊多晶硅太陽能光伏板組成·每年發電量可達110萬度電·是目前香港特別行政區政府設施中規模最大的太陽能發電系統。2018-19年度·本署光伏系統的總發電量約為112萬度電。

Over the years, DSD has endeavoured to utilise the open space in STWs and SPSs to install photovoltaic (PV) system. As at end March 2019, DSD has installed PV panels at 15 STWs and 13 SPSs to harness solar energy by maximising the use of the plants' space. The major plants include Sha Tin STW, Yuen Long STW, Shek Wu Hui STW and Stonecutters Island STW. Notably, the Solar Farm at Siu Ho Wan STW commissioned at the end of 2016, comprises over 4,200 units of polycrystalline PV panels which can generate as much as 1.1 million kilowatt-hours of electricity annual, making it the largest PV system among the Hong Kong SAR Government facilities at present. In 2018-19, the total PV system of DSD is generating about 1.12 million kilowatt-hours of electricity.

## 水力發電 - 昂船洲污水處理廠水力渦輪發電系統 Hydroelectric Power— Hydro-turbine System at Stonecutters Island Sewage Treatment Works

隨着淨化海港計劃第二期甲正式啟用,我們在昂船洲污水處理廠安裝水力渦輪 發電系統,利用流動污水的液壓能量推動渦輪機,繼而產生電力供廠內設施使 用。該發電設施屬全自動運作、電腦系統會因應污水處理廠每日的污水流量 自動調節發電機的轉速,以提升輸出功率。該系統於2018年10月啟用,設計容 量達23千瓦,預計每年可生產高達12萬度電,不單有助節省電費開支,還善用 水力減少碳排放。由於此項目成效顯著,我們正計劃於昂船洲污水處理廠安裝 第二組水力渦輪發電系統。



污水處理過程產生的污泥會在厭氧消化期間釋出生物氣。生物氣約含65%甲烷 (其餘成分主要為二氧化碳),屬於可再生能源。我們利用電熱聯供發電機和渦 輪發動機燃燒生物氣,生產電能和熱能供廠房使用。2018-19年度,沙田、大埔 和石湖塘污水處理廠共5台電熱聯供發電機的總發電容量約為3.6兆瓦; 而沙田 和元朗污水處理廠2台渦輪發動機的總發電容量則為280千瓦。年內,各污水處 理廠的生物氣總發電量相等於約2,700萬度電

Sludge, a byproduct of sewage treatment process, produces biogas during anaerobic digestion. Biogas is a form of renewable energy which contains 65% methane (the remaining components mainly being CO<sub>2</sub>). DSD utilises combined heat and power (CHP) generators and gas-turbines that run on biogas to generate electricity and heat for in-house use. In 2018-19, the total electricity generation capacity of five CHP generators at Sha Tin STW, Tai Po STW and Shek Wu Hui STW is about 3.6 megawatts, while two gas-turbines at Sha Tin STW and Yuen Long STW have a total electrical generating capacity of 280 kilowatts. This year, the total energy generated by biogas at our STWs amounted to about 27 million kilowatt-hours

After the commission of the Harbour Area Treatment Scheme Stage 2A, DSD installed a hydro-turbine system which utilises hydraulic energy from the flow of sewage to move the turbine and generate electricity for in-house use at Stonecutters Island STW. It is a completely automated operation, regulating the generator speed according to the daily sewage flow rate in order to enhance its operating efficiency. The system commissioned in October 2018, with a design capacity of 23 kilowatts, it is expected to generate up to 120,000 kilowatt-hours of electricity a year. The system does not only save electricity costs, but also make good use of hydropower to reduce carbon emissions. In light of the high efficiency of this project, we plan on installing a second hydro-turbine system at Stonecutters Island STW.



昂船洲污水處理廠的水力發電系統 Hydro-turbine system at Stonecutters Island Sewage Treatment Works



沙田污水處理廠的1.4米瓦熱雷聯供發雷機 A 1.4-megawatt combined heat and power generator at Sha Tin Sewage Treatment Works



元朗污水處理廠的30千瓦微型渦輪發電機 A 30 kilowatt micro-turbine generator at Yuen Long Sewage Treatment Works



# 展望 - 廚餘與污泥共消化 Way Forward – Food Waste and Sludge Co-digestion

《2016年施政報告》宣布,大埔污水處理廠自2019年起進行「共消化」試驗計 劃,每日處理50公噸廚餘及污泥。試驗計劃包括在大埔污水處理廠附近船灣滲 濾液預處理廠興建一個處理量達50公噸的廚餘預處理廠,以及進行運作試驗工 作。本署和環保署攜手推行有關試驗計劃。

計劃下,環保署的工程包括建造廚餘預處理廠。在此,廚餘會先去除雜質,再搗 碎變成廚餘漿。至於本署工程則包括改建接收廚餘的指定厭氧消化缸。改建工 程包括把缸內的混合器更換為可把較高固體含量的廚餘與污泥混合物均勻攪 拌的新混合器。試驗計劃已於2019年9月開始。其間,環保署負責收集、運送、 預處理和泵送廚餘至大埔污水處理廠內指定的厭氧消化缸。本署則負責操作消 化缸和利用生物氣生產熱能和電力,供污水處理廠使用。

The 2016 Policy Address announced that a co-digestion trial scheme will be conducted at Tai Po STW from 2019 onwards, treating 50 tonnes of food waste and sludge everyday. The trial scheme includes the construction of a food waste pre-treatment plant with a treatment capacity of 50 tonnes, located at the Shuen Wan Leachate Pre-treatment Works, adjacent to Tai Po STW and an operation trial scheme. The co-digestion trial scheme is collaboratively run by the DSD and EPD.

Under the trial scheme, EPD's engineering works include construction of a food waste pre-treatment plant. Here, food waste is pre-treated to remove impurities before being mashed and turned into food pulp. DSD's engineering works include modification of a digester designated to receive food waste. The modification works include replacement of the sludge mixer in the digester with a new mixer that is suitable for blending the sludge and food waste, which have a higher solids content, homogeneously. The trial scheme started in September 2019. During operation, EPD is responsible for collecting, delivering, pre-treating and pumping food waste to the designated anaerobic digester at Tai Po STW, while DSD is responsible for the operation of the digester and utilisation of biogas to generate heat and electricity for STWs' use.

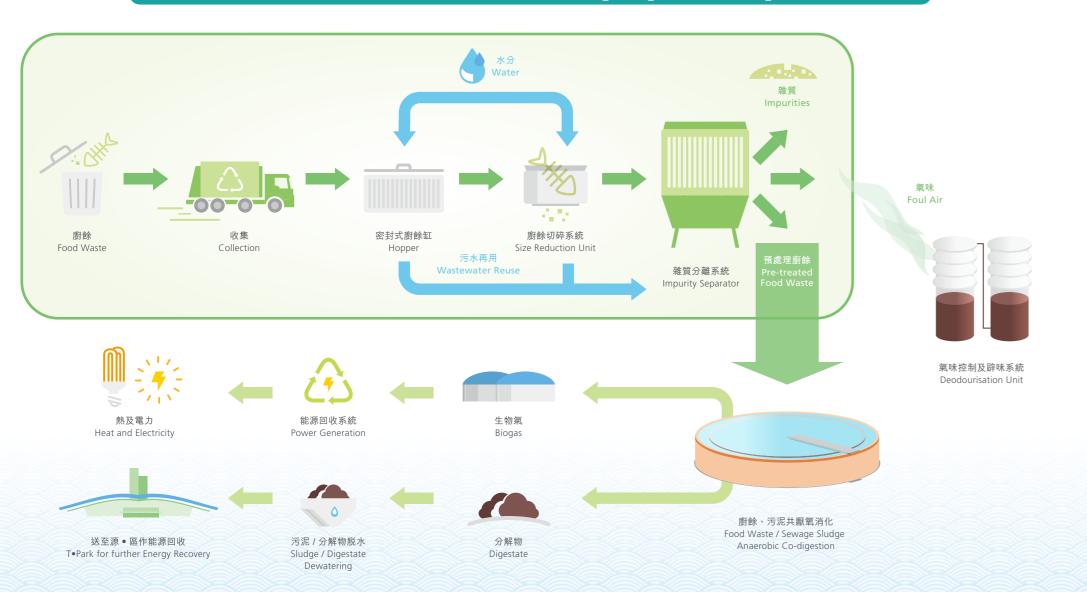


## 大埔污水處理廠50公噸「共消化」試驗計劃的優點 Benefits of 50-tonne Co-digestion Pilot Trial Scheme at Tai Po Sewage Treatment Works

本署只須12個月便完成「共消化」試驗計劃下的指定厭氧消化缸改建工程。由於 廚餘預處理設施鄰近污水處理廠,「共消化」試驗計劃可達至 一址兩用和共同 處理。消化缸中的微生物能否有效降解有機物取決於缸中的養分平衡。與單獨 消化相比,「共消化」可提高降解效率,從而減少固體量和增加生物氣產量。在 香港,消化後的污泥經脫水後會運往[源•區],作為焚化過程中的燃料,其間產 生的熱能會被回收及轉化為電力。焚燒過程中、脫水後的消化物會變成灰燼、 其體積減少約九成,有助節省珍貴的堆填區空間。

DSD's modification works for the designated digester under the trial scheme took only 12 months. With the food waste pre-treatment plant and STWs adjacent to each other, the trial scheme attains the benefits of co-location and co-treatment. Whether microorganisms in the digester can effectively degrade organic solids, depends on the nutrient balance in the digester. Compared with mono-digestion, co-digestion can enhance the degradation efficiency, hence decreasing solids content and boosting biogas yield. In Hong Kong, digested sludge will be dewatered and transported to T.Park to be used as fuel in the incineration process. Heat generated during the process will be recovered and converted into electricity. In this process, the dewatered digestate will become ash, meaning it volume will decrease by 90%. Consequently, precious landfill space can be saved.

### 廚餘、污泥共氧消化試驗計劃流程圖 Process flow of Food Waste/ Sewage Sludge Anaerobic Co-digestion Trial Scheme



# 年度大事 重點輕描

第二章 CHAPTER 2

# Highlights of the Year

2018-19年度, 渠務署的除污和防洪工作進展良好, 成效顯著。本 洪表現之餘,同時鼓勵推動創新科技發展。

In 2018-19, DSD progressed well in sewage treatment and flood prevention, achieving remarkable results. DSD actively applied smart technology to construction and upgrading of sewage treatment plants; the commencement of the Upgrading of San Wai Sewage Treatment Works (STW) Phase 1 demonstrated DSDs' determination to apply smart technology. During the year, we continued to work shoulder to shoulder with academia and the industry to conduct research on blue-green infrastructure; on energy conservation; and emission reduction measures; and on renewable energy, hoping to enhance DSD's performance in sewage treatment and flood prevention, while encouraging the development of innovative technologies.



香港管理專業協會2018年度最佳年報獎 2018 HKMA Best Annual Reports Award



## 年度大事 重點輕描 Highlights of the Year



### 渠務署2018研究及發展論壇 DSD Research & Development Forum 2018

「智慧城市・創新雨水管理」及「智慧城市・創新污水管理」。本年度再 次成功吸引了500多名本地學者、專業人士及業界代表參與討論。討論範疇涵 蓋智慧技術、可持續措施,以及創新的雨水和污水管理事務。

渠務署連續舉辦了13年的「研究及發展論壇」是部門的周年盛事之一,本署邀 請業界翹楚和專家在論壇上發表專題演說,而論壇則提供平台讓各持份者交流 意見、了解最新技術,以及開拓合作機會,為香港締造更美好和可持續的居住



發展局常任秘書長(工務)林世雄先生(右七)、渠務署時任署長唐嘉鴻先生(左十)、渠務 署副署長麥嘉為先生(左六)、發展局副秘書長(工務)2麥成章先生(左五)與上午論壇的

Group photo of Mr. LAM Sai-hung (seventh right), Permanent Secretary for Development (Works), Mr. Edwin TONG Ka-hung (seventh left), then Director of Drainage Services, Mr. MAK Ka-wai (sixth left), Deputy Director of Drainage Services, Mr. Vincent MAK Shingcheung (fifth left), Deputy Secretary for Development (Works) 2, and speakers of the morning session

The Research & Development (R&D) Forum 2018 was held by DSD on 5 December 2018. The forum was divided into a morning session and an afternoon session under the themes "Smart City • Innovative Stormwater Management" and "Smart City • Innovative Wastewater Management" respectively. This year's forum was yet another success attracting more than 500 scholars, professionals and representatives of the industry to take part in discussion. The areas of discussion covered smart technologies, sustainable initiatives and innovative stormwater and wastewater management.

The R&D Forum, which has been held by DSD for the past 13 years is one of the Department's major annual events. The Department invited leading industry practitioners and experts to deliver keynote speeches at the forum, which provided a platform for stakeholders to exchange views, learn about the latest technologies as well as to explore opportunities for collaboration, thereby creating a better and sustainable living environment.



本署時任署長唐嘉鴻先生 致歡迎辭

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



環境局常任秘書長唐智強先生(左六)、渠務署時任署長唐嘉鴻先生(左五)、渠務署副 署長麥嘉為先生為(右六)與下午論壇的講者合照

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



### 新圍污水處理廠平頂儀式 San Wai Sewage Treatment Works Topping-Out Ceremony

2018年12月14日, 渠務署舉行新圍污水處理廠第一期平頂儀式, 標誌着本工程 進度的重要里程碑。工程合約採用「設計、建造及營運」模式,於2016年5月展 開,預計於2020年完成。新圍污水處理廠第一期完成後,可提供每天200.000分 方米的污水處理量。新圍污水處理廠的污水處理級別亦由基本處理提升至化學 強化一級處理,並加設紫外線消毒設施,以進一步提高新圍污水處理廠的環境 效益。

On 14 December 2018, DSD held a topping-out ceremony for the San Wai STW Phase 1 to mark significant milestone in the progress of the project. Procured under a Design-Build-Operate (DBO) arrangement, the contract commenced in May 2016 with the construction works scheduled for completion in 2020. Upon completion of San Wai STW Phase 1, the sewage treatment facilities will provide a daily treatment capacity of 200,000 cubic metres. The treatment level of San Wai STW will also be upgraded from preliminary treatment to chemically enhanced primary treatment providing ultra-violet disinfection facilities, thereby further enhancing the environmental performance of the San Wai STW.



本署時任署長唐嘉鴻先生致歡迎辭 Mr. Edwin TONG Ka-hung, then Director of Drainage Services,

delivered a welcome speech



本署時任署長唐嘉鴻先生(中)、副署長麥嘉為先生(右 -)和其他主禮嘉賓於平頂儀式合照





## Awards and Honours

2018



頒第十五屆中國土木工程詹天佑獎「市政工程組別」獎項

6月3日

DSD's "Harbour Area Treatment Scheme" has been awarded the 15th Tienyow Jeme Civil Engineering Prize under the "Municipal Engineering Category" for its outstanding achievements in the area of technological innovation and application.





2018



渠務署「石湖墟污水處理廠 - 擴建工程第1A期 - 坪輋路 污水渠工程」在建築信息模型科技的創新與應用方面成績 顯著,獲頒WBIM國際數字化大獎之施工類優秀獎(三等

DSD's "Advance Works for Shek Wu Hui STW - Further Expansion Phase 1A and Sewerage Works at Ping Che Road" has been awarded the WBIM International Digitalisation Award – Design Remarkable Award (3rd Level Award) for its remarkable achievements in innovation in and application of BIM technologies.

### 2018

Jul

### **渠務署可持續發展報告2016-17**榮獲多項殊榮·其中包括

獎項 Awards

### 2017 Vision Awards

- 銀獎
- Silver Award
- 東南亞地區最佳可持續發展報告首80名(排名第41) Top 80 Reports in the Asia-Pacific Region (ranked
- 2017最佳中文報告首60名 Top 60 Chinese Reports in 2017
- 技術成就獎

2018 Inspire Awards

金獎

Gold Award

• 首100名企業刊物(排名第52) Top 100 Corporate Publications (ranked 52<sup>nd</sup>)

Technical Achievement Award

### 2018 APEX Awards for Publication Excellence

 卓越獎(寫作-綠色寫作) Awards of Excellence (Writing – Green Writing)

### 香港管理專業協會2018年度最佳年報獎 2018 HKMA Best Annual Reports Awards

• 優秀環境、社會及管治資料披露獎 Citation for Environmental, Social and Governance Disclosure

美國傳媒專業聯盟 League of American Communications Professionals LLC

主辦機構 Organisers

美國傳媒專業聯盟

League of American

Communications Professionals

Communications Concepts

香港管理專業協會 The Hong Kong Management Association



### 2018

111111111 9月17日 17 Sep



渠務署支持香港科技大學研發的「殺泥技術」在 水處理方面對全世界特別是沿海城市貢獻殊偉品 獲2018國際水協項目創新獎「突破性科研」銅獎 With great support from DSD, the "SAN technology (Sulphate reduction, Autotrophic denitrification and Nitrification Integrated)", developed by the Hong Kong University of Science and Technology, was awarded the 2018 IWA Project Innovation Awards Bronze Medal Award for "Breakthroughs in R&D" for its great contribution to sewage treatment throughout the world, especially in coastal cities.













渠務署「淨化海港計劃」在可持續發展方面成績卓越,獲 頒2018年度英國土木工程師學會Edmund Hambly獎章。 DSD's "Harbour Area Treatment Scheme" was awarded the 2018 Edmund Hambly Medal from the Institution of Civil Engineers, U.K. for its outstanding achievements in the area of sustainable development.

渠務署「跑馬地地下蓄洪計劃」在創新及科技發展方面成績斐然·獲頒2018年度 中國水利學會「大禹水利科學技術獎」。

DSD's "Happy Valley Underground Stormwater Storage Scheme" was awarded the 2018 "Dai Yu Science & Technology Medal" of Chinese Hydraulic Engineering Society for its outstanding achievements in the area of innovation and technology development.

### 2018

11月2日

士(右三)榮獲「2018年申訴專員嘉許獎」公職

> Ms. Annie TANG Ka-yuet (second left) and Ms. Tanya TSUI Wing-har (third right), DSD Engineers, received Awards for Officers of Public Organisations at the "Ombudsman's Awards 2018"





渠務署「啟德河改善工程 — 黃大仙段」在景觀設計 方面表現傑出,獲頒2018年香港園境師學會設計獎 之優異獎。

DSD's "Kai Tak River Improvement Works (Wong Tai Sin Section)" was awarded the Merit Award of Hong Kong Institute of Landscape Architects (HKILA) Design Awards 2018 for its outstanding landscape





渠務署致力為正在餵哺母乳的僱員 提供適合及方便餵哺母乳的環境,獲 家庭議會頒發「2017/18年度支持母 乳餵哺獎」。

DSD has been awarded the "Awards for Breastfeeding Support 2017/18" by the Family Council in recognition of its effort in providing an appropriate and friendly environment for our breastfeeding employees to breastfeed their children.











渠務署展區「願」在2019年香港花卉展覽獲得最佳設計(園林景 點)金獎。

DSD's exhibit "Dreams" was awarded the Gold Award for Design Excellence (Landscape Display) at the Hong Kong Flower Show 2019.



12月13日

在推廣可持續發展方面表現卓越、分別獲頒綠建環評新建建築「最 終鉑金級」和「暫定鉑金級」的認證。

13 Dec DSD's "Happy Valley Underground Stormwater Storage Scheme" and "Lam Tsuen Valley Sewerage - Village Sewerage Stage 2", were bestowed the "Final Platinum Rating" and "Provisional Platinum Rating" under BEAM Plus New Buildings respectively, in recognition of the department's outstanding performance in promoting the sustainable development.







# 管治方針

第三章 CHAPTER 3

## Governance Approach

本署深信優良的機構管治是可持續發展的基石,亦是實現抱負、使命和信念的根本。 本署成立至今,一直以公眾利益為依歸,致力建立及維持一套優良、穩建而明智的 管治架構。我們按著完善的管治架構營運,並按汲取的經驗、國際發展趨勢和持份 者的期望來持續修訂及優化可持續發展管理政策。同時,我們以開誠布公的方式, 全面披露本署管治的原則和實務,以提升我們的公信力和聲譽。

DSD firmly believes that sound corporate governance is not only the bedrock of sustainable development, but also the foundation for achieving our vision, mission and values. Since our establishment, we have endeavoured to establish and maintain a good, solid and sensible framework of corporate governance in the interests of the public. We operate within a well-defined governance structure, continuously adapt and improve our sustainability management strategies in light of our experience, international developments and stakeholders' expectations. In addition, we disclose our corporate governance principles and practices openly and fully to uphold our credibility and reputation



荔枝角雨水排放隧道

昂船洲污水處理廠 Stonecutters Island Sewage Treatment Works



## 抱負、使命和信念 Vision, Mission and Values



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

mproving drainage services in a cost-effective and environmentally responsible manner 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 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

勇於承擔

管治架構

Governance Structure

### 高級管理層

本署的高級管理層以署長為首,並由一位副署長及4位助理署長組成 負責制定重大決策和監督部門日常運作,並制定和檢討本署的可持續 發展策略及目標。成員包括

Mr. Kelvin LO Kwok-wah

B 渠務署副署長 Deputy Director of Drainage Services

Mr. MAK Ka-wai

C 助理署長/設計拓展 Assistant Director/Projects and Development

Mr. Ken WONG Sui-kan

□ 助理署長/機電工程 Assistant Director/Electrical and Mechanical

Mr. Eddie PAK Kan-ming

E 助理署長/污水處理服務 Assistant Director/Sewage Services

Mr. Anthony TSANG Kwok-leung

F 助理署長/操作維修 Assistant Director/Operations and Maintenance

Mr. HO Yiu-kwona G 主任秘書 Departmental Secretary

Mr. Chris LI Chi-kong

### Senior Management

Headed by the Director of Drainage Services, the Department's senior management comprises a Deputy Director and four Assistant Directors who are responsible for making important policy decisions and overseeing the Department's daily operations, as well as formulating and reviewing our sustainability strategies and goals. The senior management team includes:







### 可持續發展管理 Sustainability Management

及管理系統,為管理模式注入新元素,妥善管理風險,並設立多個溝涌渠道 加強與持份者交流、聽取並回應他們對本署發展的意見、讓本署持續提升可持 續發展表現。

#### 綜合管理體系

本署自2002年開始建立和落實符合國際標準的管理體系,至今已實施多套系 ISO 9001品質管理體系及ISO 14001環境管理體系已順利升級至新版本ISO 9001:2015及ISO 14001:2015。我們亦將展開對職業安全衞生管理體系OHSAS 18001的內部檢討,務求於2021年3月截止日期前順利提升至ISO 45001:2018新 標準的要求。

此外,自2013年起,本署分階段實施資產管理體系,加強管理轄下設施。在2019 年7月·本署轄下大部分污水處理廠、污水泵房及雨水泵房已通過ISO 55001資 產管理標準認證審核,使本署成為首批獲得該認證的政府部門之一。

Under the leadership of the senior management, DSD has established a sustainability management structure to address various topics specific to sustainable development, and to provide appropriate recommendations as well as supervise the related initiatives. We also actively adopt suitable international standards and management systems and invigorate our management approach with innovative ideas. Risks are properly managed and multiple channels are in place to enhance interaction with all stakeholders, and for us to address their feedback on our development, enable us to improve our sustainability performance continuously.

### Integrated Management System

DSD has begun establishing and implementing management systems in line with international standards since 2002. To date, we have put in place an integrated management system made up of multiple systems that cover the aspects of quality, environment, and occupational safety and health. During the year, the ISO 9001 Quality Management System and ISO 14001 Environmental Management System were upgraded to the new standards of ISO 9001:2015 and ISO 14001:2015 successfully. An internal review will also be conducted on the OHSAS 18001 Occupational Health and Safety Management System with a mission to facilitate smooth transition to meet the requirements of the new standards of ISO 45001:2018 before the deadline in March 2021

Since 2013, DSD has been implementing in stages an Asset Management System (AMS) to enhance management of our facilities. In July 2019, most of DSD-owned sewage treatment works (STWs), sewage pumping stations (SPSs), and stormwater pumping stations, passed the certification audit for ISO 55001 AMS standard, making us one of the first government departments to obtain such accreditation.

# 渠務署主要職責

第四章 CHAPTER 4

## Our Core Responsibilities

本署一直致力為市民提供專業的污水處理及雨水排放服務, 以保護香港水域水質和保障市民免受水浸影響。本署自1989 年成立至今,矢志建造優質污水處理及排水設施,使香港成為 更宜居城市。

DSD is committed to providing professional sewage treatment and stormwater drainage services to the public so as to protect the quality of Hong Kong waters and protect citizens against flooding. Since our establishment in 1989, we have been endeavouring to build excellent sewerage and drainage facilities to make Hong Kong a more liveable city.

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

> 昂船洲污水處理廠 Stonecutters Island Sewage Treatment Works

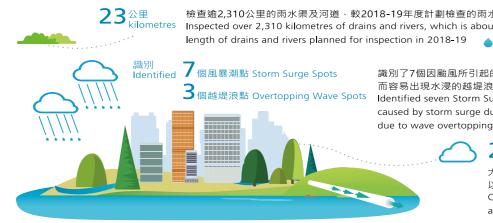








## 2018-19年度防洪概要 Overview of Flood Prevention in 2018-19





識別了7個因颱風所引起的風暴潮導致海水上升時容易出現海水淹浸的風暴潮點和3個因海浪超越海堤 而容易出現水浸的越堤浪點,並積極與有關部門制定相應措施

3 個越堤浪點 Overtopping Wave Spots Identified seven Storm Surge Spots, which are vulnerable to seawater inundation due to rise of sea level caused by storm surge during typhoon and three Overtopping Wave Spots, which are vulnerable to flooding due to wave overtopping the seawall and formulated measures to combat the problems with other departments



▲個雨水排放整體計劃 Drainage Master Plan review studies

大嶼山及離島區和屯門、荃灣及藝青區的2項雨水排放整體計劃檢討研究 以及淺水灣及大潭的雨水排放研究目前正在進行中。 Currently conducting the two Drainage Master Plan review studies of Lantau and Outlying Islands, and Tuen Mun, Tsuen Wan and Kwai Tsing, and the drainage study for Repulse Bay and Tai Tam



## 規劃、設計及建造新排水設施 Planning, Design and Construction of New Drainage Facilities



啟德河改善工程(上游及中游段)(工程後的啟德河) Kai Tak River Improvement Works (upstream and midstream sections) (Kai Tak River after Improvement)



活化翠屏河 (活化後翠屏河的構想圖) Revitalisation of Tsui Ping River (Photomontage of the revitalised Tsui Ping River)



西九龍雨水排放系統改善計劃-水塘間轉運隧道計 劃 (水塘間轉運隧道計劃位於九龍副水塘的隧道進水

West Kowloon Drainage Improvement - Interreservoirs Transfer Scheme (The location of the tunnel intake of Inter-reservoirs Transfer Scheme at the Kowloon Byewash Reservoir)



## 2018-19年度污水處理概要 Overview of Sewage Treatment and Sewerage System in 2018-19



每日平均處理約280萬立方米污水,年度污水總處理量為10.28億立方米

280萬立方米 Treatment of about 2.8 million cubic metres of sewage on average every day and 1,028 million cubic metres of sewage in total in the year

2.8 million cubic metres

約 About

**392,000**公噸 tonnes

年度污泥收集及處理約為392,000公噸 About 392,000 tonnes of sludge is collected and treated in the year

污水收集網絡總長約1,890公里

Total length of sewerage network is around 1,890 kilometres

93.6% 公共污水收集網絡服務約佔本港人口的93.6%¹ The public sewerage network serves around 93.6% of Hong Kong's population¹

本署轄下共有319所污水處理設施

319所 A total of 319 sewage treatment facilities are owned and operated by DSD

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

規劃、設計及建造新污水處理設施

## Planning, Design and Construction of New Sewerage Facilities



梅窩污水處理廠改善工程 (梅窩污水處 理廠鳥瞰圖)

Upgrading of Mui Wo Sewage Treatment Works (Aerial photo of Mui Wo Sewage Treatment Works)

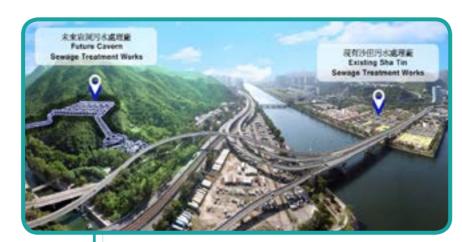


大角咀櫻桃街旱季截流設施 (櫻桃街旱季截 流設施完工構想圖)

Dry Weather Flow Interceptors at Cherry Street, Tai Kok Tsui (The photomontage of the dry weather flow interceptor at Cherry



少頭角污水處理廠第一期擴建工程完工構想圖 The photomontage of the completed Phase 1 Sha Tau Kok Sewage Treatment Works



搬遷沙田污水處理廠往岩洞工程 Relocation of Sha Tin Sewage Treatment Works to Caverns







The photomontage of the Shek Wu Hui Effluent Polishing Plant



元朗淨水設施設計圖 The design layout of Yuen Long Effluent Polishing

# 環境管理

第五章 CHAPTER 5

**Environmental Management** 

全球氣候變化對渠務署來說,既是機遇,也是挑戰,本署一直積極 探索及引進嶄新工程技術和環境管理措施,一方面既可提升運營 效益,另一方面可以推廣可持續發展理念(包括河道活化和節能減 排等),同時實現工程項目與自然環境雙生共融的目標。

Global climate change embeds opportunities and challenges. In the face of changes in the environment, DSD has committed to exploring and introducing cutting-edge engineering technologies and environmental measures. On one hand, it enhances the operational efficiency; on the other hand, it promotes the concept of sustainable development (covering river revitalisation and energy conservation, etc.), and to realize the goal of co-existence between project works and environmental protection.



維多利亞海港 Victoria Harbour

## 藍綠建設

## Blue-Green Infrastructure

渠務署在多項工程中積極引進綠化和生態保育元素的活化水體概念·例如在河道兩旁或河道種植、營造天然溪澗環境、保育河道生態、促進各類生物繁衍·以及引入園景設計等務求在有效排水的同時·亦以促進綠化、生物多樣性及美化環境為目標。透過藍綠建設·我們希望為市民建設草木繁茂和水景優美的環境·讓市民有更多機會親近水體·珍惜天然資源。





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

DSD has been striving to implement the concept of revitalising water bodies by incorporating green and ecoconservation elements into channel and river training works. These include planting in river channels and along riverbanks, engineering natural stream settings, preserving river ecosystems, enhancing various wildlife growth and introducing landscape designs, which promote greening, biodiversity and environmental beautification while maintaining the drainage capacity. For the purpose of blue-green infrastructure, we wish to create an environment with lush vegetation and beautiful waterscape for the public to get close to the water bodies and treasure the natural resources.





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

### 蠔涌河和林村河上游河道改善工程

渠務署分別於2007及2012年完成蠔涌河及林村河上游河道改善工程·大大紓緩區內的水浸風險。西貢蠔涌河及大埔林村河擁有極高生態價值。我們在施工期間·盡力把工程對環境和生態的影響減至最少·並縮小擴闊河道工程範圍·以保留河道原貌。



### Ho Chung River and Upper Lam Tsuen River Improvement Works

DSD completed Ho Chung River and Upper Lam Tsuen River Improvement Works in 2007 and 2012 respectively, thus considerably alleviating the flood risk in the regions. Ho Chung River in Sai Kung and Lam Tsuen River in Tai Po are of great ecological significance. During construction, we did our utmost to minimise environmental and ecological impacts of our works and keep the land uptake during the river widening works to a minimum in order to preserve the original characters of the rivers.



改善工程後的林村河 Lam Tsuen River after the improvement works



## 

### 

活化後的啟德河 Kai Tak River after revitalisation

啟德河改善工程

### Kai Tak River Improvement Works

Improvement works were carried out mainly to enhance the drainage capacity of the Kai Tak River, alleviating the flood risks in Choi Hung Road and surrounding area. In addition to upgrading drainage capacities, we are also taking this opportunity to incorporate aesthetic, greening, landscaping and ecological elements, thus revitalising the nullah into the first urban green river along a serene emerald corridor.



啟德河河堤種植的簕杜鵑 Draping plant *Bougainvillea spectabilis* along the banks of Kai Tak River

### 活化大圍明渠、火炭明渠及佐敦谷明渠

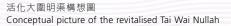
渠務署計劃活化現有的大圍明渠、火炭明渠及佐敦 谷明渠以提升其生態價值,並促進綠化和近水和親 水活動,改善社區環境以建設宜居城市。



活化火炭明渠構想圖 Conceptual picture of the revitalised Fo Tan Nullah

活化佐敦谷明渠構想圖 Conceptual picture of the revitalised Jordan Valley Nullah





### Revitalisation of Tai Wai Nullah, Fo Tan Nullah and Jordan Valley Nullah

DSD plans to revitalise the existing Tai Wai Nullah, Fo Tan Nullah and Jordan Valley Nullah with aims to enhance the ecological value of the nullah, provide a greener environment, promote water friendliness and improve the community environment for building a livable city.

在提升污水處理設施以應付發展需要的同時,本署也重視與社區連結,在設計 過程中注入社區共融的元素如公共休憩空間及園景設施等,讓公眾享用,將渠 務設施構建成社區共融的民生設施,使渠務設施更容易受市民所接受。



毗鄰石湖墟淨水設施的河畔步道構想圖 Conceptual picture of riverside promenade adiacent to Shek Wu Hui Effluent Polishing



more accessible to the public.

### 重點項目 Highlighted Project

石湖墟污水處理廠將提升為石湖墟淨水設施,工程除擴建廠房提升淨化水平外,亦會設置觀 鳥區、河畔步道及生態園等,令石湖墟淨水設施更融入周邊的自然環境及社區。

While upgrading the sewage treatment facilities to meet the development needs, DSD also attaches

importance to the links with the community. In the design process, the community's inclusive elements such as public open space and landscape facilities are incorporated for the purpose of public enjoyment in the

drainage facilities. The construction of a community-integrated livelihood facility will make drainage facilities

Shek Wu Hui Sewage Treatment Works (STW) will be upgraded to Shek Wu Hui Effluent Polishing Plant. Apart from expanding the plant to enhance the treatment level, facilities such as a bird watching area, a riverside promenade and an ecological garden, will be integrated into the Shek Wu Hui Effluent Polishing Plant improvement plan.

**Roof Greening** 

綠化天台有助紓緩市區空氣污染、降低室內溫度、減少建築物的能源消耗、美 化建築物,以及為野生動物創造棲息地,從而改善周邊環境的生物多樣性。 2018-19年度,我們為轄下9個設施完成天台綠化工程。



昂船洲污水處理廠化學物儲存樓綠化天台 Roof greening at Stonecutters Island Sewage Treatment Works Polymer Storage Building



Roof greening can mitigate air pollution in urban areas, lower indoor air temperature, reduce building

energy consumption, beautify building appearance and create wildlife habitats to improve biodiversity

of the surrounding environment. In 2018-19, we carried out roof greening for nine DSD facilities.

華富基本污水處理廠綠化天台 Roof greening at Wah Fu Preliminary Treatment Works



### 水資源採集及回用系統 Water Harvesting System



跑馬地地下蓄洪計劃配備水資源採集及回用系統,是利 用系統將地下水、運動場的灌溉水和雨水收集回用(圖 為跑馬地地下蓄洪池)

A water harvesting system is incorporated in Happy Valley Underground Stormwater Storage Scheme for collecting groundwater, irrigation water and rainwater for reuse purposes (The picture shows the Happy Valley Underground Stormwater Storage Tank)



跑馬地遊樂場內所更衣室以回用水沖廁 Reclaimed water is being used for toilet flushing in the changing rooms in the Happy Valley Recreation Ground



再造水 Water Reclamation

2018-19年度,我們平均每日生產逾1,800立方米再造水作非飲用用途。本署最具規模 的再造水生產設施位於昂坪污水處理廠、沙田污水處理廠及望后石污水處理廠。

此外,我們正分階段進行擴建工程,將石湖墟污水處理廠改建為石湖墟淨水設 施、提升該淨水設施的污水處理級別至三級淨化水平、部分經該設施三級處理 的排放水將會由水務署作進一步處理成再造水、供應給上水及粉嶺等新界東北 地區作沖廁等非飲用水用途。

沙田污水處理廠再造水設施 Water reclamation facilities at Sha Tin Sewage Treatment Works



In 2018-19, more than 1,800 cubic metres reclaimed water has been generated per day for non-potable use. The major water reclamation facilities are located in the Ngong Ping STW, Sha Tin STW and Pillar Point STW.

Furthermore, the Shek Wu Hui STW is being upgraded in stages to Shek Wu Hui Effluent Polishing Plant to enhance its treatment capability to tertiary treatment level. Part of the tertiary treated effluent at Shek Wu Hui Effluent Polishing Plant will be further polished by the Water Supplies Department as reclaimed water and supplied to north-east New Territories, i.e. Sheung Shui and Fanling, for toilet flushing and other nonpotable use.



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

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

渠務署自2007年起參與由環境局成立的氣候變化跨部門工作小組·制訂適應 氣候變化的政策及措施,以降低溫室氣體排放及應對氣候變化。政府於2017年 公布《香港氣候行動藍圖2030+》(《行動藍圖》),大力推動可再生能源的使 用。為作配合,本署積極推行節能措施,並利用太陽能及水力發電和生物氣產 能 (有關詳情請參閱第一章 節能減排 促進香港可持續發展)。

Since 2007, DSD has joined the Inter-departmental Working Group on Climate Change set up by the Environment Bureau for formulating polices and measures in adapting climate change to reduce greenhouse gas emissions and combat climate change. In support of "Hong Kong's Climate Action Plan 2030+" (Action Plan) published by the Government in 2017 that encourages extensive use of renewable energy, DSD has actively implemented energy-saving initiatives and adopted solar power, hydropower and biogas to generate energy (Please refer to Chapter 1 Energy Saving and Emission Reduction Promoting Sustainable Development in Hong Kong for details).



# 節能和採用可再生能源新措施 Newly Implemented Measures for Saving Energy and Harnessing Renewable Energy

的機電設備取替老化設備,以節省能源,同時增加使用可再生能源。推行的節 能措施包括:

- 以發光二極管燈取代傳統照明光源
- 優化污水處理廠及污水泵房的操作流程及更換能源效益較高的設備
- 安裝太陽能光伏板
- 安裝電熱冷三聯供系統
- 安裝水力渦輪發電系統

年內,上述措施共節省約91萬度電(相當於減碳約637噸1)。

2018年的間接(範圍二)溫室氣體排放是根據電力公司及煤氣公司所提供的排放系數計算:電能 實業(0.79 公斤二氧化碳當量/千瓦時)、中電(0.51 公斤二氧化碳當量/千瓦時)及香港中華煤 氣有限公司(0.592公斤二氧化碳當量/單位)

2018-19年度·我們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 In 2018-19, we continued to optimise the operation of our sewage treatment works and sewage pumping stations, as well as replace aging equipment with more energy efficient ones to save energy. Concurrently, we promoted wider use of renewable energy. The measures taken include:

- Replacing conventional lighting with light emitting diode (LED) type
- · Optimising operation procedures and replacing equipment with more energy efficient ones at sewage treatment works and sewage pumping stations
- Installing photovoltaic solar panels
- Installing tri-generation system (electricity, heat and cooling)
- Installing hydro-turbine system

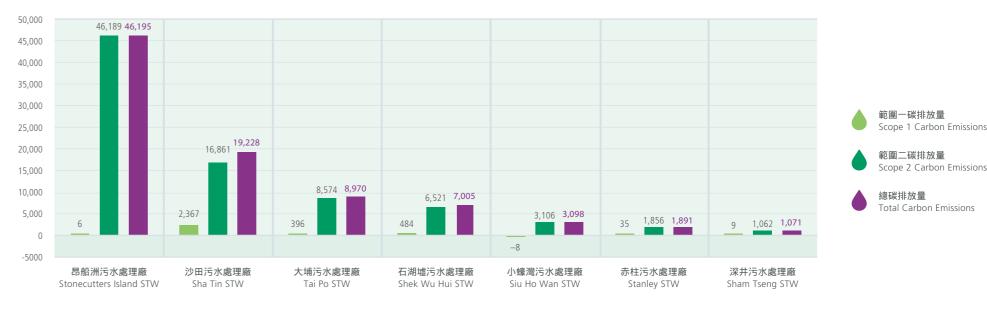
During the year, the above measures saved a total of about 0.91 million kilowatt-hours of electricity (equivalent to carbon reduction of about 637 tonnes1).

2018 Scope 2 emissions were calculated based on the default factors provided by electricity providers in Hong Kong, Power Assets (0.79 CO,e kilogram/kilowatt-hours), CLP (0.51 CO,e kilogram/kilowatt-hours) and The Hong Kong and China Gas Company Limited (0.592 CO,e kilogram/unit).

### 碳審計

### 2018年碳排放量(以公噸二氧化碳當量計算)





Carbon Audit

經直接使用燃料而產生的直接排放 + 除氮過程中釋放的氧化氮 + 製冷劑排放 + 污泥消化池中的甲 烷釋放 - 因植樹/太陽能移除的碳排放(以公噸二氧化碳當量計算

#### 節圍 一

經使用電力及煤氣而產生的間接排放

Direct emissions generated from direct combustion of fuels + N<sub>2</sub>O emissions through nitrogen removal + Refrigerant Emissions + Methane Release from Sludge Digester - GHG removals by planting trees/applying solar power (in tonnes of CO, equivalent)

#### Scope Two

Indirect emissions generated from the use of electricity + Towngas



保政策及措施、從而提高員工的環保意識。

為於工作環境中實現綠色文化·我們致力實踐綠色辦公室概念·實行相關的環 We make every effort to practise the green office concept in every aspect of our day-to-day operation. A series of green policies and measures are in place to raise the environmental awareness of our staff

## Waste Management

為貫徹綠色辦公室概念,我們實施了多項源頭減廢的措施,包括發出有關節約 用紙的指引、綠色資訊,鼓勵員工盡量利用紙張的兩面和重用單面紙及信封 為邁步向前,我們積極推廣「無紙會議」,鼓勵於日常會議中以平板電腦和手提 電腦等電子產品進行簡報和討論,以減少用紙

年內,渠務署共舉行約195次無紙會議,並以電子方式傳閱逾1,980份相關文件 至於全年用紙量為9,223令,較2009-10年度減少約34%。

### 響應政府減少塑膠廢物

辦公室茶水間提供可重用的餐具, Office pantry provides reusable tableware for colleagues during meetings and official events



staff to print on both sides as well as reusing one-sided paper and envelopes whenever possible. Forging ahead with the green office concept, we have 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. During the year, DSD held about 195 paperless meetings and circulated 1,980 documents electronically. Total

Bringing the green office concept into full play, we introduced a number of measures to reduce waste at the

source. These include issuing guidelines on reducing paper consumption and green tips, and encouraging our

paper consumption was approximately 9,223 reams, down about 34% compared to 2009-10.

### Supporting the Government's Call to Minimise the use of Disposable Tableware

節約用電:減少非必要照明及以發光二極管燈代替T5燈管 Electricity Saving: To reduce non-essential lighting and replace fluorescent T5 light with LED light





在2017年《香港氣候行動藍圖2030+》中,政府進一步加強推廣綠色建築及減少 政府建築物用電量。在此原則下、本署多年來在辦公室實施了多項節能措施 包括把室溫設定在攝氏25.5度、減少非必要照明,並使用計時器於辦公時間後 關閉公用辦公室設備,用電量因而持續錄得大幅度的下降。

As reinforced in "Hong Kong's Climate Action Plan 2030+" published in 2017, the Government would step up the promotion of green buildings and reduce electricity consumption of government buildings. Guided by this principle over the years, DSD has implemented a number of energy saving measures in our offices, including setting the room temperature at 25.5°C, reducing non-essential lighting, and using timers to turn off office equipment after office hours. Our electricity consumption has seen significant drop as a result.



## 綠色採購 Green Procurement

渠務署一直積極支持政府的環保採購政策,在採購貨品及服務時顧及環保因 素。我們在2018-19年度採購了各種符合環保規格的產品,當中包括電器用品如 影印機、打印機、電風扇、電腦和冰箱,以及辦公室耗材如再造紙、塗改帶、鉛 筆、充電池、衞生紙和垃圾袋。

## 培養可持續文化 Nourishing a Sustainable Culture

2018-19年度,綠色先鋒舉辦不同的環保活動,深信透過參與各項活動,我們的 親朋好友無論在辦公室或家裏都分享到可持續發展生活方式的樂趣,並培養出 愛護環境的文化。

In 2018-19, the Green Champions organised various activities, and believe that by taking part in various activities, our friends could share the joy of a sustainable way of living, and develop an environmentally friendly culture, both at work and at home.

Always in support of the Government's green procurement policy, DSD gives due consideration to environmental

factors when procuring goods and services. In 2018-19, we purchased a wide variety of products complying

with green specifications, including electrical appliances such as photocopiers, printers, electric fans, computers

and refrigerators to office consumables, such as recycled paper, correction tapes, pencils, rechargeable batteries,



「愛・回書」舊書、兒童玩具及影碟回收活動 Books, Children's Toys and Video Discs Exchange



toilet paper and garbage bags.



海灘清潔活動 Beach Clean-up Activities

# 關愛員工

第六章 CHAPTER 6

# Caring for Our Staff

培訓對於提高員工的能力和知識方面發揮著關鍵作用。因此,本署積極支持員工的職業生涯和個人發展,並設計了多元化的培訓。同時,我們也強調要為員工提供安全舒適的工作環境。此外,本署亦為員工安排各種康樂活動,有助於推廣工作與生活的平衡。

Training plays a key role in enhancing staff capabilities and knowledge. In light of this, DSD proactively supports the career and personal development of our employees, with a wide range of training systems. At the same time, we also place an emphasis on providing a safe and pleasant working environment for our employees. In addition, DSD arranges a variety of recreational activities for our staff to help foster a healthy work life balance.





## 員工培訓與發展 Staff Training and Development

2018-19年度·我們為員工舉辦了逾680次培訓活動·包括入職培訓、內部均訓、職務考察和海外會議等。本署員工年內的員工平均培訓時數時為38小時·較上年度增長8.57%·亦較全港僱員平均培訓時數16.9小時<sup>1</sup>高125%。

In 2018-19, we held over 680 training activities for our staff, including induction courses, in-house training, duty visits, overseas conferences, etc. The average number of training hours per capita during the year was 38 hours, indicative of an increase of 8.57% in comparison with the previous year, plus exceeding the territory-wide average of 16.9 hours<sup>1</sup> by 125%.



## 身外考察

Overseas Duty Visit

### 英國水務及環境管理學會香港分部 -技術代表團2018

2018年5月·本署同事參加英國水務及環境管理學會香港分部·技術代表團2018到訪加拿大·重點關注各種環境基礎設施和綠色技術的最新發展。代表團更就環境政策的規劃和實施事宜與安大略省和卑詩省環境事務部部長會面。

### CIWEM Hong Kong Branch — Technical Mission 2018

In May 2018, our colleagues participated in the Chartered Institution of Water and Environmental Management (CIWEM) Hong Kong Branch – Technical Mission 2018 to Canada, which focused on various environmental infrastructure and the latest developments in green technologies. The delegation also met the provincial ministries of environmental affairs of Ontario and British Columbia regarding the planning and implementation of environmental policies.



2018年5月·本署同事出席在馬來西亞吉隆坡舉行的第10 屆國際非開挖技術展覽及研討會

In May 2018, our colleagues attended Trenchless Asia 2018, the 10th International Exhibition and Conference on Trenchless Technology in Kuala Lumpur. Malaysia



2018年6月·本署同事參加由香港工程師學會土力工程会 部舉辦的海外代表團到訪瑞士進行考察活動

In June 2018, our colleagues attended an overseas delegation visit to Switzerland which was organised by the Geotechnical Division of the Hong Kong Institution of Engineers (HKIE)



## 員工安全與健康 Staff Safety and Health

年內·我們積極舉辦和參與職安健推廣活動·為本署培育安全 化。

- 29項工程項目參與發展局主辦的第25屆公德地盤嘉許計劃
- 32項工程項目參與本署舉辦2018年工地安全整潔獎勵計劃
- 為本署員工、顧問公司駐工地人員及承建商代表舉辦2個安全 講座及1個實地考察

To foster the culture of work safety within the Department, we actively organise and participate in OSH promotional campaigns during the year.

- 29 DSD projects participated in the 25th Considerate Contractors Site Award Scheme held by the Development Bureau
- 32 projects participated in the Construction Sites Safety and Housekeeping Award Scheme 2018 organised by DSD
- Two safety talks and one site visit were organised for DSD colleagues, resident site staff of consultants and representatives of contractors
- 香港人力資源管理學會發佈的《2018年培訓及發展需求調查報告》(2019年6月24日)
- "2018 Training & Development Needs Survey" released by Hong Kong Institute of Human Resource Management (24 June 2019)

## 員工康樂活動 Staff Recreational Activities

S.部門同事的溝涌和認識·鼓勵工作及生活平衡·渠務署職員康樂 會定期為員工籌劃和舉辦不同的康樂活動,藉此拉近同事之間的距離

To facilitate communication between DSD staff members from different divisions, and to promote a healthy work-life balance, the DSD Staff Club organises a wide range of recreational activities on a regular basis. These events help strengthen relationships among colleagues across the division.



渠務署龍舟隊於將軍澳龍舟比賽2018奪得發展局 盃(政府部門)銀盃(亞軍)

DSD dragon boat team won the Silver Cup (first runner-up) in the Development Bureau Cup (Government Cup) of Tseung Kwan O Dragon



Development Bureau Happy unning Day 2018

渠務署周年晚宴 DSD Annual Dinner



ycling trip along riverside





### 親善探訪 Goodwill Visits



親善探訪茶聚

Goodwill visits tea gathering

管理層親善探訪情況 Top management's goodwill visits



# 持份者參與活動

第七章 CHAPTER 7

# Stakeholder **Engagement Activities**

渠務署非常重視各特份者的意見,以開放態度,積極與不同界別的特份者建立互動 和長遠的夥伴關係。渠務署透過不同媒體,致力向公眾推廣及介紹轄下工程項目, 並舉辦生態保育、親水文化的推廣與教育工作,希望大眾能進一步了解並支持渠務 署的工作。此外,本署亦鼓勵員工投身社區及義務工作,身體力行,回饋社會。

DSD attaches great importance to the opinion of various stakeholders with an openminded attitude and actively maintain an interactive and long-term partnerships with multi-sectoral stakeholders. DSD is committed to promoting and introducing our works to the public through various means of media as well as engaged in the promotion and educational work of ecological conservation and water-friendly culture, with the hope of the public can further understand and support the works of DSD. In addition, DSD also encourages employees to physically take part in volunteer services and charitable activities for giving back to the society.



渠務署職場體驗活動 DSD Job Tasting Programme



2019 渠務署開放日 DSD Open Day 2019

# Media Engagement



2019年3月28日,本署舉行年度簡報會,渠務署署長盧國華 先生向傳媒簡介渠務署的工作,並帶領記者前往昂船洲污 水處理廠講解淨化海港計劃的優化工程

On 28 March 2019, DSD held the Annual Media Briefing. Mr. Kelvin LO Kwok-wah, Director of Drainage Services, briefed the media on DSD's works and led a visit to Stonecutters Island Sewage Treatment Works (STW) to introduce the Enhancement Works of Harbour Area Treatment Scheme (HATS)



2019年2月1日、《明報》、《星島日報》及《經濟日報》就 「廚餘、污泥共厭氧消化試驗計劃」專訪高級機電工程師 黎瑋筠女士(右)及機電工程師張鍵權先生(左)。專訪已於 2019年2月11日刊出

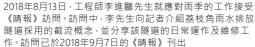
On 1 February 2019, Ming Pao, Sing Tao Daily and Hong Kong Economic Times interviewed Ms. Sussana LAI Wai-kwan (right in the picture), Senior Electrical and Mechanical Engineer and Mr. CHEUNG Kin-kuen (left in the picture), Electrical and Mechanical Engineer, regarding the "Food Waste and Sewage Sludge Anaerobic Codigestion Pilot Trial" at the Tai Po STW. The interview was published on 11 February 2019





018年11月8日,香港電台第一台資訊節目《開心日報》就香港生物多樣性 弋表。訪問中,本署工程師葉沛璣女士(右二)講解麻笏河及下林村河生態改 《王程的背景、生態考慮及試驗結果,並介紹渠務署在活化河道及河道保 育生態的工作。專訪已於11月8日上午的「開心日報」播出

RTHK Radio 1, interviewed representatives from Agriculture, Fisheries and Conservation Department (AFCD) and DSD about the Hong Kong Biodiversity Festival 2018 and the Ecological Enhancement works at Ma Wat River and Lower Lam Tsuen River. During the interview, Ms. Maggie YIP Puikei (second right in the picture), DSD Engineer, explained the background, ecological consideration and the results of the enhancement works at Ma Wat River and Lower Lam Tsuen River. In addition, DSD's works in river revitalisation and river ecological conservation were also discussed. The interview was broadcast during Happy Daily on 8 November 2018



On 13 August 2018, Mr. Terence LEE Chun-pang, Engineer, gave an interview to Sky Post on precautionary works for the rainy season. Mr. LEE introduced to the reporter the concept of interception of Lai Chi Kok Drainage Tunnel (LCKDT) and shared the operation and maintenance systems of LCKDT. The interview was published in Sky Post on 7 September 2018





# 公眾參與 Public Engagement



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

### 啟德河改善工程 Kai Tak River Improvement Works

2018年7月,南澳洲政府代表參觀啟德? In July 2018, delegates from South Australia Government visited Kai Tak River





2018年11月,深圳市水務局代表到訪啟德河

In November 2018, representatives of Shenzhen Water Resources Bureau visited Kai Tak River





在巡迴展覽中應用到虛擬實境技術介紹項目內容 Roving exhibition, with the application of virtual reality (VR) technology to introduce the project



在社區工作坊中介紹最新活化計劃及收集公眾意見 Introducing updated revitalisation plan and collecting public views at community workshops



在專題小組會議上與綠色團體、專業團體及學術團體交流 Exchange of views with green groups, professional bodies and academia at the Focus Group Meeting

### 石湖墟淨水設施 Shek Wu Hui Effluent Polishing Plant





2019年1月舉行的「社區教育計劃」體驗日 The Experiential Day of "District-based Educational Programme" held in January 2019

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

渠務署參與扶貧委員會「友·導向」計劃,並於 2018年7月6日帶領一眾中學生參觀昂船洲污水 處理廠,了解淨化海港計劃

DSD participated in the "Life Buddies" Scheme launched by the Commission on Poverty. Secondary school students were invited to visit Stonecutters Island Sewage Treatment Works on 6 July 2018 to understand the aims and benefits of HATS





2019年3月22日, 渠務署成立30周年暨淨 化海港計劃完成主要系統優化工程典禮於 昂船洲污水處理廠舉行

On 22 March 2019, the Celebration Ceremony for DSD 30th Anniversary Cum Completion of Harbour Area Treatment Scheme Main System Enhancement Works was held at the Stonecutters Island Sewage Treatment Works





### 社區活動及展覽 Community Activities and Exhibitions

### 科學為民巡禮 Science in the Public Service

2018年9月,本署代表參與「科學為民」服務巡禮 並向市民講解啟德河改善工程

In September 2018, DSD representative presented at the "Science in the Public Service" event to introduce Kai Tak River project

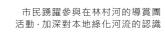




### 香港生物多樣性節2018 Hong Kong Biodiversity Festival 2018



參加者興奮地展示他們在寫生工作坊的作品 Participants excitedly showed their art works in the sketching workshop



The public were keen to participate in guided tour at Lam Tsuen River and to enhance their knowledge in our green channels



### 渠務署開放日2019 DSD Open Day 2019



一連兩日的開放日得到市民熱烈支持,共 吸引超過20,000名市民入場參觀,打破歷

The two-day event was well received by the public with an unprecedented number of visitors of more than 20,000 people



時任渠務署署長唐嘉鴻(右三)、副署長麥嘉為(左三)、以及助理署長 同主持開幕典禮

Mr. Edwin TONG Ka-hung (third right), then Director of Drainage Services, Mr. MAK Ka-wai (third left), Deputy Director of Drainage Services, and Assistant Directors officiated at the opening ceremony



### 2019年香港花卉展覽 The Hong Kong Flower Show 2019



渠務署展區內擠滿賞花人士 DSD's exhibit was crowded with visitors







## 工作夥伴參與 Working Partners Engagement



### 推廣職業安全與健康 Promoting Occupational Safety and Health

2018年8月我們安排了一次到香港寶嘉建 築有限公司安全訓練中心的參觀。約20名 渠務署員工參加了是次活動並積極與主 持人交流意見

A visit to the Safety Training Centre of Dragages Hong Kong Ltd was held in August 2018. About 20 DSD's colleagues participated in the visit and actively exchanged their views with the host





於工地安全及整潔獎勵計劃2018有32支隊伍參 與,當中11支獲頒「最佳工地安全及整潔獎」或

There were 32 contract teams participating in Construction Sites Safety and Housekeeping Award Scheme 2018, and 11 of which received either "The Best Construction Sites Safety and Housekeeping Award" or the "Meritorious



## 採用新工程合約 Launch of New Engineering Contract

過去10年,本署共批出66份新工程合約,涵蓋土木工程、機電工程、維修保養和 工程顧問服務等範疇。本署積極向建造業界推廣此合約模式,在過去一年共批 出了22份新工程合約,佔本署新工程合約總數約33%。



In the past 10 years, we have awarded 66 New Engineering Contracts (NECs) covering civil engineering projects, electrical and mechanical engineering projects, maintenance works and consultancy services. We actively promote NEC to the construction industry and awarded 22 NECs last year, which accounted for about 33% of the total awarded NECs.

2018年4月27日,本署參與新工程合約亞太區用戶組織簡報會 On 27 April 2018, DSD participated in NEC Asia Pacific Users' Group Briefing

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

年內,我們共接待超過13,000名來自中小學、內地及海外等多個機構的訪客參 觀本署設施,並到訪了16所學校,向師生介紹香港的污水處理及防洪工作。

During the year, we received over 13,000 visitors visiting DSD facilities from primary and secondary schools as well as various mainland and overseas organisations, and visited 16 schools, to explain the sewage treatment and flood prevention in Hong Kong.













在本地學校進行外展教育計劃 Educational outreach programme at local school





## 區議員參與 District Councilors Engagement

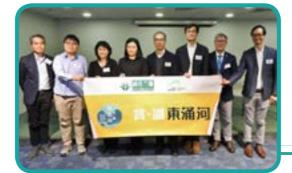


2018年7月3日,本署代表出席東區 區議會會議

On 3 July 2018, DSD epresentatives attended the Eastern District Council meeting



## 環保團體參與 Green Groups Engagement



2019年3月1日,本署高級工程師梁華明先生(右一)出席 「東涌河保育與發展交流會」,分享渠務署以綠化河道經 驗套用於河畔公園

On 1 March 2019, Mr. Richard LEUNG Wah-ming, (first right), DSD Senior Engineer, participated in "Tung Chung River Conservation Annual Inter-departmental Interflow", and shared application of DSD's experience of river revitalization in riverside park



## 專業團體及教育界參與 Professional and Academia Engagement



### 技術交流 Technical Exchange



渠務署於2018年6月初回訪北京市水務局 及北京排水集團,交流兩地水務管理及防

DSD visited Beijing Water Authority and Beijing Drainage Group Co., Ltd in early June 2018 for knowledge exchange between Beijing and Hong Kong on the policy of water management and flood

本署於4月18日在小蠔灣污水處理廠舉辦了「渠務科 研茶聚2018」,接近30位來自11個不同專上學院及科 研機構的學者出席參與(本署時任署長唐嘉鴻先生 副署長麥嘉為先生、一眾渠務署同事及學者合照

The "DSD R&D Tea Gathering with Academia 2018" was held at Siu Ho Wan STW on 18 April with nearly 30 academics from 11 universities and research institutes in attendance (The group photo of Mr. Edwin TONG Ka-hung, then Director of Drainage Services, Mr. MAK Ka-wai, Deputy Director of Drainage Services, DSD colleagues and the





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

動。年內,本署義工隊共參與40項義工服務,總服務時數達1,220小時。



關懷基層家庭兒童-「愛・與孩同行」,50位來自基層家庭的兒童及其家人參觀 本署小蠔灣污水處理廠

Caring for Underprivileged Children-"Peering with the Children", about 50 underprivileged children and their families visited Siu Ho Wan STW



渠務署同事本着惠澤社群的精神·在公餘時積極參與各類義工服務及慈善活 In the spirit of serving the community, DSD staff actively participated in various types of volunteer services and charitable activities in their leisure time. During the year, the DSD Volunteer Team took part in more than 40 volunteer services, clocking over 1,220 service hours in total.

> 義工隊憑着「愛·與孩同行」義工活動系列·在建造業議 會於2018年7月15日在零碳天地舉辦的首屆「建造業義」 嘉許禮」中脫穎而出,榮獲「評審嘉許 - 十大最卓越義」 項目」優異獎

> Among 40 volunteer services delivered, "Peering with the Children" was awarded for the first "Construction Industry Volunteering Award" presented by the Construction Industry Council at Zero Carbon Building on 15 July 2018, as well as the "Judges' Appreciation -Top Ten Excellence in Construction Industry Volunteerin



「愛•與耆義同行」項目之「愛•身歷耆境

"Experience with the Elderly" in the series of "Peering with the Elderly"









### 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\_Report/index.html (繁體中文版)

http://www.dsd.gov.hk/SC/Publicity\_and\_Publications/Publicity/DSD\_Sustainability\_Report/index.html (簡體中文版)

http://www.dsd.gov.hk/EN/Publicity\_and\_Publications/Publicity/DSD\_Sustainability\_Report/index.html (English Version)

#### 服務查詢 Service Enquiries

渠務熱線 Drainage Hotline: 2300 1110

排污費服務查詢 Sewage Charges Customer Services Enquiries: 2834 9432

一般查詢 General Enquiries: 2877 0660 電郵地址 Email Address: enquiry@dsd.gov.hk

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