

集賢匯智

水務署致力推行精明的供水管理，從策略制定和基建資產管理，以至持份者協作和客戶服務，利用創新科技以達致最佳效益，將香港打造成為智慧用水城市。

The WSD is committed to implementing wise water management, from strategy formulation and infrastructure asset management to stakeholder collaboration and customer services, with innovation and technology to achieve more with less and build Hong Kong into a water-wise city.

盧國華工程師太平紳士
水務署署長

Ir LO Kwok-wah, Kelvin, JP
Director of Water Supplies

高瞻遠矚 精心打造智慧用水城市

Building a Water-Wise City with Foresight and Dedication



署長的話

Director's Statement

於二零二零至二一年度，淨集水量較過去二十年的平均值減少17%，而人均住宅食用水量卻較二零一九年至二零年度增加約11%。面對日益加劇的氣候風險、未來持續增長的人口及經濟、前所未見的二零一九冠狀病毒病疫情爆發，以及因時而變的客戶需求，世界正急速改變，香港亦不例外。為支持香港的持續發展，我們必須確保供水長遠的可持續性、應變能力及安全性。

水務署致力推行精明的供水管理，從策略制定和基建資產管理，以至持份者協作和客戶服務，利用創新科技以達致最佳效益，將香港打造成為智慧用水城市。

實踐全面策略 善用食水資源

我們已於二零一九年修訂了「全面水資源管理策略」，將氣候變化預期所帶來的極端影響，以至二零四零年用水需求和供應的最新推算結果納入考量，並正繼續透過控制食水需求增長和利用多元化的水資源提升食水供應應變能力這雙管齊下的方式實踐策略。

用水方面，我們必須肩負起精明用水的責任，確保香港以至與我們共享東江水的廣東省各城市得以可持續地發展。為此，我們採取了三項主要措施控制食水需求增長：(一)透過公眾教育和提高用水效益的措施推廣節約用水；(二)透過一系列基建項目，擴大使用次階水作非飲用用途，包括向東涌新市鎮及其擴展區供應海水，在安達臣道石礦場發展用地供應經處理的中水，以及在新界東北地區供應循環再用水；(三)使用「智管網」及「智能管網管理電腦系統」管理用水流失。

供應方面，我們透過發展海水化淡——一種不受氣候變化影響的策略性水資源，提升食水供應的應變能力。正在興建的將軍澳

In 2020/21, we saw a 17% reduction in the net yield compared to the average over the previous 20 years while the per capita domestic fresh water consumption increased by about 11% compared to the figure in 2019/20. Ensuring the long-term sustainability, resilience and safety of water supplies is key to the continuous development of our city amidst a rapidly changing world influenced by increasing climate risks, future growing population and economies, unprecedented outbreak of the COVID-19 epidemic and evolving customer needs.

The WSD is committed to implementing wise water management, from strategy formulation and infrastructure asset management to stakeholder collaboration and customer services, with innovation and technology to achieve more with less and build Hong Kong into a water-wise city.

IMPLEMENTING HOLISTIC STRATEGY FOR WISE RESOURCES MANAGEMENT

Taken into account the anticipated extreme impacts of climate change and the latest water demand and supply projections up to 2040, we updated the Total Water Management Strategy in 2019 and continued to press ahead with a two-pronged approach which focuses on containing fresh water demand growth and building resilience in the fresh water supply with diversified water resources.

It is imperative for us to use fresh water responsibly and wisely for the sustainable development of the city, as well as the Guangdong cities that share Dongjiang water with us. To contain fresh water demand growth, we have advanced three main initiatives: (i) promoting water conservation through public education and measures on enhancing water use efficiency; (ii) expanding the use of lower grade water for non-potable purposes through a host of infrastructure projects, including the supply of salt water to Tung Chung New Town and its extension, the supply of treated grey water in the Anderson Road Quarry development site and the supply of reclaimed water in northeast New Territories; and (iii) managing water losses with the Water Intelligent Network (WIN) and the Water Intelligent Network Management System (INMS).

On the supply side, we build resilience in our fresh water supply through seawater desalination, a strategic water resource not susceptible to the impact of climate change. The first stage of the

海水化淡廠第一階段將於二零二三年啟用，其產量可滿足香港總食水用量的5%，並已預留擴展空間在未來倍增其產能。我們會一直密切監察氣候變化的影響，適時推展此擴建工程，以進一步強化氣候應變能力。

智慧綠色運作 成就卓越表現

透過最新科技，我們力求進一步完善資源和基礎設施的運用，從而提升運作的效率及可持續性。

我們成功在船灣淡水湖啟用一套無人船系統自動監測水質和取樣，從而提升水質監測的效率和緊急狀況應變能力。展望未來，我們計劃提升系統的智能，讓無人船能夠自動規劃航線，以及在錄得異常讀數的範圍自動增加監測點的密度，並計劃將無人船應用推展至其他水塘。

香港的水塘擁有龐大的塘面面積。我們把握此契機積極在水塘開發浮動太陽能板發電系統收集太陽能。隨著於石壁水塘和船灣淡水湖安裝的系統取得成功後，我們現正在大欖涌水塘安裝一組浮動太陽能板發電系統，並正研究在船灣淡水湖興建大型浮動太陽能發電場的可行性，以協助實踐提升可再生能源產能的長遠計劃，達致更可持續的運作。

通過成功獲得ISO 55001資產管理系統認證、提升ISO 50001能源管理系統認證至最近版本，以及於重點基建項目採用「建造業2.0」，我們期望能憑藉更高效且環保的模式不斷優化運作表現。此外，我們正推行先導計劃，以期為供水系統

Tseung Kwan O Desalination Plant under construction will have the production capacity to meet 5% of Hong Kong's total fresh water consumption upon commissioning by 2023, with the provision to double its capacity in the future. We have been closely monitoring the climate change impacts with a view to bringing forward this expansion timely to further strengthening our climate resilience.

ADVANCING PERFORMANCE THROUGH SMART AND GREEN OPERATIONS

Leveraging the latest technologies, we pursue smarter utilisation of our resources and infrastructures for enhancing efficiency and sustainability in our operation.

We have successfully commissioned an unmanned surface vessel (USV) system in the Plover Cove Reservoir for automatic water quality monitoring and sampling to enhance our efficiency in water quality monitoring and emergency responsiveness. Looking ahead, we plan to enhance the intelligence of the system to enable automatic route planning of the USVs and automatic increase of monitoring points in areas with abnormal data, and extend the applications to other impounding reservoirs.

Grasping the opportunity brought by the large water surface of our impounding reservoirs, we are actively developing floating photovoltaic (FPV) systems at impounding reservoirs to harness solar energy. Following the success of the FPV systems at the Shek Pik and Plover Cove reservoirs, we are currently installing a FPV system at the Tai Lam Chung Reservoir and exploring the feasibility of a large-scale floating solar farm at the Plover Cove Reservoir as part of our long-term plan to increase the renewable energy generation capacity for more sustainable operation.

Coupled with our achievement of ISO 55001 certification in asset management system, upgrade of ISO 50001 in energy management system, as well as the adoption of "Construction 2.0" in key infrastructure projects, we look further to optimise our performance with more efficient and sustainable operation. Meanwhile, we are carrying out pilots with a view to developing digital twins of our



石壁水塘的浮動太陽能板發電系統
Floating PV System at Shek Pik Reservoir

建立「數碼分身」模型作實時監測及情景模擬。我們亦正籌建一個由數個先進運作管理中心組成的網絡，以進一步掌控運作表現及提升效率。

優化貼心服務 完善客戶體驗

我們致力不斷創新，為逾300萬客戶提供迅速、高效及以客為本的服務。

作為推動香港成為智慧城市的其中一環，我們自二零一八年起於新建公營及私人發展項目引入有線自動讀錶系統，以進一步推廣用水效益和智慧生活。除了改善讀錶的準確度和效率，我們期望透過自動讀錶系統的流動應用程式，提供客戶用水量的資訊，從而提高客戶節約用水的意識並鼓勵他們作出行為上的轉變。為擴展應用範圍至現有處所，我們在大澳試行無線自動讀錶系統，為研究無線技術在香港應用的可行性邁出一步。

為了加強在發生緊急供水暫停事故時與客戶的溝通，我們正逐步設立一套以地理訊息系統為本的「暫停供水自動通告系統」，以協助識別受水管緊急故障影響的建築物，並主動通知受影響的客戶緊急暫停供水。系統的第一階段已於二零二零年十二月推出，向大型屋苑管理處發出暫停食水供應通知。我們計劃於下一階段提升系統，將服務延伸至相關的個別客戶。

water supply system for real-time monitoring and operation scenario simulation. We are also planning to establish a network of advanced operation management centres to further master operation performance and enhance operation efficiency.

ENHANCING CUSTOMER EXPERIENCE WITH IMPROVED AND THOUGHTFUL SERVICES

We leave no stone unturned in our continuous efforts in innovating for responsive, efficient and customer-oriented service to our three million plus customers.

As part of advancing Hong Kong into a smart city, we have introduced wired Automatic Meter Reading (AMR) systems in new public and private developments since 2018 to further promote water efficiency and smart living. Besides improving accuracy and efficiency in water meter readings, we seek to inspire customers' behaviour changes to use water wisely through the provision of water consumption information via our AMR mobile app. With a view to extending the use to existing premises, we have commissioned a trial of wireless AMR solution in Tai O as our first step to investigate the viability of the wireless technology in Hong Kong context.

Striving to enhance customer communications in the event of emergency water supply suspension, we are progressively developing a geographic information system-based Water Suspension Notification System (WATSUN) which can assist to identify the buildings affected by emergency failure in water mains and proactively notify affected customers of emergency water supply suspensions. Rolled out in December 2020, the first phase of WATSUN provides fresh water supply suspension notifications to the management offices of large housing estates. Moving forward, we plan to extend such emergency notification service to individual customers in our next phase of system enhancements.



自動讀錶系統流動應用程式
AMR mobile app



職場知識共享
Fostering knowledge sharing in the workplace

凝聚各界力量 共創惜水未來

要將香港打造成智慧用水城市，我們必須凝聚各界力量，與我們的員工、業界和客戶同心協力實現這願景。

為了讓我們的員工能更全面地掌握所需的技能和知識，以應對瞬息萬變的世界所帶來的挑戰，我們正積極籌備於二零二一年九月成立虛擬學院「水務專業學院」，旨在以系統化的方式提升員工的學習經驗，並鼓勵職場知識共享。此外，我們亦致力透過參與網上會議和研討會，在疫情期間與海內外國際同業保持聯繫，以探索與精明供水管理相關的創新科技和最佳實務方案，並藉此分享心得及解決方案，與其他智慧用水城市達致優勢互補。

我們在減少用水流失方面不遺餘力，當中包括與香港建造學院等多個機構合作，為測漏從業人員建立培訓和認可資歷制度，以進一步提升他們的測漏能力。此外，我們亦致力爭取私人樓宇的業主和物業管理人的支持，透過向他們提供建議和支援，協助盡早處理私人公用水管用水流失的問題。

為鼓勵市民邁向惜水生活，我們繼續推廣節約用水文化，包括廣受歡迎的「齊來慳水十公升2.0」活動、「滴滴遊蹤深導行」參觀活動和「惜水學堂」綜合教育計劃等。透過散播惜水的種籽，我們定能善用僅有的水資源成就更多。

藉此機會，我衷心感謝我們專業的團隊在過去一年竭盡所能，以堅毅不屈的精神應對各種挑戰，努力不懈地將挑戰轉化為不斷進步的動力。

我深信在社會各界攜手努力下，我們定能共建可持續和富應變力的未來。



盧國華工程師 太平紳士
水務署署長

JOINING HANDS TO SHAPE A WATER-WISE FUTURE

It takes the collaborative actions by all parties, including our staff, practitioners and our customers, to realise the vision of building Hong Kong into a water-wise city.

To better equip our staff with the essential skills and knowledge to navigate challenges in the fast-changing world, we are progressing with the establishment of a virtual academy "WSD AQUA-DEMY" for launch in September 2021. The WSD AQUA-DEMY will provide a structured approach to enhancing our staff learning experiences and fostering knowledge sharing in the workplace. We also endeavoured to stay connected with our regional and international counterparts despite the epidemic via online participation of conferences and webinars, aspiring to explore the latest innovations, technologies and best practices of wise water management, as well as to contribute insights and solutions for adding value to the work of many other water-wise cities.

As one of our continued efforts in combating water loss, we have been working in collaboration with various institutes, including the Hong Kong Institute of Construction, in developing training and qualification system for leak detection practitioners with a view to further enhancing their capabilities in leak detection. We also enlist the support of property owners and management agents of private buildings to curb water loss in private communal water mains through providing advice and support to them for prompt rectification actions.

To effect positive changes in water-wise living among members of the public, we continue to promote water-wise culture with, inter alia, the popular "Let's Save 10L Water 2.0" Campaign, "Excursion with Water Save Dave" Visiting Programme and "Cherish Water Campus" Integrated Education Programme. Through seeding the change, we can achieve more with less water together.

Taking this opportunity, I would also like to thank our professional team for their dedication and resilience in the face of the challenges in the past year, unremittingly turning challenges into driving force for continuous improvement.

I am confident that with the concerted efforts of all, we can build a sustainable and resilient future together.

Ir LO Kwok-wah, Kelvin, JP
Director of Water Supplies

部門總覽

Corporate Profile

穩定而優質的供水，對本港居民的生活不可或缺，同時亦是支持本港可持續發展的關鍵要素。香港特別行政區政府水務署的職責是維持供水可靠優質。

本港17個水塘集水區收集的本地雨水約佔香港總食水用量20%至30%，餘下部分的原水由廣東省的東江輸入，兩者均經過嚴格處理及監測，確保食水水質符合香港食水標準。此外，自一九五零年代以來，我們充分利用香港近海的地理優勢，將海水用作沖廁用途。食水及海水由兩個完全獨立的供水系統供應，透過龐大的配水庫和水管網絡，配送至各家各戶及商用物業。

為確保香港供水穩健及具應變能力，我們繼續妥善管理水務資產以維持其健康狀況，以及透過海水化淡及中水重用等技術開拓新水源，進一步提升香港的供水保障及應對氣候變化的能力。

作為香港最大的能源用戶之一，我們已實施相關措施，透過應用創新科技、開發可再生能源及提升能源效益，致力減少碳足跡。我們亦是香港特區政府首個獲得ISO 50001:2011能源管理系統認證的部門。

我們的抱負是滿足客戶對優質供水服務的需求。為此，我們的人員致力與持份者合作及提供以客為本的服務，確保客戶獲得最具效率及優質的服務。

Reliable and quality water supplies are indispensable to the lives and livelihoods of the people in Hong Kong, and are critical for supporting the territory's sustainable development. The Water Supplies Department (WSD) of the Hong Kong SAR Government is charged with the responsibility of maintaining reliable and quality water supplies.

Approximately 20% to 30% of Hong Kong's fresh water supply comes from the local yield collected in catchment areas of the territory's 17 impounding reservoirs while the remaining raw water comes from Dongjiang in the Guangdong Province. Both the local yield and imported Dongjiang water are subject to stringent treatment and monitoring to ensure that the quality of treated water meets the Hong Kong Drinking Water Standards. Moreover, since the 1950s, we have taken full advantage of Hong Kong's geographic proximity to the ocean to adopt salt water for flushing purposes. Fresh water and salt water are supplied through two entirely separate supply systems. Our extensive array of service reservoirs and water mains provide these supplies for distribution to homes and commercial developments.

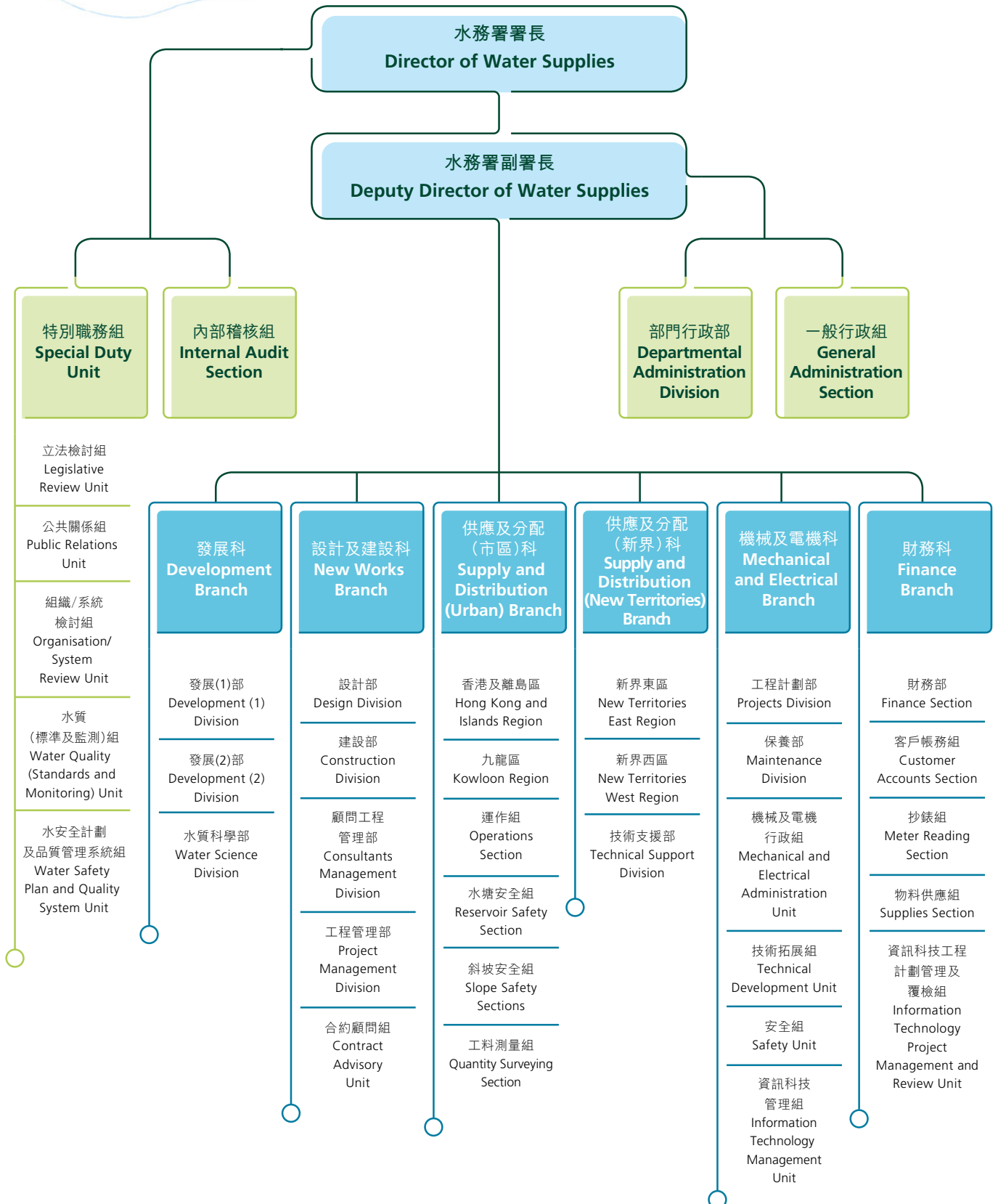
To ensure the sustainability and resilience of Hong Kong's water supplies, we continue to manage our asset to sustain their health and develop new sources of water including desalination and recycled water. These additional sources of water will give Hong Kong enhanced water security and the ability to adapt to climate change.

As one of the city's largest energy consumers, we have implemented measures to reduce our carbon footprint as much as possible by adopting innovation and technology, developing renewable energy and enhancing energy efficiency. We are the first Hong Kong SAR Government department to obtain the ISO 50001:2011 Energy Management System certification.

Our vision is to excel in meeting our customers' needs for quality water services. With this in mind, our committed workforce has collaborated with stakeholders and adopted a customer-oriented approach to ensure that our customers receive the most efficient and high-quality services.

水務署組織圖

WSD Organisation Chart



1 盧國華工程師, 太平紳士¹
Ir LO Kwok-wah, Kelvin, JP¹
水務署署長
Director of Water Supplies

2 周世威工程師, 太平紳士
Ir CHAU Sai-wai, JP
水務署副署長
Deputy Director of Water Supplies

3 彭愛玲工程師
Ir PANG Oi-ling, Irene
助理署長／設計及建設
Assistant Director/New Works

4 黃俊光先生
Mr WONG Chun-kwong
助理署長／財務
Assistant Director/Finance

5 鍾永基工程師
Ir CHUNG Wing-kee, Philip
助理署長／市區
Assistant Director/Urban

6 馬漢榮工程師²
Ir MA Hon-wing, Wilson²
署理助理署長／發展
Acting Assistant Director/Development

7 李大安工程師, 太平紳士
Ir LEE Tai-on, JP
助理署長／機械及電機
Assistant Director/Mechanical & Electrical

8 林聖傑先生
Mr LAM Saint-kit, Byron
助理署長／專責事務
Assistant Director/Special Tasks

9 勞淑儀女士
Ms LO Shuk-yi
部門秘書
Departmental Secretary

10 黃恩諾工程師
Ir WONG Yan-lok, Roger
助理署長／新界
Assistant Director/New Territories



¹ 盧工程師自二零二零年十一月四日起出任水務署署長。

¹ Ir LO was appointed Director of Water Supplies on 4 November 2020.

² 馬工程師自二零二一年二月十六日起出任署理助理署長／發展。

² Ir MA was appointed Acting Assistant Director/Development on 16 February 2021.



主要統計數字 (截至二零二一年三月三十一日)

Principal Statistics (as of 31 March 2021)



17

個水塘
No. of Impounding
Reservoirs

586

總容量
Total Storage Capacity

百萬立方米
million m³

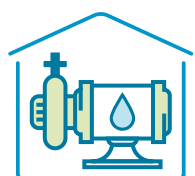
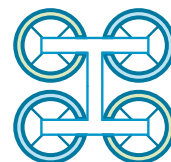
20

個濾水廠
No. of Water
Treatment Works

4.7

總濾水量
Total Water Treatment Capacity

百萬立方米/日
million m³/day



151

個食水抽水站
(包括食水和原水抽水站
及泵房)
No. of Fresh Water
Pumping Stations
(includes fresh & raw
water pumping stations
and pump houses)

32.2

總抽水量
Total Pumping Capacity

百萬立方米/日
million m³/day

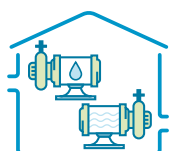
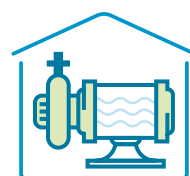
35

個海水抽水站
(包括泵房)
No. of Salt Water
Pumping Stations
(includes pump
houses)

2.1

總抽水量
Total Pumping Capacity

百萬立方米/日
million m³/day



7

個食水及海水抽水站
No. of Combined Fresh
Water & Salt Water
Pumping Stations

0.3

總抽水量
Total Pumping Capacity

百萬立方米/日
million m³/day

6 689

食水管長度
(直徑20毫米至
2 400毫米)
Fresh Water Mains
(20 mm to
2 400 mm diameter)

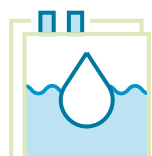
公里
km



1 660

海水水管長度
(直徑20毫米至1 200毫米)
Salt Water Mains
(20 mm to 1 200 mm diameter)

公里
km



178

個食水配水庫
No. of Fresh Water
Service Reservoirs

4.4

總容量
Total Storage Capacity

百萬立方米
million m³

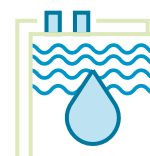
54

個海水配水庫
No. of Salt Water
Service Reservoirs

0.3

總容量
Total Storage Capacity

百萬立方米
million m³



120

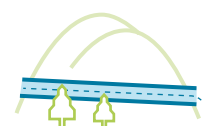
引水道長度
Length of Catchwater

公里
km

199

輸水隧道長度
Length of Water
Tunnel

公里
km



主要工作表現指標

Key Performance Indicators

指標 Indicators	財政年度 Financial Year		
	2018/19	2019/20	2020/21
食水水質 100%符合香港食水標準* Fresh Water Quality 100% compliance with the Hong Kong Drinking Water Standards*	達到指標 Target achieved	達到指標 Target achieved	達到指標 Target achieved
海水水質 97%符合水務署所定的水質指標** Salt Water Quality 97% compliance with WSD Water Quality Objectives**	達到指標 Target achieved	達到指標 Target achieved	達到指標 Target achieved
食水供水水壓(15至30米)^ Fresh Water Supply Pressure (15–30 metres) ^	100%	100%	100%
海水供水水壓(15米)^ Salt Water Supply Pressure (15 metres) ^	100%	100%	100%
因預先計劃進行的工程而暫停供水的時間長度 (98%於八小時內) Water Supply Suspension Duration for Planned Work (98% within 8 hours)	達到指標 Target achieved	達到指標 Target achieved	達到指標 Target achieved
水錶準確程度 (偏差程度不超過±3%) Water Meter Accuracy (inaccuracy not exceeding ±3%)	97.7%	98.2%	97.3%

* 水務署自二零一七年九月起開始採用香港食水標準為指標，而在此之前，則一直採用世界衛生組織制訂的《飲用水水質準則》為指標。
The Hong Kong Drinking Water Standards have been adopted by WSD in the target since September 2017. Before that, the World Health Organization's Guidelines for Drinking-water Quality were adopted in the target.

** 此指標於二零一九至二零年度經修訂為「海水水質 — 97%符合水務署所定的水質指標」，二零一八至一九年度則為「海水水質—96%符合水務署所定的水質指標」，而二零一七至一八年度所採用的指標為「海水水質（供水接駁位置）— 96%符合水務署所定的水質指標」。
The target for 2019/20 has been revised as “Salt water quality – 97% compliance with WSD Water Quality Objectives”. The target for 2018/19 was “Salt water quality – 96% compliance with WSD Water Quality Objectives”. The target in 2017/18 was “Salt water quality (at connection points) – 96% compliance with WSD Water Quality Objectives”.

^ 配水系統內（不包括系統盡頭）最低的剩餘水壓。
Minimum residual pressure in the distribution systems except at their extremities.