水務基建設施
Waterworks Infrastructure

改善水務基建設施及提升運作效率，讓香港享有更可靠的供水系統。
Hong Kong enjoys the benefits of a water supply that boasts greater reliability as a result of improved waterworks infrastructure and increased operational efficiencies.

智管網

本署計劃安裝感應器，沿整個供水網絡設立監測區域和相關水壓管理區，逐步建立智管網系統。全港智管網將設有約2,000個監測區域/ 水壓管理區，同時亦將安裝智能網絡管理電腦系統，以便對感應器收集的數據進行持續的（及在必要時進行實時的）網絡表現分析，以監測供水網絡的狀況。

截至二零一六年三月，我們成功設立850多個監測區域，其中220個同時兼為水壓管理區。此外，我們將建立上述智能網絡管理電腦系統，並將其與所有監測區域/水壓管理區連接。有賴智管網，我們得以持續監測及分析供水網絡狀況，並採用最符合經濟效益的方式，以維持供水網絡的健康狀況。

Water Intelligent Network

The Department plans to progressively implement the Water Intelligent Network (WIN) system by installing sensors to create District Metering Areas (DMAs) and associated Pressure Management Areas (PMAs) all along the water supply networks. There will be about 2,000 DMAs/PMAs throughout the entire Territory under WIN. An intelligent network management computer system will also be put in place to enable continuous (and where necessary real-time) network performance analysis of the data collected from the sensors to monitor conditions of the water supply networks.

As of March 2016, we have successfully installed some 850 DMAs with 220 of them serving as PMAs as well. Moreover, we will establish the above mentioned intelligent network management computer system and will link up all the DMAs/PMAs to it. With WIN, we will be able to continuously monitor and analyse the condition of the water supply networks and determine the most cost-effective means to maintain the healthiness of the networks.

提升供水能力

供水是基建設施的基石，對支援香港未來發展極其重要。為此，目前東涌正在設建一座新的食水配水庫，以應對因北大嶼山在建的主要項目（包括餘下的東涌擬定發展項目和第三條機場跑道項目）而增加的用水需求。

為應對新界上水、粉嶺和大埔不斷增加的住宅發展項目，本署將興建新配水庫，同時搭建配套的幹管配水系統，以滿足與日俱增的用水需求。桌山配水庫新建工程及配套水管敷設工程將於二零一六年年底動工。新配水庫及配套水管系統採用靈活設計，以便日後在需要時最終更改成再造水系統作沖廁用途。

Expanding Water Supply Capacity

As a major infrastructural cornerstone, our water supply is critical to support Hong Kong's future development. For this reason, a new fresh water service reservoir in Tung Chung is now being designed to cope with increased water demand resulting from major developments now underway in North Lantau, including the proposed remaining development projects in Tung Chung and the future third airport runway project.

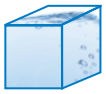
To deal with expanding housing developments in Sheung Shui, Fanling and Tai Po in the New Territories, new service reservoirs with associated trunk and distribution systems will be constructed to meet increasing water demands there. Construction of a new service reservoir at Table Hill and associated water main laying will begin at the end of 2016. The new service reservoir and associated water mains system were designed flexibly to accommodate their eventual conversion to become part of the future reclaimed water supply system for flushing, when needed.

濾水廠設施升級

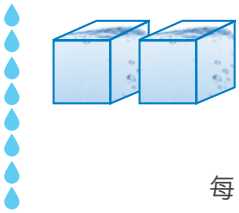
沙田濾水廠南廠的原地重置工程及大埔濾水廠的擴建工程現時均處於大幅擴建的興建階段，擴建後將有助確保我們有足夠能力為公眾供應最高水質標準的飲用水。這兩座濾水廠是處理原水的重要中心，原水經處理後會分配至全港各地。這些項目正在分階段推進，以配合全港與日俱增的食水需求。

Upgrading Water Treatment Facilities

Re-provisioning of the Sha Tin Water Treatment Works South Works and expansion of Tai Po Water Treatment Works are all currently at the construction stage to allow major capacity increases, which will ensure adequate capacity to produce the highest levels of potable water for the public. These two facilities are important centres for the treatment of raw water prior to its distribution across Hong Kong. These projects are being delivered in phases to meet the ever growing demand for potable water throughout the Territory.



Phase One
第一期
400,000
cubic metres of
water per day
每日生產四十萬立方米的水



Phase Two
第二期
800,000
cubic metres of
water per day
每日生產八十萬立方米的水

新近竣工的第一期擴建工程推動大埔濾水廠的濾水量上升至每日400,000立方米，第二期設施現已如期推進，及至二零一八年年中，濾水量將增加至每日800,000立方米。沙田濾水廠南廠已於二零一五年年底啟動原地重置工程的準備工作，計劃於二零二三年年底全面投入服務。

The recent completion of Phase One expansion works has boosted the output capacity of the Tai Po Water Treatment Works to 400,000 cubic metres of water per day and the Phase Two facility is now on pace to increase its capacity to 800,000 cubic metres per day by mid-2018. The preparatory work for the on-site re-provisioning of the Sha Tin Water Treatment Works South Works began in late 2015 with the facility slated for full commissioning by the end of 2023.

更換及修復工程

為減少水管滲漏情況，本署自二零零零年起便開始實施全港水管更換及修復計劃，以對全港總長約8,000公里的水管中約3,000公里的老化水管進行更換及修復。工程的主要部分已於二零一五年年底完成。

Replacement and Rehabilitation Works

To reduce leakage, the Department, since 2000, has been implementing a territory-wide Replacement and Rehabilitation (R&R) programme to replace and rehabilitate about 3,000km of aged water mains out of Hong Kong's total of around 8,000km of water mains. A major portion of this work was completed by the end of 2015.

提升水務運作效率

我們已開始更換各食水及原水抽水站的老化水管。這些工程在二零一六年年底完成後，抽水站的可靠程度及運作效率將大幅提升。

此外，六個主要濾水廠的現有手動控制設備將由遙距控制設備操作，以提高整體運作效率。手動操作閥驅動器將於二零一八年年底前分階段逐步由遙距控制電動驅動器取代。

用以遙距監測相關供水地區內抽水站和配水庫等供水網絡設施的現有四個區域監控及資料收集系統正在分階段進行升級。香港及離島、九龍及新界西的系統已如期完成，並已投入運作。餘下的新界東區域監控及資料收集系統的升級工程正如期進行，預計將於二零一六年年底完成，屆時將可提供充足的監控能力，以應對未來十年供水系統的增長。

Improving Waterworks Operational Efficiencies

We have begun the replacement of aged water pipework at various fresh water and raw water pumping stations. Following completion of these replacement projects by the end of 2016, the reliability and operational efficiency of the pumping stations will be significantly enhanced.

In addition, the existing manual control equipment at six major water treatment works will be mechanised with remote control facilities in order to enhance their overall operational efficiency. Manually operated valve actuators will be gradually replaced in stages with remotely controlled electrical actuators by the end of 2018.

The existing four Regional SCADA Systems that are used to remotely oversee water supply network facilities such as pumping stations and service reservoirs in their respective water supply regions are being upgraded in stages. The systems for Hong Kong and Islands, as well as Kowloon and the New Territories West Regions have been completed on schedule and are already in operation. The upgrading work for the remaining New Territories East Regional SCADA System is on schedule and will be completed by the end of 2016. It will provide sufficient control and monitoring capacity to cope with the growth of the water supply systems over the next decade.

六個主要濾水廠的分佈式控制系統的現代化改造工程正迅速推進。其中四個系統裝置已於過去數年成功更新並已投入運作，牛潭尾濾水廠的現代化改造工程亦正如期進行，預計將於二零一七年三月完成。至於餘下的凹頭濾水廠，相關規劃及設計工作已啟動，預計將分別於二零一九年及二零二一年分兩階段完成。

The modernisation work for the Distributed Control Systems (DCS) for six major water treatment works is moving ahead apace. While four DCS units were successfully commissioned over the past years, the modernisation work at the Ngau Tam Mei Water Treatment Works is on schedule and will be completed by March 2017. As for the remaining Au Tau Water Treatment Works, planning and design work has already started and the project is expected to be completed in two phases by 2019 and 2021, respectively.

我們致力持續提升抽水站與濾水廠的供電及監控系統。屯門海水抽水站正在更換高壓電掣板及增設一套現代化控制系統，以提高為整個屯門地區提供沖廁用水的可靠程度。該項目預計將於二零一七年年初完成。

We are committed to the on-going improvement of the electrical power supply systems as well as the monitoring and control systems of pumping stations and water treatment works. Replacement of a high voltage switchboard and addition of a set of modernised control systems is underway at the Tuen Mun Salt Water Pumping Station to improve its reliability for providing flushing water across the Tuen Mun area. The project is scheduled for completion in early 2017.

本署將於二零一六年對上水濾水廠及北港濾水廠已服務長達數十年的現有脫水設備啟動升級工程，以提高設備的可靠程度及運作效率。

Following many decades of service, improvement work on the existing dewatering plants will be initiated at the Sheung Shui Water Treatment Works and Pak Kong Water Treatment Works in 2016 to enhance plant reliability and operational efficiency.

除氯系統是一種防護裝置，有助於防止氯氣在罕見的系統故障期間防止氯氣釋放至大氣層，保障濾水廠時刻安全運作。繼銀鑛灣濾水廠及油柑頭濾水廠完成除氯系統的現代化改造及更換工程後，沙田濾水廠亦已於二零一五／一六年度進行翻新。

Chlorine scrubbers, which prevent chlorine gas from leaking into the atmosphere in the unlikely event of a system failure, are protective devices to keep water treatment works operating safely at all times. Following the completion of the modernisation and replacement of the chlorine scrubber systems at the Silver Mine Bay Water Treatment Works and Yau Kom Tau Water Treatment Works, upgrading at the Sha Tin Water Treatment Works got underway as well in 2015/16.


優質食水
Quality Water
優質生活
Quality Living

優化供水設施

水務署致力妥善管理所有水務基建設施的使用周期，務求在可接受的風險框架內，以最符合經濟效益的方式實現最高的服務水平。

近年來，隨著建築信息模擬技術發展一日千里，為多個建築項目帶來經濟效益，水務署進行了試驗研究，探索應用建築信息模擬應用程式進行設施管理的潛在裨益。試驗研究已於二零一五年年中順利完成。事實證明，在設施管理領域應用建築信息模擬的概念完全切實可行。憑藉該項研究，水務署於二零一五年四月及八月分別榮獲兩項建築信息模擬獎項，即「buildingSMART Hong Kong International BIM Award 2015」及「Autodesk建築信息模擬設計大獎2015 － 香港、澳門及台灣」。

本署員工按照維修保養責任定期監察6,500個斜坡，於去年對約80個斜坡展開後續預防性保養及提升工程，當中大多數斜坡毗鄰水務署重要設施。有關工程包括打泥釘、斜坡表面加固、在斜坡護面的牆腳栽種植物、改善排水系統、提供安全通道走廊、常規栽種植被等。各項措施均有助大大減低山泥傾瀉的風險及山泥傾瀉對生命和財產的威脅。

我們亦定期進行監察，檢討配水庫和水塘的安全和穩定性，並就維修工程提出建議，確保配水庫和水塘完善。去年，本署內部員工和外聘顧問分別完成112份詳盡檢查報告和16份獨立檢查報告。

Optimising Waterworks Assets

At the WSD, one of our primary goals is to manage the life cycles of all waterworks infrastructure in order to achieve the optimal level of service in the most cost-effective manner all within an acceptable risk framework.

With the rapid advancement of Building Information Modelling (BIM) technology in recent years and its success in bringing about the cost-effective delivery of construction projects, the WSD has taken the initiative through a pilot study to explore the potential benefits of using BIM applications for asset management. The pilot study was completed successfully in mid-2015. The concept applying BIM in asset management has proved to be wholly viable and workable. With this study, WSD won two BIM Awards, namely the "buildingSMART Hong Kong International BIM Award 2015" and "Autodesk BIM Awards 2015 – Hong Kong, Macau and Taiwan" in April and August 2015, respectively.

Our staff routinely inspects 6,500 slopes that fall under our maintenance responsibility. Last year we carried out subsequent preventive maintenance and upgrading work for about 80 slope features, most of which are close to important WSD installations. This included soil-nailing, slope surface stabilisation, construction of toe planter walls, improvements to drainage systems, providing safe access corridors, general planting and other measures. The result of all these efforts has been a dramatic decrease in the risk of landslides as well as the danger they pose to life and property.

We also regularly conduct inspections to review the safety and stability of service reservoirs and impounding reservoirs, making recommendations for maintenance work to ensure each reservoir's integrity. During the past year, we completed 112 detailed inspection reports as well as 16 independent inspection reports by our internal staff and external advisors, respectively.

以可靠性為主的維修

於荃灣原水抽水站及大窩村海水抽水站進行的以可靠性為主的維修研究計劃均已完成。由於各種水務設施已訂有更加全面的維修策略模板，最後一個以可靠性為主的維修研究計劃將於明年在掃桿埔二號食水抽水站展開。對於已完成以可靠性為主的維修研究的設施，本署會繼續落實重新設計項目及跟進行動，以根據報告結果檢討已制訂的維修計劃。為在適當時候調整機械和電力設施的維修策略，本署會依據所收集的數據，對以可靠性為主的維修計劃的落實情況展開全面檢討。

Reliability Centred Maintenance

The additional projects for implementing Reliability Centred Maintenance (RCM) for two pumping stations vis-a-vis the Tsuen Wan Raw Water Pumping Station and Tai Wo Tsuen Salt Water Pumping Station have been completed. With more comprehensive templates of maintenance strategies already developed for various kinds of waterworks installations, the last project at the So Kon Po No. 2 Fresh Water Pumping Station will be carried out in the coming year. For those installations in which the RCM study has been completed, implementation of re-design items and follow up actions to review the planned maintenance programme based on the report findings will continue. An overall review will be initiated on the outcome of RCM implementation with reference to the data being collected in order to refine our maintenance strategies for mechanical and electrical assets in due course.

主要濾水廠及抽水站的機械和電力設施狀況評估

為制訂全面的設施舊設備更換計劃，我們已完成30個抽水站的狀況評估，並將於明年對另外18個設施進行評估。我們會持續進行此類評估，以制訂及更新設施管理計劃。

Condition assessments of Mechanical and Electrical assets for major Water Treatment Works and Pumping Stations

To formulate a comprehensive replacement programme for old plant equipment, condition assessments for 30 pumping stations have been completed with assessments for another 18 installations set for the coming year. We will continue to conduct these assessments on an ongoing basis to develop and update our asset management plan.

資本投資
Capital Investment