香港水資源的歷史見證

A TESTAMENT OF HONG KONG'S
RUNNING WATER

尋水誌

CHRONICLING THE QUEST FOR WATER

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前言

FOREWORD

逾二百年前，因着一瓢水，香港的命運被重新書寫。1816 年，英國的亞美士德使節到訪中國，途中需要食水補給，便派水手到靠近的海岸取水，豈料於重重山巒之間瞥見了一道秀麗的小瀑布 —— 現鄰近華富邨、於瀑布灣公園內的一座小瀑布。因着這道流水簾，英國人發現了這座美麗的小島，登島的 25 年後，香港正式開埠，之後便是歷史了。

香港的進口食水過去三十年雖供應穩定，但全球缺乏水資源的警號其實早已響起。長春社文化古蹟資源中心（CACHe）於 2020 年策劃了《水展》，回溯香港的水到底從何而來，訴說河水、井水、自來水的前世今生，呈現官方政策與民間各界如何尋水、逐水。那些尋水覓源的故事，一次又一次地與香港的大歷史命運交纏。

2020 年年初，香港人剛開始面對新冠病毒帶來的世紀疫情，過着翻天覆地的日子，在全球資源爭奪戰中深感拉扯不安。《水展》希望將大眾由排隊買口罩的畫面帶回五、六十年前在街上輪候水源的人龍，在危機中重新思考水資源發展的方向。偏偏因着疫情，展覽延期了數月舉行，策展團隊經過歷史研究與資料整合，寫了十多篇有關水資源發展與歷史的文章，於延期期間在網上發佈。展覽篇幅有限，文章後來成了觀展者的延伸閱讀。承蒙衛奕信勳爵文物信託捐助，這些文章得以重新整理、編輯成書出版，讓這些水資源故事得以流轉。

根據聯合國世界氣象組織發表的《2021 年氣候服務狀況：水》，全球超過二十億人口生活在水資源緊張的國家；達 36 億人每年至少有一個月面臨用水不足的問題，預計到 2050 年更將上升到五十億以上。換言之，依賴城外輸入水資源，並不意味安穩。若現時依賴的水源在極端環境中劇變，又或面對境外的激烈競爭，香港該如何安身立命？期望正在翻閱此書的你，讀後更能一起思考香港人該如何捉緊生命之源。

More than 200 years ago, Hong Kong's destiny was rewritten by a single spout of water, when Lord Amherst led a diplomatic mission from Britain to China in 1816. The crew needed to stock up on supplies of fresh water on the way and sailors were sent to fetch water from the shore nearby. Unexpectedly, they caught a glimpse of a beautiful waterfall among the hills, which is located in the present Waterfall Bay Park near the Wah Fu Estate. These cascades of water led the British to discover this beautiful island, and 25 years after landing on the island, Hong Kong had officially become a British colony, and the rest is history.

Although the supply of imported water has been stable in Hong Kong over the past 30 years, the world is running dry at an alarming rate. In 2020, The Conservancy Association Centre for Heritage (CACHe) curated the *Water Exhibition*, which retraced how Hong Kong has got its water, the comings and goings of freshwater from rivers and wells, as well as tap water, and retold stories of how public policy and different sectors in the society searched and competed for water resources. Time and again, the stories of the quest for water are intertwined with Hong Kong's destiny over the course of history.

At the beginning of 2020, Hong Kong people had just begun to face the devastating pandemic of COVID-19 which has turned the world upside down. Many feel deeply anxious and overwhelmed by a battle for global resources. The Water Exhibition hoped that audiences could associate the people queuing for facial masks now to the people queuing for freshwater more than 50 years ago, and rethink how water resources should be managed in the midst of the crisis. The exhibition was postponed for several months due to the pandemic. The curatorial team, after months of historical research and data consolidation, composed more than ten articles on the development and history of water resources, which were published online during the postponement of the exhibition. With the limited space available in the exhibition venue, the articles became extended reading for visitors to the exhibition. Thanks to a funding from The Lord Wilson Heritage Trust, these articles were edited and compiled into a book for publication, allowing the anecdotes of water resources to be kept alive.

According to *2021 State of Climate Services - Water* published by the United Nations World Meteorological Organization, more than two billion people live in countries where water resources are scarce; 3.6 billion people face water shortage for at least one month every year, and the number is expected to rise to more than five billion by 2050. In other words, reliance on imported water potentially leaves the city vulnerable. If the water sources Hong Kong currently relies on undergo drastic changes in extreme circumstances, or if there are fierce competitions for water from outside the city, how can Hong Kong survive? We hope that those of you who are reading this book will be able to think about how Hong Kong people should grasp the source of life in the near future.

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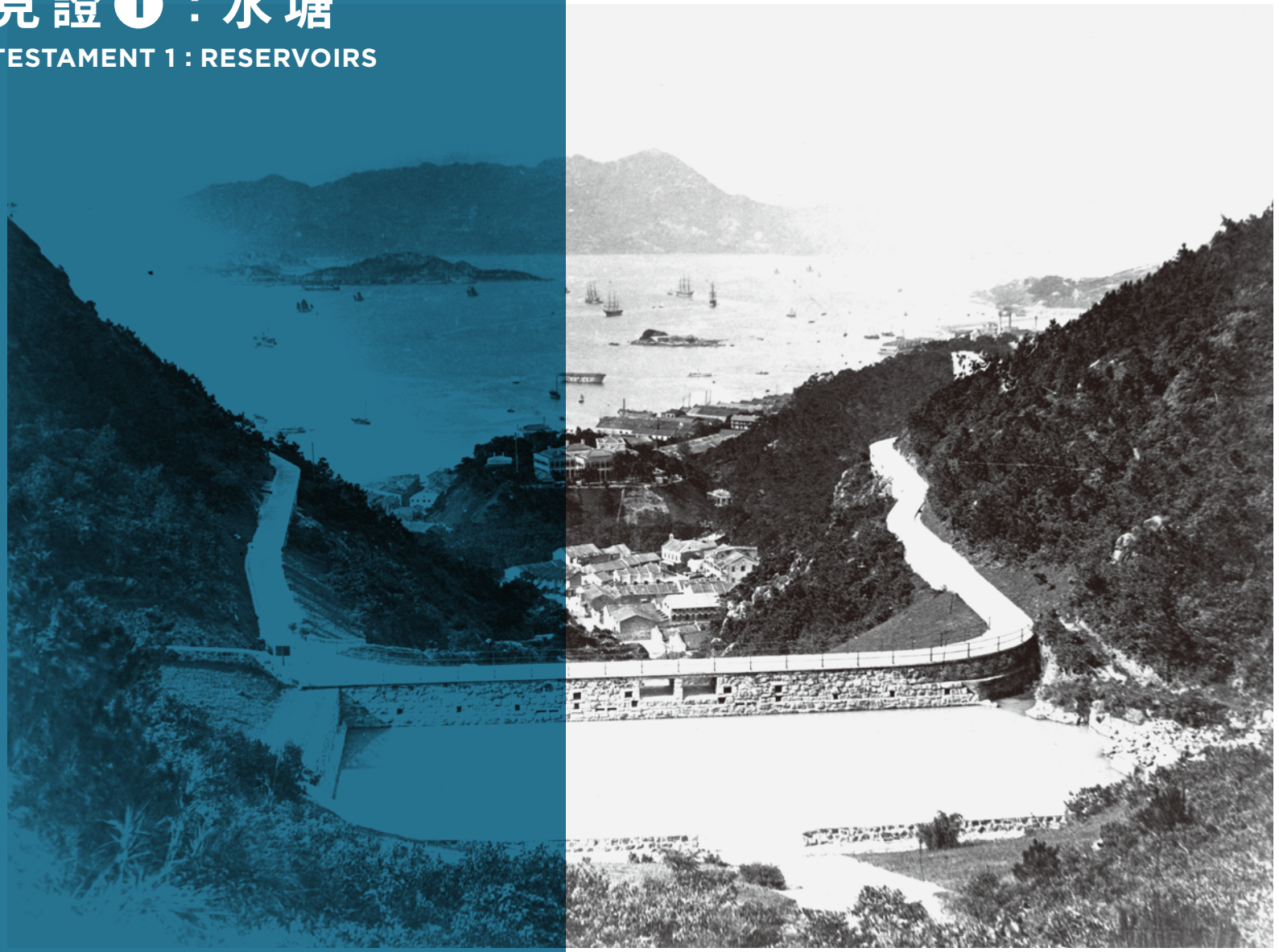
見證❶：水塘
TESTAMENT 1 : RESERVOIRS



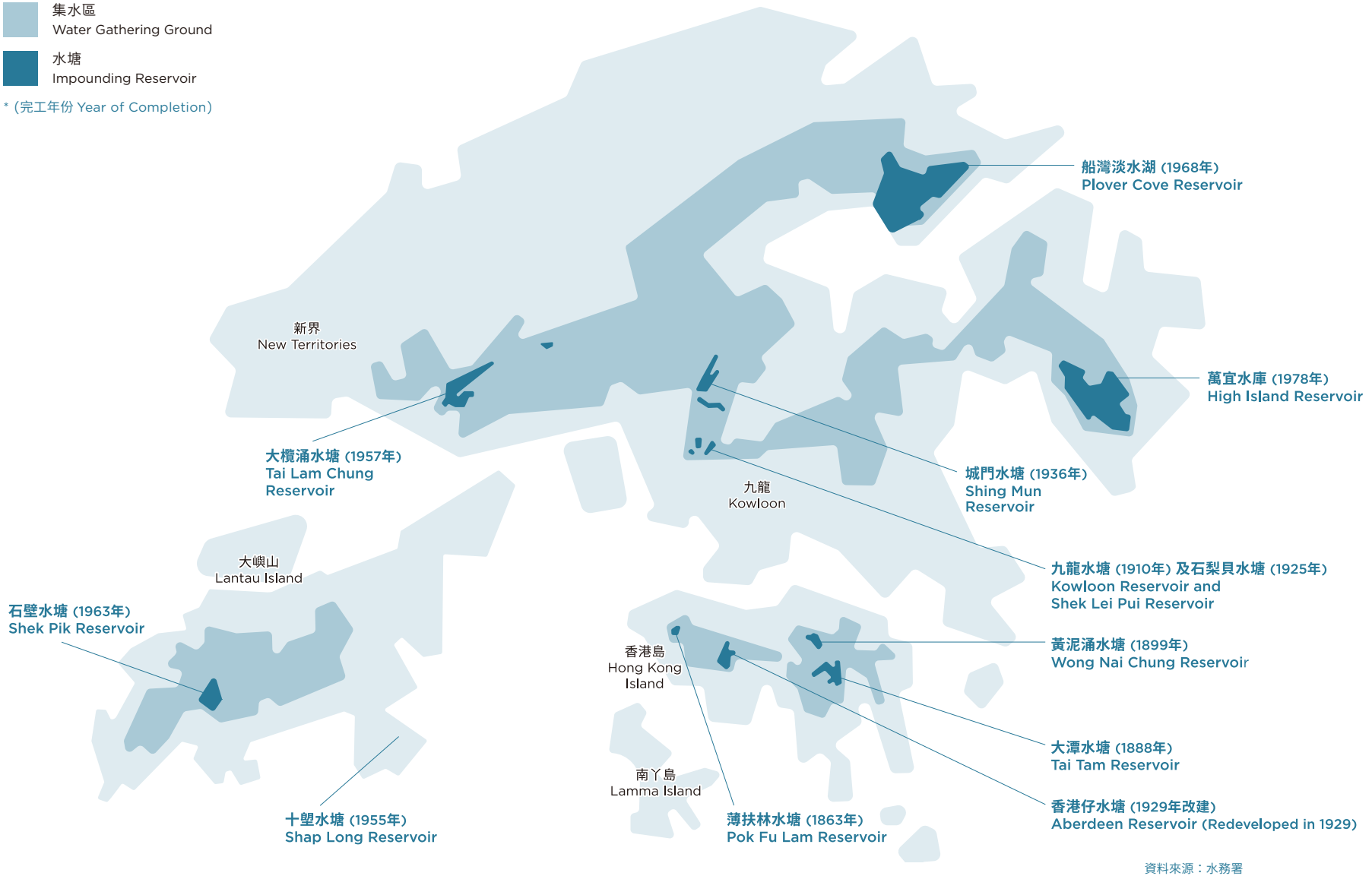
雨水，是香港曾經最主要的食水來源

收集雨水的水塘工程
見證着殖民地政府穩定民生、爭取供水自主的管治策略

Rainwater was once the major source of freshwater in Hong Kong.

The reservoir systems that collect rainwater are a testament to the colonial government's strategy of maintaining a stable livelihood and striving for autonomy in water supply.

香港水塘地圖
MAP OF RESERVOIRS IN HONG KONG



資料來源：水務署
Source: Water Supplies Department

持續經年的本地儲水工程

YEARS OF ENGINEERING PROJECTS THAT CONSERVE WATER FOR HONG KONG

自古以來，人群逐水而居；水者，包括河溪、雨水、地下水。香港山多平地少，氣候溫暖潮濕，有助形成河溪，故境內有數百條河溪。在城市化以前，河水被提取飲用、灌溉、養魚、清潔，也是養育諸多動植物的生境。惟部份河溪只於雨季或下雨後出現，而香港雨季旱季分明，每年 5 月至 9 月多雨，10 月至翌年 4 月乾旱，是以若想全年都有穩定水源，除了河溪，掘井取用地下水亦是常見之法。昔日人們更會供奉井神以祈求井水不絕，如今部份新界古井旁仍留有供奉痕跡。

惟自 1841 年開埠之後，人口漸長，河溪與水井提供的水源開始不敷應用，香港殖民地政府遂想方設法在雨季時儲起雨水。1850 年代起，港府於維多利亞城半山修築了第一個儲存河水的儲水池，更曾於 1859 年 10 月懸賞一千英鎊，尋求供水良方。水塘，後來成為港府最重要的儲水方案。至今全港有 17 個水塘，是橫跨近一世紀的儲水工程。下文以水塘為軸，側看香港的發展故事。

Where there's water, there's settlements. Freshwater is found in the form of rivers, streams, rainwater and groundwater. Hong Kong features a mountainous landscape and a warm, humid climate that gives rise to its hundreds of rivers and streams. Before urbanisation, freshwater from rivers was used for drinking, irrigation, fish farming, cleaning, and as a natural habitat for animals and plants. However, some are seasonal rivers and streams that flow only in the wet season or after a rainstorm. Hong Kong has distinct rainy and dry seasons. It rains a lot from May to September and is dry from October to April. To have a stable water supply throughout the year, it used to be common to dig wells to obtain groundwater in addition to getting water from rivers and streams. In the past, people would make offerings to the well deities to pray for uninterrupted water supply. Traces of such rituals remain visible around certain old wells in the New Territories.

However, after Hong Kong became a colony in 1841, the population grew and the water supply from rivers, streams and wells began to be inadequate. The colonial government began to find solutions to conserve rainwater during the rainy season. From the 1850s, the Hong Kong government built the first reservoir in the mid-levels of Victoria City to store river water. In October 1859, a reward of £1,000 was offered to the public for solutions leading to a better water supply. Reservoirs turned out to be the most substantial out of all. To date, there are 17 reservoirs in Hong Kong, a water storage system that has taken nearly a century to complete. The following is the story of Hong Kong's development, with reservoirs as the main protagonist.

開埠早期

THE EARLY DAYS OF THE COLONY

1841 年英國首次在香港島做人口調查，發現只有約 5,450 人居於島上，以赤柱及筲箕灣漁民為多。開埠之後，廣東華人、澳門歐籍商人及傳教士等慕名而來，至 1842 年初，香港人口已快速上升至一萬五千至二萬。及至 1850 年代，太平天國起事以後，華南大批居民逃至香港，於 1851 至 1860 年間，香港華人由約二萬驟增至約七、八萬。可以想像，單靠天然水源，已無法應付新的食水所需。自 1863 年首個水塘建成，香港人便開始飲用由水塘蒐集的雨水。

The first census on Hong Kong Island was conducted by the British in 1841 and it was found that only about 5,450 people lived on the island, mostly were fishermen from Stanley and Shau Kei Wan. After Hong Kong became a British colony, Chinese from Canton, European merchants from Macau and missionaries came to Hong Kong, and by early 1842, the population had grown rapidly to between 15,000 and 20,000. In the 1850s, after the Taiping Rebellion, a large number of residents from southern China fled to Hong Kong, and between 1851 and 1860, the Chinese population in Hong Kong increased dramatically from about 20,000 to between 70,000 and 80,000. Natural water sources alone could no longer meet the new water demands. Since 1863, when the first reservoir was built, the people of Hong Kong began to drink the rainwater collected from the reservoir.

薄扶林水塘

POK FU LAM RESERVOIR

地點 LOCATION

香港島西邊，西高山和奇力山之間的薄扶林谷
Pok Fu Lam Valley between Sai Ko Shan and Mount Kellett, west side of Hong Kong Island

日期 DATE

1860 年動工，1863 年完工，1877 年擴建
Commenced in 1860, completed in 1863, expanded in 1877

容量 CAPACITY

二百萬加侖
2 million gallons

第一個儲水水塘，由殖民地政府於 1860 年在香港島西南部的薄扶林谷落實興建，三年後完成。由於經費有限，1863 年落成的水塘容量只有二百萬加侖，即 3.6 個奧林匹克標準泳池的大小，足夠滿足當時人口四天的使用量。

薄扶林水塘選址位於鄰近維多利亞城的半山山谷中，存水利用水向下流的物理原理沿着輸水管道流向城內，減輕輸水成本。食水先流到龍虎山及太平山山腰的儲水池，再經水管流至各街區，供水至街喉讓大眾取水、清潔及滅火之用。

1866 年，政府再於原有水壩東北方加建一道新水壩，令水塘存水量增加 34 倍至 6800 萬加侖，足夠市民取用四個月。

The first reservoir was built by the colonial government in 1860 at Pok Fu Lam Valley in the southwest of Hong Kong Island and was completed three years later. Due to limited funds, the reservoir, completed in 1863, with a capacity of only 2 million gallons, or 3.6 Olympic-sized swimming pools, was only enough to meet the water consumption of the population at that time for four days.

The Pok Fu Lam Reservoir is located in a valley halfway up the mountain near the City of Victoria. Relied on the force of gravity, water could flow down the aqueduct and into the city, reducing the

cost of transportation. The water flowed first to the storage tank on the hillside of Lung Fu Shan and Victoria Peak, and was then conveyed by pipelines to the standpipes in each district for public consumption, cleaning and fire-fighting.

In 1866, the government built anew dam to the northeast of theoriginal dam, increasing the reservoir's storage capacity 34 times to 68 million gallons, enough for four months of public consumption.

1910 年代擴建後的薄扶林水塘。
Pok Fu Lam Reservoir after expansion in the 1910s.

大潭水塘
TAI TAM RESERVOIR

地點 LOCATION

香港島東南部的大潭谷
Tai Tam Valley in the southeast of Hong Kong Island

日期 DATE

1888 年完工，1904 至 1917 年幾度擴建
Completed in 1888, expanded several times from 1904 to 1917

容量 CAPACITY

3.88 億加侖
388 million gallons

大潭供水系統一部份的寶雲道儲水池。
Water Service tank in Bowen Road, part of the Tai Tam Water Supply System.

薄扶林水塘儲水量始終有限，並不能只依賴單一水塘供水，是以殖民地政府於薄扶林水塘擴建時已開始研究興建新的儲水空間。最終港府決定於香港島東南部的大潭谷興建新水塘，集水區面積較薄扶林水塘的更大，水塘於 1888 年落成。

而整個水務工程，除了儲水，亦包括輸水。由於大潭谷和維多利亞城間有多座山峰，為輸水予城內居民，當年港府亦在大潭至黃泥涌之間，興建了一條 2.24 公里的輸水隧道，再接駁現時寶雲道的高架引水道輸水至中環半山。

後來隨着人口增加，而大潭水塘亦有更大的擴建空間，政府再分別於 1904 至 1917 年，於大潭水塘下游建成三座水塘，並重新命名四座水塘為「大潭上水塘」、「大潭副水塘」、「大潭下水塘」及「大潭篤水塘」。但由於「大潭下水塘」及「大潭篤水塘」位處於輸水隧道入口以下的山谷，因此須另外建造原水抽水站，把儲水抽至管道，再輸送至維多利亞城。

四個大潭水塘落成後，維多利亞城的東西兩方各有一個供水系統，香港的儲水能力大增。但由於食水輸送及過濾能力受硬件所限，城內偶爾會出現地域差異，東部供水充裕但西部卻受制水之苦。

The storage capacity of Pok Fu Lam Reservoir was limited and the city could not rely on a single reservoir for water supply. The colonial government started to study the possibility of constructing a new water storage facility when the expansion of Pok Fu Lam Reservoir was under way. The government finally decided to build a new reservoir in Tai Tam Valley in the southeast of Hong Kong Island, with a larger catchment area than that of Pok Fu Lam Reservoir. The reservoir was completed in 1888.

The entire waterworks, in addition to water storage, also includes distribution. Since there are many hills between Tai Tam Valley and Victoria Peak, in order to supply water to the residents living in the urban area, the government built a 2.24 km water tunnel between Tai Tam and Wong Nai Chung, and then connected to the elevated conduit at Bowen Road to supply water to the Mid-Levels.

As the population grew and there was more room for expansion of Tai Tam Reservoir, the government built three more reservoirs downstream of Tai Tam Reservoir from 1904 to 1917, and renamed the four reservoirs as Tai Tam Upper Reservoir, Tai Tam Byewash Reservoir, Tai Tam Intermediate Reservoir and Tai Tam Tuk Reservoir. As the Tai Tam Intermediate Reservoir and Tai Tam Tuk Reservoir are located in the valley below the entrance of the water tunnel, a separate raw water pumping station had to be built to pump the stored water to the aqueduct for distribution to Victoria City.

With the completion of the four reservoirs, there is one water supply system for the east and one for the west of Victoria City, and Hong Kong's water storage capacity had increased significantly. However, due to the limited capacity of water distribution and treatment facilities, the water supply within the city occasionally varied, with the eastern part of the city having an abundant supply of water but the western part suffering from water stress.

黃泥涌水塘
WONG NAI CHUNG RESERVOIR

地點 LOCATION

香港島中部，矗高信山和渣甸山之間的黃泥涌峽谷
Wong Nai Chung Gap, between Mount Nicholson and Jardine's Lookout, central of Hong Kong Island

日期 DATE

1899 年完工
Completed in 1899

容量 CAPACITY

2,700 萬加侖
27 million gallons

改建為划水水塘的黃泥涌水塘。
Wong Nai Chung Reservoir converted into a boating park.

黃泥涌水塘是 1899 年於黃泥涌峽谷興建的小型水塘，容量只有薄扶林水塘的四成，原為跑馬地及灣仔區居民供應食水。

1976 年政府為增加休憩用地，研究把大潭水塘及黃泥涌水塘改作划水用水塘。據報導，由於當年黃泥涌水塘的每日供水量，只足以應付附近區域居民用水量的十分一，因此失去該水塘對香港儲水「並無損失」，最終政府耗資 530 萬港元， 將之改建為遊覽休息區，於 1986 年 5 月開幕，水塘的濾水池用地亦重建為康體設施

Wong Nai Chung Reservoir is a small reservoir built in 1899 in Wong Nai Chung Gap, with a capacity of only 40% of Pok Fu Lam Reservoir, originally supplying water to the residents of Happy Valley and Wan Chai.

In 1976, the government studied the possibility of converting Tai Tam Reservoir and Wong Nai Chung Reservoir into boating parks in order to provide more open spaces. According to newspaper reports, as the daily water supply of Wong Nai Chung Reservoir was only enough to meet one-tenth of the water consumed by the residents in the vicinity, the closure of the reservoir was 'no loss' to Hong Kong's water storage, and the government eventually decided to spend HK$5.3 million to convert it into a recreational area, which was opened in May 1986. The filter beds of the reservoir were also redeveloped as a recreational facility.

界址拓展後

AFTER THE EXTENSION OF HONG KONG TERRITORY

隨 1898 年《展拓香港界址專條》的簽訂，九龍界限街以北的新界（後來被劃分成新界和新九龍）亦租借給英國，是故香港的發展不再侷限於香港島；而香港島在這段時期亦有多次具規模的填海工程，包括中環及灣仔。有見香港對供水的需求與日俱增，港府繼續動用資源尋找適合興建水塘之處，九龍及新界在二十世紀初正式踏入水塘供水年代。

With the signing of the 'Convention Between Great Britain and China Respecting an Extension of Hong Kong Territory' in 1898, the New Territories to the north of Boundary Street in Kowloon (later divided into the New Territories and New Kowloon) was leased to the United Kingdom, so the development of Hong Kong was no longer confined to Hong Kong Island. There were also a number of large-scale reclamation projects on Hong Kong Island during this time, including Central and Wan Chai. Given the increasing demand for water supply in Hong Kong, the Hong Kong government continued to allocate resources to identify suitable sites for more reservoirs. As a result, water supply from reservoirs finally began in Kowloon and the New Territories in the early 20th century.

九龍水塘及石梨貝水塘

KOWLOON RESERVOIR AND SHEK LEI PUI RESERVOIR

地點 LOCATION

九龍半島以北金山郊野公園內
Within Kam Shan Country Park, north of Kowloon Peninsula

日期 DATE

1901 年九龍水塘動工，1910 年九龍水塘完工，1925 年石梨貝水塘完工
Construction of Kowloon Reservoir commenced in 1901 and completed in 1910; Shek Lei Pui Reservoir was completed in 1925

容量 CAPACITY

3.5 億加侖
350 million gallons

1860 年，首個港島水塘落實興建，同年英國簽訂《北京條約》，獲得了九龍半島的土地。但由於當時港府與英軍對九龍半島的發展並未達成共識，因此並未即時建立供水系統，是直至 1891 年，才在鼠疫危機下根據《查維克報告書》建議發展地下水源系統。1895 年於上海街落成的油麻地抽水站，便是抽取自油麻地東部（今近廣華醫院一帶）的水井及附近河流的水，為 3.5 萬名九龍半島的住戶及商戶提供食水。這是因為界限街以南的九龍半島地勢較平坦，缺乏適合興建水塘的地理環境。

再八年之後，即 1898 年，香港界址拓展，政府立即於九龍半島以北山脈尋找適合興建水塘的地點，並於 1901 年動工興建九龍水塘，再於 1920 年代於水壩下增建九龍副水塘，及於附近建設石梨貝水塘繼續增加儲水量。

In 1860, the first reservoir on Hong Kong Island was built and in the same year, the Convention of Peking was concluded, and the area known as Kowloon Peninsula was acquired by the British. However, as the Hong Kong government and the British Armed Forces had not reached a consensus on the development of the Kowloon Peninsula, a water supply system was not built immediately. It was not until 1891 that the underground water supply system was developed as recommended in the Chadwick's reports during the

outbreak of the bubonic plague. The Yau Ma Tei Pumping Station, built in 1895 at Shanghai Street, extracted water from wells in the eastern part of Yau Ma Tei (near Kwong Wah Hospital today) and from nearby rivers to provide water for 35,000 residents and businesses of the Kowloon Peninsula. This was due to the relatively flat topography of the Kowloon Peninsula south of Boundary Street, which did not have a geographical environment conducive to the construction of reservoirs.

Eight years later, in 1898, when the boundary of Hong Kong was expanded, the government immediately searched for a proper site for a reservoir in the hills north of the Kowloon Peninsula and started construction of the Kowloon Reservoir in 1901. In the 1920s, the Kowloon Byewash Reservoir was added below the dam, and the nearby Shek Lei Pui Reservoir was built to increase the water storage capacity.

現存於油麻地的紅磚屋，為昔日前水務處抽水站工程師辦公室。
The existing red brick building in Yau Ma Tei is the Engineer's Office for the Waterworks Office's old Water Pumping Station.

城門水塘
SHING MUN RESERVOIR

地點 LOCATION

新界荃灣以北城門谷
Shing Mun Valley, north of Tsuen Wan, New Territories

日期 DATE

1923 年落實，1936 年完工
Commenced in 1923, completed in 1931

容量 CAPACITY

30 億加侖
3 billion gallons

隨着城市的用水量持續上升，香港島上已再找不到合適的空間興建水塘。1923 年，政府於是再度動工，於新界荃灣以北的城門谷，興建了一大型水塘，即「城門水塘」；同步於九龍水塘旁建設「九龍接收水塘」，接收由城門水塘輸送的食水；並在維多利亞港內興建海底輸水管，讓水塘供水予九龍及香港島使用。城門水塘落成之後，容量達至 30 億加侖，約佔當時香港總儲水量一半。

至 1936 年，城門水塘終落成，促進了九龍半島的發展。但1929年香港發生嚴重旱災，故政府於水塘落成後仍計劃興建更多儲水空間。

The city's water demand continued to grow, but there was no longer any proper location on Hong Kong Island for more reservoirs. In 1923, the government started to build a large reservoir, Shing Mun Reservoir, in Shing Mun Valley, north of Tsuen Wan in the New Territories. At the same time, the Kowloon Reception Reservoir was built next to the Kowloon Reservoir to receive water from the Shing Mun Reservoir, and a submarine pipeline was built in Victoria Harbour to supply water to Kowloon and Hong Kong Island. Upon completion, the capacity of Shing Mun Reservoir reached 3 billion gallons, accounting for about half of the total water storage capacity of Hong Kong at that time.

In 1936, the Shing Mun Reservoir was finally completed, facilitating the development of the Kowloon Peninsula. However, in 1929, a severe drought hit Hong Kong, hence the government continued to plan for more water storage facilities after the completion of the reservoir.

現時的城門水塘。
Today's Shing Mun Reservoir.

香港仔水塘
ABERDEEN RESERVOIR

地點 LOCATION

香港仔東部山腳
At the foothill of Aberdeen East

日期 DATE

1929 年改建
Redeveloped in 1929

容量 CAPACITY

27 億加侖
2.7 billion gallons

原屬私人水塘。香港仔東部山腳，曾有一所稱為「大成紙廠」的大型製紙工廠，紙廠於 1895 年建成，為了滿足工廠的用水需求，廠方於廠房後方的山上興建了一個水塘儲水使用。至 1929 年旱災，情勢危急，政府決定把工廠及水塘地皮收購回來，改建為「香港仔下水塘」，再於上游位置興建「香港仔上水塘」，工廠原址則改建成香港仔兒童工藝院，作為中下階層失學兒童的技能訓練場所。工藝院至 1957 年改名為「香港仔工業學校」運作至今。

It was once a private reservoir. At the foothill of Aberdeen East, there was a large paper mill called Tai Shing Paper Manufacturing Company, which was built in 1895. In order to meet the water needs of the mill, a reservoir was built on the hill behind the mill to store water. In 1929, when a drought struck Hong Kong and the situation became dire, the government decided to acquire the mill and the reservoir, and convert them into the Aberdeen Lower Reservoir. The Aberdeen Upper Reservoir was built at the upstream location, and the site of the paper mill was converted into the Aberdeen Industrial School, which served as a skills training facility for out-of-school children from the lower and middle classes. In 1957, it was renamed Aberdeen Technical School and has been in operation ever since.

難民潮及戰後社會

REFUGEE CRISES AND THE POST-WAR SOCIETY

回溯 1920 至 30 年代，香港水務工程發展迅速，跨區域的供水系統落成後，以新界的山谷作儲水水塘，可供水至市區使用。究其背景，1930 年代中日戰爭爆發，大量內地難民包括一批企業家逃難至香港，帶動了香港第一個工業急速發展的階段，開始生產帆布鞋、線衫，電器等。這讓香港的食水及工業用水需求都再度急劇增加，城門水塘永久解決供水問題的期望遂告落空，政府開始進行更大型的水務工程研究。

及至戰後，中國爆發內戰，移民潮繼續令香港人口急升，且為香港帶來資金及技術，香港戰後工業第二次高速膨脹，紡織、漂染和製衣業等亦廠房急升逾千，用水量亦隨之急升。

Back in the 1920s and 1930s, waterworks in Hong Kong developed rapidly. After the completion of the inter-regional water supply system, the valleys in the New Territories were used as storage reservoirs to supply water to the urban areas. The outbreak of the Sino-Japanese War in the 1930s saw a large number of refugees from the Mainland, including entrepreneurs, fleeing to Hong Kong, triggering the first phase of rapid industrial development in Hong Kong. Canvas shoes, knitwear, and electrical appliances began to be manufactured locally. This led to a surge in demand for both potable water and water for industrial use. The expectation that Shing Mun Reservoir would be a once-and-for-all solution to the water supply problems did not work, and the government began to conduct studies on larger waterworks projects.

After World War II, a civil war broke out in China. The influx of immigrants continued to swell Hong Kong's population and bring capital and technology to the city. Hong Kong's manufacturing industries expanded rapidly for the second time in the post-war era, with factories in the textile, dyeing, and garment industries increasing by more than 1,000 and water consumption soaring along with them.

大欖涌水塘
TAI LAM CHUNG RESERVOIR

地點 LOCATION

新界西屯門區大欖郊野公園內
Inside Tai Lam Country Park, Tuen Mun District, New Territories West

日期 DATE

1938 年開始研究，戰後中斷，1951 年動工，1957 年完工
Study started in 1938 but interrupted after the war; construction began in 1951, completed in 1957

容量 CAPACITY

50 億加侖
5 billion gallons

1960 年代的大欖涌水塘。
Tai Lam Chung Reservoir in the 1960s.

1938 年，殖民地政府邀請了負責設計城門水塘的工程師，到大欖涌研究興建大型水塘的可行性。大欖涌位處三面環山的山谷，計劃打算在原有村落的上游位置興建水塘。測量工程於 1940 年開始，可惜時為二次大戰，工程因而中斷，工程文件亦於戰時遺失。直至香港重光後，首要的水務工作是修復原有的輸水系統，是以大欖涌水塘的測量工作最終延至 1947 年才重新開展，再因財政困難，推遲至 1951 年正式動工。

據當時報章所見，市民一度對這延後落成的水塘寄予厚望：「食水供應問題可完全解決」、「將可永遠解決水荒」。然而到 1953 年，即水壩工程施工期間，港府已預計隨着人口持續增長及工業發展，未來用水需求會繼續急增，因此一邊將大欖涌水塘的水壩由原先設計的 50 米，加高至 66.6 米，另一邊則開始於大嶼山研究興建另一個大型水塘。

大欖涌水塘最終於 1957 年完工。覆蓋部份新界西北的重要農區。由於其集水區覆蓋甚廣，加上水道工程會破壞農田的灌溉用水系統，受影響農民一度起來抗議，而在管治角度而言，穩定新界農民生計有助維持社會穩定，減低管治風險，因此港府後來讓步，首次建造了灌溉水塘供農民使用，往後亦在開展供水工程時增添了農業灌概的考量。大欖涌水塘集水區內共建有藍地、清潭、河背、黃泥墩、洪水坑五個灌溉水塘。

In 1938, the colonial government invited the engineers in charge of the design of Shing Mun Reservoir to Tai Lam Chung to study the feasibility of building a large-scale reservoir. Tai Lam Chung is located in a valley surrounded by mountains on three sides. The plan was to build a reservoir in the upper reaches of the existing villages. Land surveying began in 1940, but was interrupted by World War II, and documents relevant to the construction were lost during the war. After Hong Kong was liberated from the Japanese, the first priority was to restore the original water supply system. The survey of Tai Lam Chung Reservoir was not resumed until 1947, and then, due to financial difficulties, construction was postponed until 1951.

According to the newspaper's reports at that time, the public had high expectations for the delayed reservoir, as the newspaper headlines read, 'the water supply problem would be completely solved' and 'the water shortage would be solved forever'. However, by 1953, when the dam was under construction, the government had already anticipated that with the continued population growth and industrial development, the demand for water would continue to increase. Therefore, the government raised the dam of Tai Lam Chung Reservoir from the original design of 50 meters to 66.6 meters, and began to study the construction of another large reservoir on Lantau Island.

Tai Lam Chung Reservoir was finally completed in 1957, covering part of the important agricultural areas in the Northwest New Territories. Due to its extensive catchment area and the waterway would disrupt the irrigation system of the farmland, the farmers affected protested against the project. From the perspective of governance, protecting the livelihood of farmers in the New Territories would help maintain social stability and reduce the risk of governance. The Hong Kong Government subsequently gave in and built irrigation reservoirs for farmers' use for the first time, and since then has taken agricultural irrigation into account when commencing water supply works. There are five irrigation reservoirs in the catchment area of Tai Lam Chung Reservoir: Lam Tei, Tsing Tam, Ho Pui, Wong Nai Tun and Hung Shui Hang.

石壁水塘
SHEK PIK RESERVOIR

地點 LOCATION

大嶼山南大嶼郊野公園內
Inside South Lantau Country Park, Lantau Island

日期 DATE

1957 年開始興建，1963 年完工
Construction started in 1957, completed in 1963

容量 CAPACITY

54 億加侖
5.4 billion gallons

興建中的石壁水塘的其中一條輸水道。
One of the aqueducts of the Shek Pik Reservoir under construction.

大嶼山是香港最大的島嶼，島上有鳳凰山及大東山兩座高山。兩峰一方面限制了發展，但同時亦令該區雨量充足，是充當集水區的理想場地。是以政府於 1953 年着手於大嶼山覓地興建水塘，並在翌年邀請正在建造大欖涌水塘的工程團隊，同步考察石壁谷用地，最終落實於該處建設比大欖涌更大型的儲水水塘，以收集及儲存大嶼山山脈的降雨。按這計劃，完工後香港的水塘容量將增加五成，存水更會以跨海管道直接由大嶼山輸往香港島，以滿足市區用水需求。

但原本有農民在石壁谷耕作維生。是以計劃落實之後，港府與石壁谷居民協調，其中三分一人選擇了遷村至附近的大浪灣村繼續農耕生活，港府更把石壁農地上的土壤挖起運至新村，方便村民繼續農務；至於其餘村民則選擇遷村至荃灣，適應城市生活。稍早前，另有村民因為大欖涌水塘的工程而須遷村至荃灣的大屋圍村，村民參考過該村的處理後，特定要求新村必須靠近鬧市，以便利搬遷後的日常生活。港府為此興建了石壁圍，今天該處已成為荃灣鬧市的一部份。

Lantau Island is the largest island in Hong Kong, with two mountains, namely, Lantau Peak and Sunset Peak. These two peaks limit development of Lantau on the one hand, but at the same time make the area ideal as a water catchment area with ample rainfall. In 1953, the government started to

identify a site for a reservoir on Lantau Island, and in the following year invited the same engineering team that was building the Tai Lam Chung Reservoir to inspect the Shek Pik Valley site at the same time. It was finally confirmed that a storage reservoir of a size larger than that of Tai Lam Chung would be built there to collect and store rainfall from the mountains. According to this plan, the capacity of Hong Kong's reservoirs would be increased by 50% after completion, and the stored water would be directly conveyed from Lantau Island to Hong Kong Island through a submarine pipeline to meet urban water demand.

However, there were farmers making a living in Shek Pik Valley. After the plan was finalized, the Hong Kong government negotiated with the residents of Shek Pik Valley, and one third of them chose to move to the nearby Tai Long Wan Village to continue farming. The government even dug up the soil from the farmland in Shek Pik and transported it to the new village to facilitate the villagers to continue farming, while the rest of the villagers chose to move to Tsuen Wan to adapt to urban life. Earlier, some villagers had to move to Tsuen Wan's Tai Uk Wai Village because of the construction of the Tai Lam Chung Reservoir. Having seen the way the village was settled, the villagers specifically requested that the new village be close to the downtown area so as to facilitate their daily life after moving. The government therefore built Shek Pik Wai, which is now a part of the Tsuen Wan downtown area.

十塱水塘
SHAP LONG RESERVOIR

地點 LOCATION

大嶼山芝麻灣半島
Chi Ma Wan Peninsula, Lantau Island

日期 DATE

1955 年完工，1971 年改為灌溉水塘
Completed in 1955, converted to an irrigation reservoir in 1971

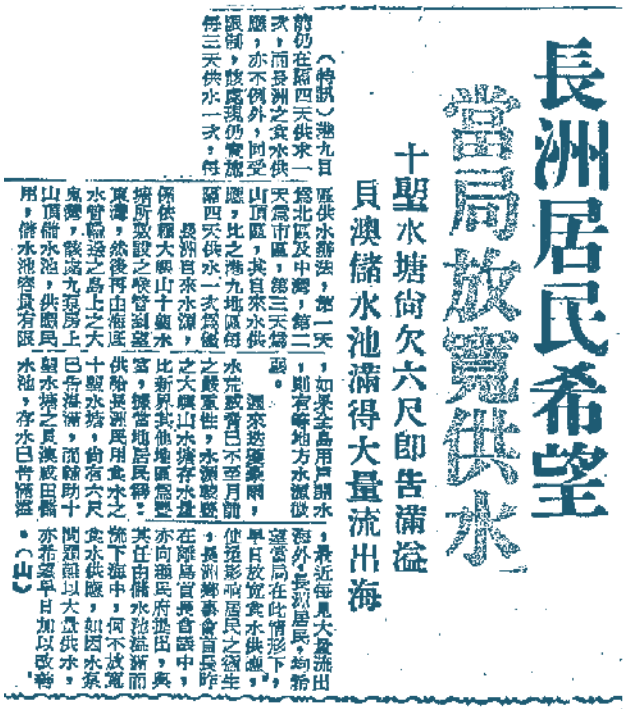
容量 CAPACITY

3,000 萬加侖
30 million gallons

戰後興建的食水水塘皆有長長的供水管道配合，接駁原有的供水網絡，唯獨十塱水塘是另類例子。十塱水塘是一個位處於大嶼山芝麻灣半島的小型水塘，建於 1955 年，其建造目的是為了解決長洲島上數萬居民的用水需要。事緣香港市區供水網絡落成後，港九新界地區大部份墟市皆有水管接駁，但長洲墟則因其地理位置偏遠未有水管供應淡水，政府為此於鄰近長洲的芝麻灣半島上建造儲水水塘，再透過海底管道供水至長洲島。直至 1971 年，長洲的水管終於接駁至香港原有供水網絡，十塱水塘遂改為灌溉水塘。

All post-war reservoirs were connected to the original water supply network by long water pipes. The only exception is Shap Long Reservoir. Built in 1955, Shap Long Reservoir is a small reservoir located on the Chi Ma Wan Peninsula of Lantau Island. It was built to meet the needs of thousands of residents on Cheung Chau. With the completion of the urban water supply network in Hong Kong, most of the markets in Hong Kong, Kowloon and the New Territories were connected to water pipes, but Cheung Chau was not supplied with fresh water due to its remote location. The government therefore built a reservoir on the Chi Ma Wan Peninsula near Cheung Chau and supplied water to Cheung Chau through a submarine pipeline. In 1971, the water pipes in Cheung Chau were finally connected to the original water supply network of Hong Kong, and

Shap Long Reservoir was converted into an irrigation reservoir.



長洲居民希望
當局放寬供水
十塱水塘尚欠六尺即告滿溢
貝澳儲水池滿得大量流出海

十塱水塘及長洲在 1955 至 1971 年間曾一度擁有獨立的供水網絡。在 1963 年旱災之中，當香港各處（包括長洲）都實施「四日供水四小時」，十塱水塘的存水卻因儲水滿溢而流出大海。刊於 1963 年 8 月 1 日《華僑日報》。
The Shap Long Reservoir and Cheung Chau once had their own water supply networks from 1955 to 1971. During the 1963 Water Drought, water supply was cut to four hours every fourth day. Such restriction was imposed in all parts of Hong Kong (including Cheung Chau), but the water stored in Shap Long Reservoir overflowed and discharged into the sea. 1963, 1 August, *Wah Kiu Yat Po*.

深圳供水後

WATER SUPPLY FROM SHENZHEN

1959 年，香港的供水格局踏進新一階段。是年「深圳水庫計劃」上馬，同年香港大旱，廣東省政府於翌年向殖民地政府建議由深圳水庫供水予香港。當時仍在冷戰格局，港府在幾經衡量下，接受了中國的貿易建議，香港開始向深圳買水，同時為減低對內地的依賴，亦同步加快了多項本地水利工程。是以 1960、1970 年代，隨着香港經濟改善，工業發展達到高峰，香港亦出現了領先全球的世上首個海中水庫「船灣淡水湖」、西北供水計劃（後被擱置）、價格高昂的海水化淡計劃等大型工程。

In 1959, Hong Kong entered a new phase of water supply. The Shenzhen Reservoir Scheme was launched in that year, and at the same time Hong Kong experienced a severe drought. The Guangdong Provincial Government proposed to the colonial government that the Shenzhen Reservoir would supply water to Hong Kong the following year. In the midst of the Cold War, the Hong Kong government accepted China's trade offer after careful consideration, and Hong Kong began to buy water from Shenzhen. To minimise the reliance on the Mainland for water supply, a number of local water works were expedited at the same time. In the 1960s and 1970s, as Hong Kong's economy continued to grow and industrial development reached its peak, the world's first coastal reservoir, the Plover Cove Reservoir, the North Western Water Scheme Original Proposals (later shelved), and the expensive seawater desalination project were launched.

船灣淡水湖
PLOVER COVE RESERVOIR

地點 LOCATION

新界大埔區船灣郊野公園內，毗鄰赤門海峽
Plover Cove Country Park, Tai Po District,
New Territories, adjacent to the Tolo Channel

日期 DATE

1962 年落實，1968 年完工
Commenced in 1962, completed in 1968

容量 CAPACITY

517 億加侖
51.7 billion gallons

1959 年，正當石壁水塘工程尚在準備階段，港府表示人口增長速度超乎預期，「竣工之後仍難解決水荒」，同時亦由於屆時陸上已缺乏大型盆地可用作興建水塘，港府為此開展了兩項研究：一是考慮改於海上興建水塘，二是考慮使用美國最新的海水蒸餾技術。後來研究發現後者價格高昂，因此港府於 1962 年，決定善用香港多海灣的地理優勢，拍板改建船灣海成為「船灣淡水湖」。這水塘除了面積比維多利亞港更大，更是全球首個海上水塘，利用了令海水不會滲漏的築堤壩技術。

這個領先全球的淡水湖，除了收集及儲存八仙嶺山脈上的降雨之外，亦可用作儲存城門水塘溢出的存水，因此整個工程計劃亦包括了興建城門下水塘，及由接駁水塘和船灣淡水湖的輸水管道。同時，食水亦能透過水管，反方向由船灣淡水湖輸水至市區使用。

可是船灣海一帶，原是不少漁民世代相傳的漁場，主壩工程，基本上迫使漁船必須駛離原有的捕魚區。但由於塘內仍有數量相當可觀的海魚，政府因而批出特別的許可證，並派出工作人員在堤壩上，以人力把海上的漁船抬到湖內繼續捕魚。此計劃持續幾年，直至 1967 年夏季，政府開始於湖中泵入淡水才結束。而湖內尚餘的海魚及珊瑚，後來則由政府派出拖網船網走，或因湖水的鹹度大減，陸續死亡。

In 1959, when the construction of Shek Pik Reservoir was still in the preparatory phase, the Hong Kong government stated that the population was growing faster than expected and that 'it would be difficult to solve the problem of water shortage after the completion of the project'. At the same time, because there were no more large-scale sites on land to build more reservoirs, the government undertook two studies: the possibility of building a coastal reservoir, and the possibility of using the latest seawater distillation technology from the United States. The latter was found to be too expensive, so in 1962, the Hong Kong government decided to convert Plover Cove into 'Plover Cove Reservoir', leveraging Hong Kong's geographical advantage of having numerous bays. This reservoir is not only larger than Victoria Harbour, but is also the world's first coastal reservoir, featuring a dam design that prevents seawater from seeping through.

This pioneering coastal reservoir not only collects and stores rainfall from the Pat Sin Leng mountain range, but also serves to store the overflow from Shing Mun Reservoir, so the project was designed to include the construction of Lower Shing Mun Reservoir and a pipeline to connect the reservoir to Plover Cove Reservoir. At the same time, fresh water can be transferred from Plover Cove Reservoir to the urban areas through the aqueduct in the opposite direction.

However, the area around Plover Cove had been a fish farm run by many fishermen for generations. The main dam project forced the fishing boats to leave the original fishing area. Due to the fact that there was still a considerable amount of marine fish in the reservoir, the government granted a special permit and sent a crew to lift the fishing boats from the sea to the reservoir so that the fishermen could continue fishing. The programme lasted for several years until the government started pumping fresh water into the reservoir in the summer of 1967. The remaining marine fish and coral in the reservoir were later netted by government trawlers, or died due to the decrease in salinity in the reservoir.

因興建水塘，船灣七村村民被逼遷離家園。
Due to the construction of the reservoir, villagers of the seven villages in Plover Cove were forced to move away from their homes.

萬宜水庫
HIGH ISLAND RESERVOIR

地點 LOCATION

新界西貢區
Sai Kung District, New Territories

日期 DATE

1971 年通過，1978 年完工
Commenced in 1971, completed in 1978

容量 CAPACITY

600 億加侖
60 billion gallons

萬宜水庫工程規模龐大。
The scale of the High Island Reservoir project is massive.

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至 1963 年，香港發生嚴重旱災，港府決定進一步增加香港淡水供應。當時歐美多國正開發海水化淡技術，港府亦期望以海水化淡取代年復年的水塘建造工程，但由於海水化淡成本甚高，即使是當時全球的海水化淡產水量總和，亦不足以滿足香港的食水需求，因此港府決定還是先行興建水塘。

1967 年，港府決定研究如何收集及儲存西貢區的雨水。其中，官門海峽、企嶺下海及大灘海三處都曾被列入初步選址，最終定案為官門海峽，即西貢半島與糧船灣之間的海峽，亦即「萬宜水庫」。這計劃是要建設一個容量比船灣淡水湖還大一倍的淡水湖，其面積更是香港首個水塘（薄扶林水塘）的九百倍之多。

1971 年，港府正式通過興建萬宜水庫，並表示可供大型水塘建設的地方已所剩無幾，該處將會是香港的最後一個水塘，如香港須繼續增加淡水供應，則只能依靠海水化淡。萬宜水庫最終於 1978 年 11 月落成啟用，港督麥理浩於開幕禮上致辭時亦重申，「香港已用盡主要天然食水資源」。惟他這次提及的其他方案，不是海水化淡，而是將與廣東省政府簽訂合同，向廣東購買更多食水。

In 1963, Hong Kong was hit by a severe drought and the Hong Kong government decided to further increase the supply of fresh water in Hong Kong. At that

time, many countries in Europe and the United States were developing desalination technology, and the Hong Kong government also hoped to use this technology to replace the construction of reservoirs year after year. However, due to the high cost of desalination, even the total desalination capacity of the world was not enough to meet the demand for fresh water in Hong Kong, so the government eventually decided to build more reservoirs.

In 1967, the Hong Kong government started to study how to collect and store rainwater in Sai Kung. Three preliminary sites were selected: Kwun Mun Channel, Three Fathoms Cove and Long Harbour. The final decision was made for the Kwun Mun Channel, which is the channel between Sai Kung Peninsula and High Island, also known as the High Island Reservoir. The project was to build a coastal reservoir twice the size of Plover Cove Reservoir, and 900 times the size of Pok Fu Lam Reservoir, Hong Kong's first reservoir.

In 1971, the Hong Kong government officially approved the construction of High Island Reservoir, stating that there was barely any land left for building more large-scale reservoirs. High Island would be the last reservoir in Hong Kong, and if Hong Kong continued to require additional fresh water supplies, it would have to rely on desalination. High Island Reservoir was finally completed in November 1978, and Governor MacLehose reiterated in his speech at the opening ceremony that 'Hong Kong has exhausted its major natural water resources.' Instead of desalination, the other option he mentioned this time was to sign a contract with the Guangdong Provincial Government to buy more water from Guangdong.

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戰後香港人口及工業急促發展，衍生出一個接一個「歷來最大」的水塘。四個戰後水塘的集水區覆蓋廣闊，遍佈了香港多個山脈。然而香港的降雨量始終有限，時至今天，香港所有水塘每年能收集到約一億至四億立方米食水，但城市耗水量卻已超過十億立方米。水塘未能滿足的供水量，遂要靠其他方法補足。

The rapid population growth and industrial development of Hong Kong after the war gave rise to the 'largest ever' reservoir one after another. The catchment areas of the four post-war reservoirs cover a wide range of mountains in Hong Kong. However, Hong Kong's rainfall has always been limited. Today, all the reservoirs in Hong Kong collect between 100 million and 400 million cubic metres of fresh water per year, but the city's water consumption has exceeded one billion cubic metres. The water supply that cannot be met by reservoirs has to be supplemented by other means.

平行時空裏的水塘

近年愈來愈多人談論供水自主。早在六十年前，站在殖民地大後方的英國政府，便已明白要捉緊這條命脈，因為水源隨時影響一地的自主。是以即使花費浩大，但港府仍選擇四處研究可行的水塘選址，並克服各種技術困難，建造了全球第一個海上水塘。走在技術尖端，背後包含了追求自主的意志和考量。

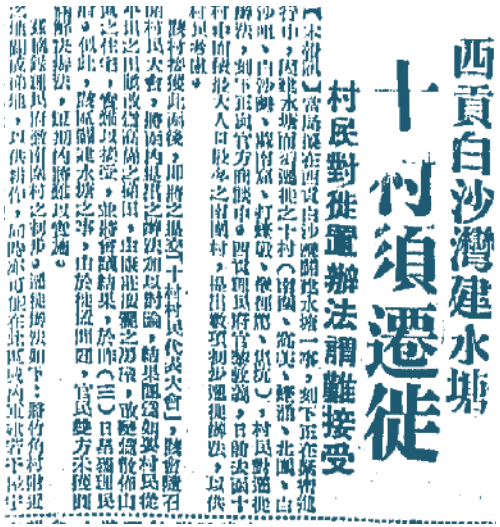
香港的兩個海上水塘，亦是香港最後興建的兩個水塘，包括了上文提到的，於 1968 年落成的船灣淡水湖和 1978 年落成的萬宜水庫。但在這供水故事塵埃落定之前，港府本來還考慮過好些水塘選址。當中包括了白沙灣水塘 —— 而險令十條鄉村須遷徙，還有稔灣水塘、后海灣水塘和粉嶺水塘 —— 如果成真，屯門、元朗、天水圍便不會出現新市鎮了。

RESERVOIRS THAT WERE STILLBORN

There has been more and more discussion about the autonomy of water supplies in recent years. As early as 60 years ago, the British government, the colony's sovereign power, understood the need to hold on to this lifeline, as water can affect a place's autonomy at any time. So even though it was expensive to build the reservoir, the Hong Kong government opted to look for a viable site and overcame various technical difficulties to build the world's first coastal reservoir. The technology of reservoir building was not only state-of-the-art, but also embodied the will and determination to pursue autonomy.

The two coastal reservoirs in Hong Kong were also the last two reservoirs built in Hong Kong. They are the aforementioned Plover Cove Reservoir, completed in 1968, and High Island Reservoir, completed in 1978. But before this story of water supply was concluded, the Hong Kong government had considered a number of other sites to build more reservoirs. These included Pak Sha Wan Reservoir, which would have displaced ten villages, as well as Nim Wan Reservoir, Deep Bay Reservoir, and Fanling Reservoir - if that had come true, there would have been no new towns in Tuen Mun, Yuen Long, or Tin Shui Wai.

白沙灣水塘
PAK SHA WAN RESERVOIR



西貢白沙灣建水塘
十村須遷徙
村民對徙置辦法請願接受

根據 1960 年 10 月 4 日《香港工商日報》的報導，白沙灣水塘興建計劃將迫使附近十村的村民面臨遷徙。
According to the October 4, 1960 issue of *Kung Sheung Daily News*, the construction of the Pak Sha Wan Reservoir would force villagers of the ten villages nearby to relocate.

白沙灣水塘的研究規劃始於 1950 年代末，選址於西貢蠔涌以東的海灣，現時則為遊艇停泊區和三星灣泳灘。翻查舊報，1958 年 11 月，政府宣佈撥二十萬，研究將船灣及白沙灣改成淡水湖的可行性，至 1960 年正式提出於白沙灣興建水塘，並曾與相關十村村民舉行居民大會。當時的村民傾向反對規劃，更曾去信當局陳詞，指該區村落均散佈於水源上游，村民以農牧及養豬維生，擔心一旦被遷徙會失去生計，求情「懇請詳加考慮，以免影響村民生活」。政府當時答允有決定時會通知各村，村民則如熱窩上螞蟻，不時要求交代。

至 1963 年 7 月，政府發言人表示決定暫時擱置白沙灣水塘工程。據香港中文大學政治與行政學系講師李家翹及香港教育

大學亞洲及政策研究學系講師蔡俊威的研究分析，港府預計工程將影響 1,600 名農民的生計，計劃因「不能消解的政府反響」而中止。這一年，香港人經歷了持續半年的大旱災，即使到了 7 月仍未完全恢復正常供水，有指港府這年開始與中方討論由東江購水的可行性，及後於翌年與廣東省簽訂供水協議。至於這計劃告吹是否與東江水有關，港府當時則未有透露，不過萬宜水庫當時仍繼續去馬，可見港府並未放棄要令香港達到供水自主。

The planning of Pak Sha Wan Reservoir began in the late 1950s, and the site identified was the bay to the east of Ho Chung in Sai Kung, which is now a marina and where Trio Beach located. According to newspaper's reports, in November 1958, the government announced that it would allocate $200,000 to study the feasibility of turning Plover Cove and Pak Sha Wan into coastal reservoirs. In 1960, a formal proposal was made to build a reservoir in Pak Sha Wan, and a residents' meeting was held with the villagers of the ten villages concerned. Villagers were inclined to oppose the plan. Worried that they would lose their livelihood if they were relocated, villagers wrote to the authorities, claiming that the villages in the area were scattered in the upper reaches of the water source, which was vital to the villagers who lived on farming and animal husbandry. Villagers pleaded 'please consider carefully so as not to affect the livelihood of the villagers'. The government promised to inform the villages when a decision was made, but the villagers were very anxious and asked for an answer from time to time.

In July 1963, a government spokesman said that the Pak Sha Wan Reservoir project would be shelved for the time being. According to a study by Nelson Lee Ka-kiu, a lecturer in the Department of Government and Public Administration at the Chinese University of Hong Kong, and Sam Choi Chun-wai, a lecturer in the Department of Asian and Policy Studies at the Hong Kong University of Education, the government estimated that the project

would affect the livelihoods of 1,600 farmers, and the project was suspended due to 'unresolved government repercussions.' This year, the people of Hong Kong experienced a severe drought that lasted six months, and regular water supply had not yet been fully restored even in July. The Hong Kong government began discussions with China about the feasibility of purchasing water from Dongjiang, and then signed a water supply agreement with Guangdong Provincial Government the following year. As to whether the failure of this project was related to the purchase of Dongjiang water, the Hong Kong government did not disclose the reason at that time. However, the construction of High Island Reservoir was still in progress, which indicated that the government had not given up on ensuring the autonomy of Hong Kong's water supply.

稔灣水塘及后海灣水塘

NIM WAN RESERVOIR AND DEEP BAY RESERVOIR

據 1969 年 12 月 18 日的《華僑日報》，政府有意在稔灣建水塘，以供應食水至元朗。

According to the December 18, 1969 issue of *Wah Kiu Yat Po*, the government intended to build a reservoir in Nim Wan to supply water to Yuen Long.

稔灣水塘及后海灣水塘屬於「North Western Water Scheme Original Proposals（西北供水計劃）」的部份，計劃構想始於 1960 年代，原是白沙灣工程的替代方案。稔灣水塘選址於屯門堆填區以南之山谷，現時為天然山澗「青大石澗」及瀑布「臥龍潭」；后海灣水塘則選址於現時的天水圍新市鎮及以北的濕地。這兩個擬建的水塘，位處山谷及低窪平原地區，以便為屯門、屏山及元朗地區供水。從地理位置去看，按學者李家翹及蔡俊威的研究分析，它更能居中連接起大欖涌水塘及船灣淡水湖，將之連結成一個綜合供水體系，配合當時政府有效調度香港水源的策略。

惟這項西北規劃，在政府部門間一直未能達成共識。由於水庫位處新界原居民聚居的地方，收地困難，考慮到水塘工程會擾動農村社會，失業農民會繼而波及城市勞動市場，增加管治隱憂，故計劃一直拖延。翻查舊檔案，計劃去到 1970 年代

末至 1980 年代初正式告終。隨着港督麥理浩宣佈與廣東省政府簽訂新的買水合同，殖民地政府為供水自主而作的掙扎亦告落幕。

或算可幸的是，后海灣水塘的位置是現時的天水圍新市鎮，亦包括了現時濕地公園的範圍，故如計劃落實，有可能會毀掉米埔及內后海灣的「拉姆薩爾濕地」生態，波及香港一眾候鳥。

The Nim Wan Reservoir and Deep Bay Reservoir were part of the North Western Water Scheme Original Proposals, which was conceived in the 1960s as an alternative to the Pak Sha Wan project. The site for Nim Wan Reservoir was located in the valley to the south of the Tuen Mun Landfill, which is now a natural watercourse Tsing Dai Rocky Stream and a waterfall Lying Dragon Pool, while the site for Deep Bay Reservoir would be located in the current Tin Shui Wai New Town and the wetland to the north. The two proposed reservoirs would be located in valleys and low-lying plains so as to supply water to Tuen Mun, Ping Shan and Yuen Long. Geographically, according to the study by Nelson Lee and Sam Choi, they would be able to link up Tai Lam Chung Reservoir and Plover Cove Reservoir to create an integrated water supply system, in line with the government's strategy to effectively regulate water supply in Hong Kong at the time.

However, no consensus had been reached among government departments on the North Western Water Scheme. Since the proposed reservoir would be located in an area with a large population of indigenous inhabitants in the New Territories, the project was delayed because of the difficulties in land resumption and the fact that the reservoir project would disturb the rural community - unemployed farmers would affect the urban labour market, thus adding risks to governance. The project therefore had been postponed. Past records indicate that the project was officially terminated in the late 1970s and early 1980s. The colonial government's struggle for water autonomy

came to an end when Governor MacLehose announced the signing of a new agreement with the Guangdong Province Government to buy water.

Fortunately, the site identified for Deep Bay Reservoir was in the current Tin Shui Wai New Town, which also includes the area of the Wetland Park. If the plan went ahead, it could have destroyed the 'Ramsar Site' habitat in Mai Po and Inner Deep Bay, thus disturbing the migratory birds' stop-over sites in Hong Kong.

粉嶺水塘
FANLING RESERVOIR

與新界西兩個水塘同時期規劃而最終告吹的，還有位於新界北的粉嶺水塘，同為「西北供水計劃」一部份，選址於粉嶺及八鄉中間的山谷，現時是一大片村落。翻閱 1978 年的舊報，水務署曾表示會於 1982 年前在粉嶺東北的平原興建水塘，並須以水泵提高水位，將水輸至舊有集水區，始能流入水塘。計劃擱置的原因跟西北供水相同，亦是經濟效益成疑，影響農民生計。

除了這三個規劃得比較詳盡的水塘計劃，當時水務署亦曾考慮增建大嶼山西北水塘，並於西貢萬宜水庫北部（企嶺下海海峽）等地擴大集水區。而雖然大嶼山西北水塘並沒有建成，但對比現時集水區的資料，發現當時納入大嶼山西北水塘集水區的地方，與現時已擴大的石壁水塘集水區是重疊的。

Fanling Reservoir in New Territories North, which was planned at the same time as the two reservoirs in New Territories West, was eventually shelved. It was also part of the North Western Water Scheme and the site identified was in a valley between Fanling and Pat Heung, which is now home to a cluster of villages. In 1978, the Water Supplies Department announced that it would build a reservoir in the plains in the northeast of Fanling by 1982. The water would be pumped up to the old catchment area so that it could flow into the reservoir. The reason for shelving the project was the same as the North Western Water Scheme, that is, its economic efficiency was in doubt and it would affect the livelihood of farmers.

In addition to these three more thoroughly planned reservoir projects, the Water Supplies Department also considered the construction of Northwest Lantau Reservoir and the expansion of the catchment area in the northern part of the High Island Reservoir in Sai Kung (Three Fathoms Cove). Although the Northwest Lantau Reservoir did not come to fruition, a comparison of the current catchment data shows that the areas included in the

Northwest Lantau Reservoir catchment overlap with the current expanded catchment areas of Shek Pik Reservoir.

藍色部份為后海灣水塘及粉嶺水塘之選址。
The blue parts are the sites identified for Deep Bay Reservoir and Fanling Reservoir.

(HKRS287-1-557 DEVELOPMENT OF WATERWORKS)

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時勢使然，加上各種管治考量，這些「消失的水塘」最終沒有成真，但它們仍舊見證着殖民地政府為香港爭取供水自主的努力篇章。

These reservoirs in the blueprint did not come to fruition due to various circumstances and governance considerations, but they are still a testament to the colonial government's efforts to secure water supply autonomy for Hong Kong.

見證❷：水錶

TESTAMENT 2 : WATER METERS

供水網絡的確立，是早期城市化的基礎

安置於全港居所內的水錶裝置
一直記錄、計算
可謂這城市運作系統的見證人

The installation of water supply network was the foundation of urbanisation in the early days.

Installed in all households in Hong Kong, water meters are a recorder and a calculator, and they are witnesses of the city's operational systems.

供水收費的歷史見證人

水塘工程之外，供水體系的另一個轉捩點發生在十九世紀末。由於香港衛生環境差，英國政府先後委派多名醫官、工程師來港考察衛生狀況，其中英國皇家工程師查維克爵士於 1881 年及 1890 年分別來港考察，發表了兩次《查維克報告書》，就水務與排污措施建議了一系列改革。可惜改革涉及龐大開支，遭華人領袖及華商反對。直至 1894 年，改革還未及實踐，鼠疫便在香港爆發，令殖民地政府終於有決心正視公共衛生問題。

查維克的方案在公共衛生的危機下終獲得採納。港府開始設立水務年度制，掌握儲水資料，擬定供水策略。具體而言，除了下令關閉受污染水井、增加街喉，更設立供水收費系統，於 1902 年在全港推行安裝水錶，實施按量收費。而在此之前，是只有九龍區以水錶量度樓宇用水量，那是自 1895 年起九龍區直接供水入屋後所推行的。

我們不難想像新政策推出後市民的激烈反應，同時現代供水網絡自此成形，香港水費制度亦奠下基礎。這百多年間，水錶歷經年月洗禮，鐵銹、日曬、損耗等痕跡，可謂香港水務發展的見證人。

WITNESSES TO THE HISTORY OF CHARGING FOR WATER SUPPLY

Apart from building reservoirs, another turning point in the water supply system occurred in the late 19th century. Due to Hong Kong's unsanitary condition, the British government sent a number of medical officers and engineers to Hong Kong to inspect the city. One of them was the British Royal Engineer, Sir Osbert Chadwick, who came to Hong Kong in 1881 and 1890, and published two Chadwick's Reports, recommending a series of reforms on water and sewage measures. Unfortunately, the reforms entailed enormous costs and were opposed by Chinese leaders and businessmen. Before the reforms could be put into practice, the bubonic plague broke out in Hong Kong in 1894, finally giving the colonial government the determination to address public health issues.

Chadwick's proposal was finally adopted in the midst of a public health crisis. The government began to establish an annual water supply system to keep track of water storage data and formulate water supply strategies. Specifically, in addition to ordering the closure of polluted wells and increasing the number of standpipes, the government also set up a system of charging of water supplies and introduced the installation of water meters throughout the territory in 1902 to implement quantity-based charging. Prior to that, only the Kowloon district used meters to gauge the amount of water used in buildings, and that was introduced after the direct supply of water to individual households in Kowloon since 1895.

It is not difficult to imagine the fierce response of the public after the introduction of the new policy, but at the same time, the modern water supply network has taken shape since then and the foundation of Hong Kong's water tariff system had been laid. Over the past hundred years, the meters have braved the elements, and they are witnesses to the development of water supplies in Hong Kong.

歷年水錶巡禮

DIFFERENT GENERATIONS OF WATER METERS

一、指針式水錶
POINTER METER

1950 年代使用的小型水錶，以圓盤指針顯示。內部葉輪應對流動的水體積轉圈，並且通過齒輪帶動不同位數的指針旋轉，從而記錄用水量，單位以加侖計算。當時水錶主要置於舊式大廈天台，故附有蓋掩，避免太陽直接照射玻璃令其老化。

蓋掩鑄有水錶公司名稱「THE LEEDS METER COMPANY」以及「MADE IN ENGLAND」，可見產地為英國。

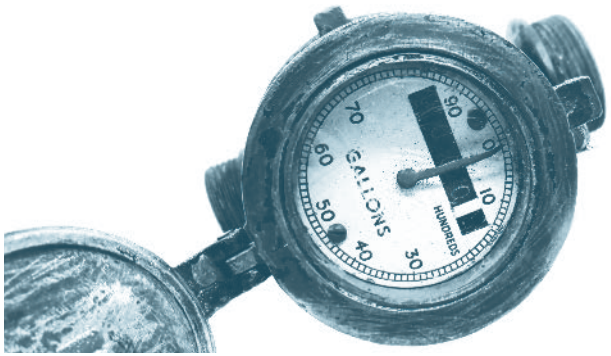
A small water meter used in the 1950's with a circular disc and a pointer. The built-in impellers rotate as the water flows, and the gears turn the sweep hand at different positions to record the amount of water used in gallons. At that time, the meter was usually placed on the rooftop of an old building, so it was equipped with a cap to prevent the glass from deteriorating due to exposure to direct sunlight.

The cap is cast with the name of the meter company 'THE LEEDS METER COMPANY' and 'MADE IN ENGLAND', indicating that it was manufactured in England.

二、指針字輪組合式水錶
METER WITH A POINTER AND A SET OF MOVING NUMBER WHEELS

同為英國公司「The Leeds Meter Company」出產的舊式小型水錶，外形與 1950 年代的水錶沒有太大分別，但款式較新穎，惟實際使用年份不詳。圓盤上除指針外，亦有字輪，指針每轉一圈，即為一百加侖，字輪上的數字便隨之跳動。水用量單位同以加侖計算。這種指針與字輪並用的水錶，反映逐漸以數字取代指針顯示用水量的趨勢。

This is another old type of small water meter manufactured by The Leeds Meter Company, a company in England. The shape is not much different from the 1950s meters, but the model is newer. The actual year of use is not known. In addition to having a sweep hand on the dial, there is also a set of moving number wheels. Every turn of the hand is 100 gallons, and the numbers on the wheels will move accordingly. The unit of water consumption is also calculated in gallons. This kind of meter with both a hand and moving number wheels indicates the trend of gradually replacing the pointer with numbers to measure the amount of water used.



三、藍色錶殼英制水錶
IMPERIAL METER WITH A BLUE CASE

這款藍色錶殼的小型水錶屬於英制水錶，以加侖作計算單位，於 1980 年代前期使用。不同於之前以水的流量計算，此款以容量計算水用量的水錶更為精準。

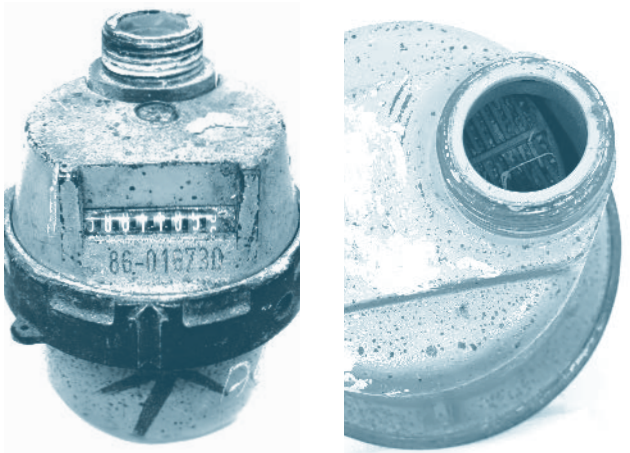
錶身上裝有「黑底白字」與「紅底白字」共八個位數的轉輪，用以記錄用水量。讀錶循左至右方向讀數，紅底白字為兩個小數位，可見錶上顯示「588118.5x」加侖（x 為小數點後第二個數字，在 5 與 6 之間）。同類藍色英制水錶還有六位及七位數、沒有小數位的款式。

此錶原有的塑膠蓋掩已損壞，設有蓋掩是為了減少灰塵積聚，避免阻礙抄錶員讀取度數。

Introduced in the early 1980s, this small meter with a blue case is an imperial meter with gallons as the unit of measurement. Unlike the previous models, which used the flow of water as the unit of measurement, this one is more accurate in calculating water consumption by volume.

The meter is equipped with eight-digit rotating wheels with ‘white letters on a black background’ and ‘white letters on a red background’ to record the amount of water used. The meter is read in a left-to-right direction, with two decimal digits in white on a red background, which shows ‘588118.5x’ gallons (x is the second digit after the decimal point, between 5 and 6). Similar blue imperial meters are also available with six and seven digits, and with no decimal places.

The original plastic cap of the meter has been damaged. The purpose of the cap is to minimise the accumulation of dust and to avoid blocking the meter reader from reading the numbers.



藍色錶殼英制水錶
Imperial Meter with a Blue Case

四、黃色錶殼公制水錶
METRIC METER WITH A YELLOW CASE

由於水務署於 1977 年改用十進制，這款 1980 年代後期較新安裝的黃色小型水錶，以公制的立方米計算，逐漸取代舊式以加侖作計算單位的藍色水錶。

此類水錶有兩個款式，分別是七位數字（三個小數位）及八位數字（四個小數位）。小數位同樣以紅底白字區分。

打開蓋掩，我們可見底部刻有「m^3」，反映其計算單位為立方米，以及「MADE IN ENGLAND」，為英國製造。

Since the Water Supplies Department adopted the decimal system in 1977, the newer yellow mini-meters installed in the late 1980s, which count in metric units, ie. cubic metres,

gradually replaced the old blue meters that counted in gallons.

There are two models of this type of meter: with seven digits (three decimal digits) or with eight digits (four decimal digits). The decimal digits are also distinguished by white letters on a red background.

Opening the cap, it can be seen that 'm³', meaning that the unit of calculation is cubic metres, and 'MADE IN ENGLAND', are engraved on the bottom.

黃色錶殼公制水錶
Metric Meter with a Yellow Case

五、現時小型水錶
MODERN MINI-METER

此為現時的小型水錶，為一般家庭用，設計沿襲 1980 年代後期的款式，以立方米（m^3）為單位。

This is the existing mini-meter designed for domestic use, following the design of the late 1980s, and is measured in cubic metres (m^3).

小型水錶
Mini-meter

六、現時中型水錶
MODERN MEDIUM-SIZED METER

現時沿用的中型水錶，水錶容量大小須依據用戶用水量調整，錶身可見箭咀顯示水流方向。

The current medium-sized water meter has a capacity that is adjusted according to the water consumption of the customer. The direction of water flow is indicated by the arrow shown on the meter.

中型水錶
Medium-meter

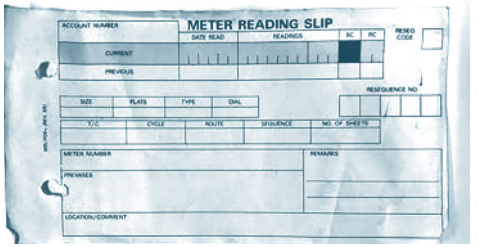
「甌窿甌罅」——抄錶員的工作日誌

SEARCHING EVERY NOOK AND CRANNY - THE DAILY ROUTINE OF A METER READER

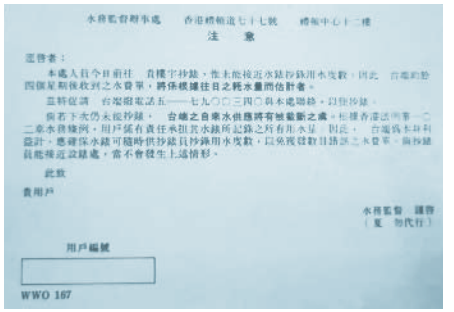
不過水錶的功能僅是記錄用水量，還須靠抄錶員前來讀錶才能計算到各單位的水費。如果只計「抄」的話，或許所花時間甚短，但因為有些樓宇的水錶位置在後期已經改動，間隔不同，水錶員其實很難找到。在 1996 年水務署職員刊物《九十年代的水務署》中，便有前抄錶員回憶當年在酷熱天氣下，到新界鄉村巡視，問了幾位村民都無從得知水錶所在位置，走得汗流浹背，一口氣喝完一公升的汽水；又試過到店舖視察水錶，未等店主帶路，一步入天井，「只見三、四頭『神高神大』狼狗，張牙舞爪向我直撲。哇！真是心膽俱裂。」抄錶員的工作，又豈只是「抄」這麼簡單呢？

However, the function of a meter is only to record the amount of water used. It is also necessary for the meter reader to read the meter in order to calculate the water bill of each household. It may only take little time if it is only to read the meter. However, the location of water meters in some buildings has changed over the years. Meter readers can hardly find the meters because the building layout of where the meters are located is no longer the same. In *The Water Supplies Department in the 1990s*, the department's staff publication in 1996, a former meter reader recalled a visit to a village in the New Territories in the heat of the day, asking several villagers for information about the location of the water meters but no one had a clue about it. The meter reader was so sweaty that he had to gulp down a liter of soda. There was also an occasion that the meter reader had to check the meter at a store. He recollected that before the shopkeeper led the way, he stepped into the patio and 'saw three or four big shepherd dogs ready to attack me with their teeth and claws. I was so scared!' This shows that the job of a meter reader is not as simple as just 'reading'.

抄錶員在樓宇天台工作的情形。
A meter reader working on the rooftop of a building.



昔日抄錶員會人手把讀數記錄在抄錶簿上。
In the old days, the meter reader would manually record the readings in the log book.



昔日如抄錶員未能接近水錶，便會發出通知卡聯絡用戶，以便下次順利抄錶。
In the past, if the meter reader was not able to get access to the meter, a notification would be issued to contact the user so that the meter could be read properly next time.

現時抄錶員都配有電子帳。此為舊式電子手帳。
Nowadays, all meter readers are equipped with a meter reading device. This is an old-style electronic device.

被反客為主的驗錶員

INTERACTION BETWEEN METER INSPECTORS AND CUSTOMERS

當市民覺得水錶不準確，以致繳付多了水費，便可以申請驗錶。水務署在龍翔道設有水錶測試實驗所，當市民繳交驗錶費後，收到通知就可以親身出席觀看整個測試過程。《九十年代的水務署》中，便載有當年在那實驗所工作的工程師，回憶起自己遇過的不同類型顧客，有的講求原則，為了今次水費比上次多數十元而不惜用 410 元申請驗錶（按： 2022 年的驗錶費為 810 元）；亦有些客人在驗錶過程中，不放過機會，利用這段空檔向驗錶員推銷產品，甚至睇相、介紹女朋友等，可謂反客為主，千奇百趣。

When people find that the water meter is inaccurate and they are paying more than they should, they can apply for a meter test. The Water Supplies Department has a meter testing laboratory on Lung Cheung Road. After paying the meter testing fee, members of the public will be notified that they can attend the testing process in person. In *The Water Supplies Department in the 1990s*, an engineer who worked in the laboratory at that time recalled the different types of customers he had encountered. Some of whom were so principled that they would spend $410 to apply for a meter test just because their water bill was $10 more than the previous one (the meter test fee for 2022 is $810). There were also some customers who did not let go of the opportunity to promote products, or even fortune telling and offer matchmaking services, etc. to the meter inspector during the testing process.

水錶測試工場。
The water meter testing laboratory.

一港兩制的演化

THE EVOLUTION OF ONE HONG KONG, TWO SYSTEMS

原來在供水網絡落成初期，香港人可免費享用供水，後來隨着公共衛生改革，加上食水長期不足之故，再逐漸轉成今天按用水量計算的收費模式。惟因為早期安裝水錶的政策遭到華人社群反對，殖民地政府當年曾推行一個過渡性政策 —— 旁喉系統，為期二十多年。

In the early days when the water supply network was in place, the people of Hong Kong had access to free water supply. Later, with the reform of public health system and the chronic shortage of water, the water supply was gradually changed to today's consumption-based charging model. Due to the opposition of the Chinese community to the installation of water meters in the early days, the colonial government implemented a transitional policy — a rider-main arrangement - for over 20 years.

早期的水務系統

WATER SUPPLY SYSTEM IN THE EARLY DAYS

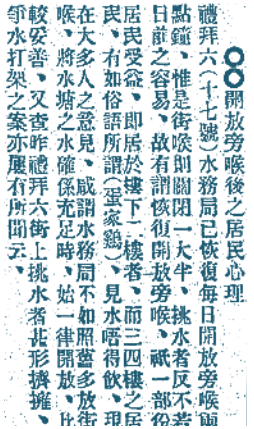
1860 年，港府興建薄扶林水塘時，已同步建立了整個供水網絡，由水塘輸送食水至維多利亞城。水管接駁到城市後，會供水至街道上的水龍頭，除了滅火和清潔之用，居民亦可從街喉免費得到食水，更有住戶直接接駁水管至店舖或屋內享用免費食水（主要是華籍紳商或歐籍居民），港府則由每季差餉租項中抽取 2%作為水務徵費。

但由於食水一直供不應求，同時經常出現浪費食水的情況，如部份街喉水閥會被人以木塞卡着，或以鐵鏈強行拉開，令食水長流；港府亦發現私人用戶中，華籍紳商的用水量明顯比需要灌溉花園草地的歐籍居民為多。政府因此於 1890 年開始研究如何減少浪費食水，包括浪費街喉食水者判罰錢十元（1882 年向挑水夫購買十加侖食水約需一仙），而私人用戶則必須安裝水錶（每季租金一元至 11 元），期望減少用水量。

In 1860, when the Hong Kong government built the Pok Fu Lam Reservoir, the entire water supply network was established in tandem, and water was conveyed from the reservoir to Victoria City. After the water pipes were linked to the city, water was supplied to the standpipes in the streets. In addition to fire-fighting and cleaning, residents could also get free water from the standpipes. Some residents even connected the pipes directly to their stores or houses to enjoy free water (they were mainly Chinese businessmen or European residents). The Hong Kong government took 2% of the quarterly rates as water charges.

However, the water supply was always short of demand, and water wastage was commonplace. Street valves were blocked by wooden plugs or forced open by chains, causing water to flow. The government also discovered that among private users, Chinese businessmen used even more water than European residents who needed to irrigate their lawns. In 1890, the government began to study how to reduce water wastage, including a fine of

$10 for wasting water from the standpipes (in 1882, it cost one cent to buy ten gallons of water from a water-picker), and private users were required to install water meters (at a rent of $1 to $11 per quarter), in the hope of reducing water consumption.



據 1926 年 4 月 17 日的《香港工商日報》，縱使旁喉開放，較高樓層用戶仍會因水壓不足而缺水供應，繼而導致鄰里糾紛。
According to *The Kung Sheung Daily News* of April 17, 1926, even though the rider mains were open, users on higher floors were still deprived of water supply due to low water pressure, resulting in disputes between neighbours.

據 1918 年 5 月 29 日的《香港華字日報》，因水塘存水有限，政府宣佈當日暫停旁喉食水供應，用戶需到街喉輪水。
According to *The Chinese Mail* of May 29, 1918, due to the limited storage of water in the reservoirs, the government announced the suspension of the supply of potable water at the rider mains on that day. Users needed to take turns for water at the standpipes.

一港兩制的供水模式

ONE HONG KONG, TWO SYSTEMS OF WATER SUPPLY

五年後，即 1895 年，香港開始實施兩種制度的供水模式：(1) 維多利亞城內所有樓宇可獲水管直接供水入屋，如該單位為商業用途，則需安裝水錶；(2) 維多利亞城外的樓宇不設供水入屋，居民用水須到街喉取水，惟歐籍居民則可申請水錶供水入屋。

同年油麻地抽水站落成，來自何文田附近水井及河溪的水源，開始被抽取再供應予九龍半島居民使用，亦以上列第二項方法供水。

安裝水錶者在扣除免費用水量（每季二千加侖）後，額外用水便須繳交水費（每一千加侖 0.25 元），但同時獲得 1.33% 的差餉減免。

再經七年，即1902年，香港食水供應較往年少，為減少用水量，港府計劃要求維多利亞城內所有住宅單位均安裝水錶、推行按量收費，但遇到極大阻力。用戶認為免費用水量不足以解決基本需求，按量收費會增添生活成本，物業業主亦表示他們難以向租客收取水費，租客亦沒有誘因為業主節省水費而節約用水。由於反對聲音甚多，港府轉為參考倫敦建立「旁喉」系統。

「旁喉」系統，指的是由業主及居民合資，於主喉旁邊安裝設有獨立開關的輸水管以獲取免費供水，而業主每季所繳交的水務徵費則作為定額水費。由於該段水管位於主喉旁邊，便稱為「旁喉」。而願意租用水錶者，則以「水錶喉」供水，其用水量會按量收費，並獲得差餉減免。當食水供應不足要制水時，港府會先暫停旁喉食水，而水錶喉則可繼續享有供應。旁喉系統容許港府根據食水存量去調節供應，當關閉旁喉系統時又不會影響主喉供水，令主喉長時間有水流動，可作緊急滅火之用，亦可避免主喉因缺乏水流而引致細菌滋生。

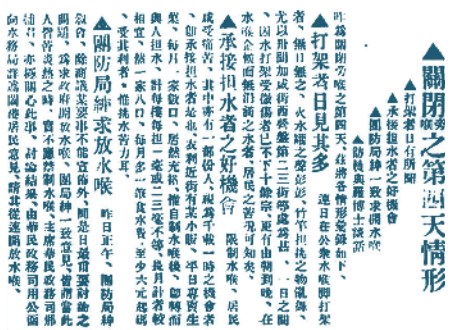
旁喉系統得到華人團體支持，有團體更曾上書英國理藩院詳列贊成原因。最終系統於 1904 年開始興建，1906 年全面落成，鋪設喉管約 28 里，供水至 7,291 戶單位。同一年，香港島安裝水錶的用戶只有 994 戶。

「水錶喉」與「旁喉」兩套供水系統同時存在了約三十年。由於香港一直缺水，在 1905 年至 1932 年間，旁喉用戶每年平均只享有 188 天供水服務，其餘時間均需到街上街喉輪候取水，並經常因取水而發生鄰里糾紛。雖然供水不穩定，但到 1932 年，仍有約 30%的港島區用戶使用旁喉系統。


▲對海之入屋旁喉問題

1927 年 8 月 27 日的《香港華字日報》，以「旁喉」形容九龍半島內，安裝水錶後接駁至用戶家中的輸水喉管，與香港島免費供水的「旁喉」系統並不相同。

In *The Chinese Mail* of August 27, 1927, the term 'rider main' was to describe the water pipes installed in the Kowloon peninsula and connected to users' homes after the installation of water meters, which was different from the rider-main system for free water supply on Hong Kong Island.


▲關閉旁喉之第二天情形

▲打架者日見其多

▲承接担水者之好機會

▲關防局紳求放水喉

據 1928 年 7 月 19 日的《香港華字日報》，1920 年代末，香港連續多年雨量不足而須暫停旁喉供水，更經常發生因爭水而打架的情況。

According to *The Chinese Mail* of July 19, 1928, in the late 1920's, Hong Kong had to suspend the water supply from the rider mains due to the shortage of rainfall for many years in a row, and there were frequent fights over water.

Five years later, in 1895, two systems of water supply were introduced in Hong Kong: (1) all buildings in Victoria City were supplied with water directly from the mains, but if the flats were used for commercial purposes, they had to be metered; (2) buildings outside Victoria City were not supplied with water and residents had to fetch water from the standpipes, but European residents could apply for metered water supply to their houses.

In the same year, the Yau Ma Tei Pumping Station was completed and water from the wells and streams near Ho Man Tin began to be extracted and supplied to the residents of the Kowloon Peninsula. Water was also supplied by the second method listed above.

After deducting the quota of free water (2,000 gallons per quarter), metered water users had to pay for additional water ($0.25 per 1,000 gallons), but received a 1.33% reduction in rates.

After seven more years, in 1902, Hong Kong's water supply was less than in previous years. In order to reduce water consumption, the government proposed that all residential units in Victoria City had to be metered and charged on a quantity basis, but met with strong opposition. Users believed that the free water quota was not enough to meet basic needs, and that charging by volume would impose additional costs of living. Property owners also said they had difficulty charging tenants for water, and that tenants had no incentive to save money for their landlords by saving water. Facing strong opposition, the Hong Kong government made reference to London's practice of setting up a rider-main arrangement.

The rider main system was a joint investment by the landlord and the residents to install a water main with a separate switch next to the main pipe to obtain free water supply. The quarterly water supply levy paid by the landlord as a fixed water charge. Since this segment of the water pipe was located next to the principal pipe, it was

called a 'rider main'. For those who were willing to rent a water meter, the water would be supplied through the 'metered water pipe'. The amount of water used would be charged accordingly and rates would be waived. When there was a shortage of water supply, the government would suspend the water supply to the rider mains and the metered pipes would continue to get the water. The rider main system allowed the government to adjust the water supply according to the amount of water available. Even the rider mains were turned off, the main water supply would not be disrupted, so that the water could continue to flow through the main pipe, allowing it to be used for fire-fighting and avoiding the breeding of bacteria in the main pipe due to the lack of water flow.

The rider main system was supported by the Chinese community, and a group wrote to the Colonial Office listing the reasons for their support. The installation of the system began in 1904 and was fully completed in 1906, with 28 miles of pipe laid to supply 7,291 households. In the same year, there were only 994 metered households on Hong Kong Island.

The two systems, metered pipes and rider mains, co-existed for about 30 years. Due to the constant shortage of water in Hong Kong, between 1905 and 1932, the average number of days of water supply via the rider mains was only 188 days per year. The rest of the time, people had to queue up on the street for water, and there were often disputes between neighbours over water supply. Although the water supply was unstable, by 1932, about 30% of Hong Kong Island users were still receiving water from the rider mains.

旁喉制度的終結

THE END OF THE RIDER MAIN SYSTEM

1920 年代末，政府開始考慮取消旁喉系統。由於歷經二十餘年，旁喉系統的喉管已見老化及淤塞，政府考慮到如重修旁喉，一來所費甚高，二來亦需於九龍區同樣增設旁喉系統，三來由誰負責重修費用將引起多番討論。

最終政府於 1932 年 8 月 18 日修例取消旁喉系統，並免費讓旁喉用戶領取水錶成為水錶喉。縱使當時仍有不少反對聲音，但最終這系統亦不復存在。時至今天，部份水務署職員仍會以「旁喉」稱呼由主喉分出來直接供應予用戶的一段輸水管道。

根據 1931 年的政府調查，由於旁喉系統免費供水，香港島的用戶日均用水量比九龍半島高 30%。

來到今天，旁喉系統並沒留下丁點痕跡，但扣除生活所需的用水量後採取按量收費，這種水費模式至今未變，今天攤開水費單仍可看到每季首 12.036 立方米（約 2,640 加侖）水費為港幣 0.00 元。

In the late 1920s, the government began to consider the abolition of the rider main system. After more than 20 years, the rider mains were ageing and clogged. The government took into consideration the high cost of rebuilding the pipes, the need to install the same pipes in Kowloon, and who should be responsible for rebuilding the pipes would lead to many rounds of debates.

Finally, on August 18, 1932, the government amended the law to abolish the rider-main system and water meters were available for free to rider-main users so that they could become metered water pipes users. Even though there was still a lot of opposition at that time, the system eventually ceased to exist. Today, some staff of the Water Supplies Department still use the term ‘rider main’ to refer

to the part of the pipeline that is separated from the main pipe and supplies water directly to users.

According to a government survey in 1931, the average daily water consumption on Hong Kong Island was 30% higher than on the Kowloon Peninsula because of the free water supply from the rider main system.

Today, the rider main system has not left a trace in Hong Kong. However, the water billing model of charging by volume, after deducting the amount of water needed for living, has not changed. The first 12.036 cubic metres (about 2,640 gallons) of water per quarter can still be found in today’s water bills at $0.00.

見證❸：水桶

TESTAMENT 3 : BUCKETS

資源短缺，距離香港人並不遙遠

今有全球水資源危機，昔有水塘乾竭

1929 年，一個個水桶
見證着香港制水的日子
旱情練就了這城市的危機意識

Hong Kong people are no strangers to resource scarcity.

Today there is a global water crisis; and in the past, reservoirs were depleted.

In 1929, buckets of water testified to the days of water rationing in Hong Kong, and the drought has sharpened the city's sense of crisis.

傳說中的七級制水令

THE SO-CALLED SEVEN TIERS OF WATER RATIONING

「七級制水」聽得多，但到底是哪七級？每級的供水時數是怎樣？ 1929 年的旱災令旁喉用戶苦不堪言，以水桶到街上取水成為當時的集體記憶，亦促成了水錶的普及。但其實早在 1929 年之前，香港已曾面對多次旱災，其中 1885 年及 1902 年的缺水問題尤其嚴重。1902 年，香港人口約 22 萬，最嚴峻時每日的供水時間僅得一小時。到了 1929 年，殖民地政府估算香港島及九龍人口已超過六十萬，須要實施最嚴重的七級制水，迫使政府後來努力開拓水源。

'Seven Tiers of water rationing' is often seen in the literature, but what exactly do these seven tiers refer to? What are the hours of water supply at each level? The drought of 1929 was so severe that it caused a lot of hardship for rider main users. The use of buckets to fetch water from the street became a collective memory and led to the popularisation of water meters. However, Hong Kong had already endured a number of droughts before 1929, with the water shortages in 1885 and 1902 being particularly severe. In 1902, with a population of about 220,000, Hong Kong's water supply was only available for one hour a day at the height of the crisis. By 1929, the colonial government estimated that the population of Hong Kong Island and Kowloon had exceeded 600,000, necessitating the most rigid seven-tiered water rationing and forcing the government to seek new sources of water.

七級限水制

SEVEN-TIERED WATER RATIONING

二十世紀初期的香港長年缺水，制水級別的限制亦曾多次修改。以下是 1929 年大水荒時香港實行的七級限制供水制度：

In the early 20th century, Hong Kong suffered from a chronic shortage of water and the levels of water rationing were revised a number of times. The following is the seven-tiered water rationing system implemented in Hong Kong during the drought in 1929.

限制編號 NUMBERING	限制級別 TIER	內容 CONTENT	1928 / 1929 年實施日期 DATE OF IMPLEMENTATION
1	沒有限制 NO RESTRICTIONS	所有水喉全日供水，此情況只會於水塘滿溢或接近滿溢時實施。 All pipes are supplied with water on an all-day basis, and this is only applicable when the reservoirs are full or close to their full capacity.	1928 年 8 月 9 日 August 9, 1928
2	一級限制 TIER 1 RESTRICTIONS	限制旁喉每日只供水 2 小時。 Water supply is restricted to 2 hours per day for rider mains.	1928 年 9 月 11 日 September 11, 1928
3	二級限制 TIER 2 RESTRICTIONS * 報章普遍稱為三級制水 Commonly referred to in newspapers as tier 3 restrictions	所有旁喉停止供水。街喉 24 小時開放。政府透過增減街喉數目限制供水量。 Water supply to all rider mains is suspended. Standpipes are open 24 hours a day. Water supply is controlled by adding or removing standpipes.	1928 年 11 月 1 日 November 1, 1928
4	三級限制 TIER 3 RESTRICTIONS * 報章普遍稱為四級制水 Commonly referred to in newspapers as tier 4 restrictions	街喉每日供水 12 小時。 Water supply to standpipes is limited to 12 hours per day.	1929 年 5 月 1 日 May 1, 1929
5	三級限制 TIER 3 RESTRICTIONS * 報章普遍稱為五級制水 Commonly referred to in newspapers as tier 5 restrictions	街喉每日供水 7 小時。 Water supply to standpipes is limited to 7 hours per day.	1929 年 5 月 28 日 May 5, 1929
6	三級限制 TIER 3 RESTRICTIONS * 報章普遍稱為六級制水 Commonly referred to in newspapers as tier 6 restrictions	街喉每日供水 5.5 小時。 Water supply to standpipes is limited to 5.5 hours per day.	1929 年 6 月 18 日 June 18, 1929
7	三級限制 TIER 3 RESTRICTIONS * 報章普遍稱為七級制水 Commonly referred to in newspapers as tier 7 restrictions	街喉每日供水 4 小時。 Water supply to standpipes is limited to 4 hours per day.	1929 年 7 月 2 日 July 2, 1929 （直至 7 月 22 日回復二級限制） (until July 22, when second-tired restrictions were reinstated)

大水荒前奏

PRELUDE TO A SEVERE DROUGHT

大水荒前奏由 1928 年盛夏開始響起：1928 年 7 月 1 日至 1929 年 6 月 30 日期間，香港皇家天文台記錄到的總降雨量只有 946.7 毫米，遠低於當年的全年最低降雨紀錄 1,164.2 毫米（1885 年）。（註：香港每年平均降雨量為約 2,300 毫米）

回到 1928 年 6 月，其時薄扶林水塘仍然滿溢，但由 7 月開始香港的降雨量劇減，同時一股熱浪來襲，城市用水量漸增，政府於 7 月 12 日宣佈東邊街以西的維多利亞城實施「一級限制」，15 日更擴大至花園道以西區域。

當時社會有謠傳，認為限制旁喉用水是政府迫使旁喉用戶安裝水錶的詭計。但其實水錶喉與街喉直接接通，當街喉全面開放讓大眾取水，部份高層（三樓及四樓）水錶戶亦會因水壓不足而缺乏食水供應。缺水的居民只得到街上的街喉輪候取水，吸引了當時的照相館拍攝西營盤永勝街的水桶長蛇陣情況。

7 月下旬，由於仍然未有足夠雨水，政府開始推行不同措施減少用水量，如潔淨局改用海水洗街、要求民眾一律改用火水桶輪水（當時有民眾以大木桶到街喉取水）、與香港仔大成紙廠磋商改建工廠水塘為香港仔水塘等。

接連大半個月限制供水令港人苦不堪言，特別是多勞多得的勞動階層，他們工作少一個下午便蒸發掉一個下午的工資，根本難以負擔漫長的輪候時間在街喉取水，唯有前往坑渠、公共廁所取水才能解決日常所需。華人領袖於是開始提出多個開拓水源的方法，包括增建水塘、截取新界的河水再運送至香港島，更大膽建議利用化學方法從海水中提取食水——而同年全球第一間海水化淡廠才開始於荷蘭動工。

直至 8 月 4 日，終於一連多日下起大雨來，政府才於 8 月 9 日重開旁喉。但當港人以為供水情況會日漸變好，香港自 8 月

過後卻又幾乎沒有下過一場雨，結果政府決定於 9 月 11 日重新實施「一級限制」，至 11 月 1 日起更實施「二級限制」，完全停止旁喉供水。為了盡快增加香港島的食水供應，政府決定加快興建跨海輸水隧道，更在 11 月完成九龍區的水管鋪設。

The prelude to the severe drought started in the summer of 1928. Between July 1, 1928 and June 30, 1929, the Royal Observatory Hong Kong recorded a total rainfall of only 946.7 mm, which was far below the lowest annual rainfall record of 1,164.2 mm in 1885. (Remark: The average annual rainfall in Hong Kong is about 2,300 mm)

Back in June 1928, the Pok Fu Lam Reservoir was overflowed. But from July onwards, the rainfall in Hong Kong dropped drastically, and at the same time a heat wave hit the city, resulting in a gradual increase in water consumption. On July 12, the government announced a ‘tier 1’ restriction to the west of Eastern Street in Victoria City. On July 15, the restriction was extended to the area west of Garden Road.

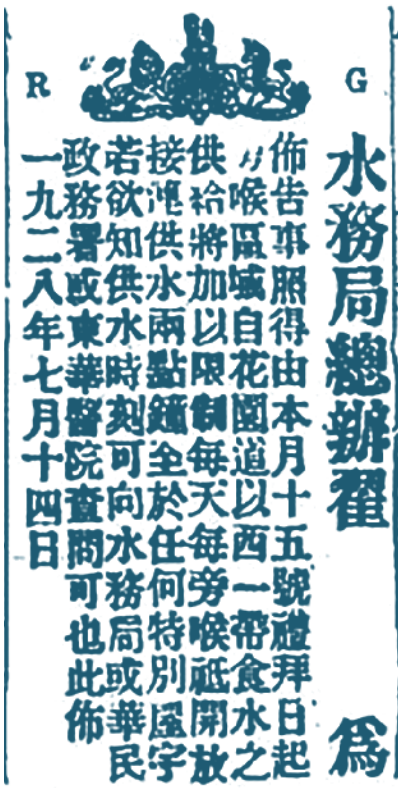
Rumours circulated at the time that the restriction was a ruse by the government to force rider-main users to install water meters. However, the metered water pipes were directly connected to the standpipes, and when the standpipes were fully opened for public access, some of the metered households on the upper floors (3rd and 4th floors) would also be deprived of fresh water supply due to insufficient water pressure. Residents who were short of water had to queue up for water from the standpipes, drawing the attention of a photo studio to take pictures of water buckets lining on Wing Shing Street in Sai Ying Pun.

In late July, the government began to implement various measures to reduce water consumption as there was still not enough rainfall. The Sanitary Board switched to seawater for street cleansing, required people to use

galvanised buckets to fetch water (some people were using large wooden buckets to fetch water from standpipes), and negotiated with Tai Shing Paper Manufacturing Company in Aberdeen to convert the factory's reservoir into the Aberdeen Reservoir.

The restriction of water supply for most of the month made life unbearable for the people of Hong Kong, especially to the working class, who earned more by working harder, they could not afford long hours of queuing for water in the street as they would have lost an afternoon's wages. Instead, they had to go to pits and public toilets to get water to meet their daily needs. Leaders of the Chinese community began to suggest ways to source water, including building more reservoirs, diverting river water from the New Territories and transporting it to Hong Kong Island, and even more daringly, using chemical technology to extract water from seawater — and it was in the same year that construction of the world's first desalination plant began in the Netherlands.

It was not until August 4, when it finally rained heavily for several days, that the government reopened the rider mains on August 9. However, when Hong Kong people thought that the water supply would be improved gradually, there was hardly any rain since August, so the government decided to re-impose the 'tier 1' restriction on September 11 and 'tier 2' restriction on November 1 to stop water supply to the rider mains completely. In order to speed up the supply of fresh water to Hong Kong Island, the government decided to expedite the construction of the cross-harbour water tunnel, and completed the installation of water pipes in Kowloon in November.



1928 年水務局實施一級限制的報章告示。刊於 1928 年 7 月 14 日《香港華字日報》。

A notice in the newspaper announcing the imposition of the tier 1 restrictions by the Waterworks Office in 1928. July 14, 1928, *The Chinese Mail*.

設置水櫃

INSTALLATION OF WATER TANKS

及至 1928 年下半年，水塘始終滴水未得，水務局於 11 月預計香港將持續缺水，遂向英國訂購四個鋼製水櫃，以水櫃取代部份街喉，令居民可以繼續 24 小時取水。水櫃放置於維港海畔一帶，初期放於西營盤西邊街、修打蘭街、上環街市及中環機利文街。每個水櫃設有 16 個水龍頭，並由運水船於荔枝角盛載淡水運送至水櫃注滿。新措施下，1928 年夏天的輪候苦況不再，災情總算稍得紓緩。

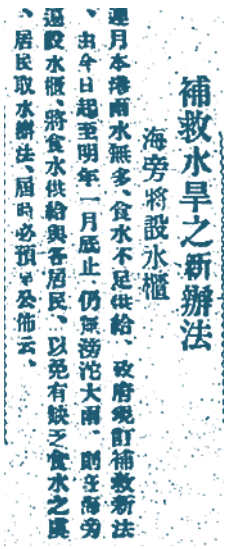
惟一如預期，來到 1929 年 2 月，香港降雨量依然極為稀少，政府唯有繼續停止旁喉供水（註：當年年初一至年初三除外，那三天仍全日供應旁喉食水）。結果 1 月至 4 月間香港降雨量只有九十毫米，水櫃於 3 月陸續重新安裝及開放供大眾使用。縱使設有水櫃輔助供應，但居民仍需等待數小時輪候食水，水喉旁排出長長水罐龍。其時警察會為水罐加上順序編號，但水罐被踢飛、盜去等問題仍經常發生。

由於水荒持續，港府於 6 月陸續於海旁建造鐵製及磚砌的水櫃，最終建成 21 個水櫃。所有水櫃於同年 8 月水荒結束後即時移走或拆卸，以免阻礙交通。

In the second half of 1928, reservoirs still had no water inflow. In November, anticipating a continuous shortage of water in Hong Kong, the Waterworks Office ordered four steel water tanks from England to replace some of the standpipes so that residents could continue to get access to water 24 hours a day. The water tanks were installed along the waterfront of Victoria Harbour, initially at Western Street in Sai Ying Pun, Sutherland Street, Sheung Wan Market and Gilman Street in Central. Each water tank was equipped with 16 taps and filled with fresh water delivered by water boats from Lai Chi Kok. With the new measures in place, the misery of queuing for water in the summer of 1928 was relieved.

However, as expected, by February 1929, rainfall was still extremely low and the government had no choice but to continue to suspend water supply to the rider mains (note: except for the first to third days of the Chinese New Year, when water was still supplied to the rider mains throughout the day). Only 90 mm of rainfall fell between January and April. Water tanks were reinstalled and opened for public use in March. Even though there were water tanks to supplement the water supply, residents still had to queue for water for hours, and there were long lines of buckets along the pipes. At that time, the police would put sequential numbers on the buckets, but buckets were still frequently kicked away or stolen.

The ongoing drought prompted the government to build metal and brick water tanks along the waterfront in June, eventually adding a total of 21 tanks. All tanks were removed or demolished as soon as the drought ended in August to avoid blocking the traffic.


補救水旱之新辦法
海旁將設水櫃

據 1928 年 12 月 18 日的《香港工商日報》，水櫃乃補助方法，向居民提供食水。
According to *The Kung Sheung Daily News* of December 18, 1928, the installation of water tanks was a remedy to deliver potable water to the residents.

在緊急法下逐水

SEARCHING FOR WATER AMID THE EMERGENCY REGULATIONS ORDINANCE

1928 年的這場水荒，最終在次年 8 月才告終結，長達 11 個月之久。這場水荒令殖民地政府想方設法「逐水」，不但試行人造雨，更通過緊急條例，徵用所有船隻，試圖從中國內地或東南亞運水；又要求九廣鐵路建造二十卡運水火車，由新界運載食水至九龍。至於在民間，危機當前，香港人亦盡顯靈活變通的一面，改變生活習慣以應對制水，更自發組織自衛隊維持輪水秩序。

The 1928 drought finally ended in August of the following year and lasted for 11 months. The colonial government had been racking its brains to find new sources of water, not only by trying to artificially induce precipitation, but also by passing emergency regulations to requisition all vessels to transport water from mainland China or Southeast Asia, and to request the Kowloon-Canton Railway to build a 20-car water train to transport water from the New Territories to Kowloon. In the community, Hong Kong people were also showing their flexibility and adaptability, changing their way of life to respond to water rationing. Some even organised themselves to maintain order when people were queuing for fresh water.

求助於五湖四海

ASKING FOR HELP FROM ALL OVER THE WORLD

上文提到，設置水櫃的安排雖改善了旁喉用戶的供水情況，但要解決水荒，還需增加水源並同時減少浪費食水。1929 年，水荒問題於 4 月過後持續加劇，除了大潭篤水塘外所有水塘均已枯竭，港府分別於 5 月 1 日及 28 日實施「四級」和「五級制水」，進一步收緊街喉供水時間至每天只有七小時，同時亦要求報章要加入節水訊息，如「請勿耗水」或「PLEASE DON'T WASTE WATER（請勿浪費食水）」。

6 月 12 日，港府成立了一個由官員、外資商人、華人紳商組成的「救濟水荒特別委員會」，撥款十萬處理水荒問題，委員會通過政府有權徵用所有船隻來運水。

為了開拓更多水源，船隻會駛到中山橫門水道取水至香港島水櫃。港府亦曾派出英軍到廣東西江取水辦化驗，可惜發現沙泥甚多不合飲用。陸路方面，港府亦派出貨車從慈雲山、元朗運水到油麻地出售，更要求九廣鐵路建造二十卡運水火車，由大埔運載食水至九龍。

尋求海外支援亦屬殖民地政府考慮之列。港府曾聯絡小呂宋、西貢、新加坡的英國代表運來食水，又委託德忌利士公司、渣甸公司由上海運水回港，研究上海供水能否成為一個持續而穩定解決香港水需求的方法。

As mentioned above, although the water tanks provided an improved water supply to rider-main users, it was necessary to look for more water sources and reduce water consumption as possible solutions to the water crisis. In 1929, water scarcity continued to intensify after April, and all reservoirs except Tai Tam Tuk were depleted. The government implemented 'tier 4' and 'tier 5' water rationing on May 1 and 28 respectively, further restricting water supply to only seven hours a day. Newspapers were required to include water saving messages like 'PLEASE DON'T WASTE WATER'.

On June 12, the Hong Kong government set up a 'Special Committee for the Relief of Water Crisis' composed of officials, foreign and Chinese businessmen as well as members of the high society to allocate 100,000 dollars to tackle the problem of water shortage. The committee endorsed the government's right to requisition all vessels to convey fresh water.

In order to source more fresh water, ships and steamers were sent to Hengmen Waterway in Zhongshan to fetch water and deliver it to the water tanks on Hong Kong Island. The Hong Kong government also sent British troops to Xijiang River in Guangdong to collect water for testing, but unfortunately it was found to be too sandy and muddy for drinking. Overland, trucks were sent to transport water from Tsz Wan Shan and Yuen Long to Yau Ma Tei for sale, and the Kowloon-Canton Railway was requested to build a 20-car train to transport water from Tai Po to Kowloon.

Seeking overseas backup was also considered by the colonial government. British representatives in Luzon, Saigon and Singapore were contacted in the hope of shipping water to Hong Kong. Douglas Lapraik & Company and Jardine, Matheson & Company were commissioned to ship water from Shanghai to Hong Kong in order to examine whether getting water from Shanghai would be a sustainable and reliable solution to meet the city's water needs.

政府要求報章須刊登節水訊息，期望降低用水量。
The government required newspapers to publish water saving messages in the hope of reducing water consumption.

實施最高限制

ENFORCING THE STRICTEST TIER OF RATIONING

雖然港府多管齊下以求增加水源，但食水運輸、對外協商、水管鋪設等均需要時間處理，如外地水源便需要 8 月才能供應香港；加上 6 月中旬即使曾下過兩日大雨，但水塘存水仍然持續下降。情勢危急，政府惟有再度收縮政策，包括於 6 月 18 日宣佈升級至「六級制水」，街喉開放時間再縮短至每日 5.5 小時；又開始測試人造雨技術，參考非洲經驗於空中噴撒高嶺土，但最終因為成效甚微而且成本極高而告終止。到 6 月 28 日，政府再決定取締建築商、花園用家及酒樓業高用量用戶的水錶，即使酒樓洗碗用水亦須到街喉輪侯。

最嚴峻的「七級制水」於 7 月 2 日開始生效，每日只供水四小時，而水塘存量則在 7 月 11 日再創新低，當時政府估算若再不下雨，六十天後所有水塘將全部枯竭。

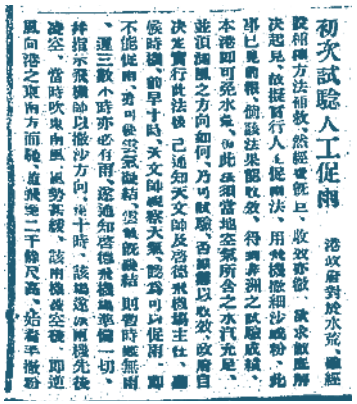
正當香港的水源已幾乎走到絕路，7 月中終於迎來連場暴雨，為經歷了 11 個月水荒的香港人帶來了續命的淡水。這時水塘水位陸續回升，政府於 7 月 22 日終於終止「七級制水」，回復所有街喉全日供水的「二級限制」。各區居民終於能鬆一口氣，水錶喉家中的水喉更再次可全日長開。

Despite the government's multi-pronged approach to seek more water sources, the situation was critical as water transportation, external negotiations, water pipe laying, etc. all took time to process. For instances, overseas fresh water would not be available in Hong Kong until August. In addition, even though it had rained heavily for two days in mid-June, water storage in reservoirs continued to decline. The government had to tighten the policy again, including escalating to 'tier 6' of water rationing on June 18 and the opening hours of standpipes were shortened to 5.5 hours a day. Experiments on artificial rain technology were carried out with reference to the experience of Africa in spraying kaolinite in the air, but eventually it was suspended due to poor results and extremely high costs.

By June 28, the government decided to cancel the meters used by builders, garden users and high volume users in the catering industry. Restaurants were also required to turn to standpipes for dishwashing water.

The most severe 'tier 7' of water rationing came into effect on July 2, with only four hours of water supply per day. On July 11, reservoirs' capacity hit a new low, and the government estimated that if there was no more rain, all reservoirs would be depleted in 60 days.

Just when Hong Kong was almost running out of water, soaking rains finally arrived in mid-July, bringing fresh water to Hong Kong people after 11 months of water crisis. The water levels in the reservoirs rebounded. The government finally ended the 'tier 7' of water rationing on July 22 and reinstated the 'tier 2' restriction on all standpipes. Residents in all districts could finally breathe a sigh of relief, and metered households could once again have running water all day long.



初次試驗人工促雨

據 1929 年 6 月 20 日的《香港工商日報》，香港於 1929 年曾進行人造雨實驗，但失敗告終。

According to *The Kung Sheung Daily News* of June 20, 1929, Hong Kong experimented, though in vain, with artificial rain in 1929.

民間自救

THE COMMUNITY WAS LEFT TO THEIR OWN DEVICES


水荒救濟問題
香港水荒人心惶惶之救濟之法
唯一
浣雲霜
「浣雲霜以浣衣」實行減少用水之一法耳
耗水至六七加倫
節省至於十倍
須用水兩磅
達於三份之一矣

據 1929 年 6 月 13 日的《香港工商日報》，水荒問題在夏天達至高峰，商人推薦較節水的洗衣方法應付天熱多汗的日子。

According to the June 13, 1929 issue of *The Kung Sheung Daily News*, the water crisis reached its peak in the summer. Businessmen recommended water-saving laundry solutions in response to the hot and sweaty days.

至於在民間，為期 11 個月的水荒中，香港人亦以各種方法應對缺水。自從 5 月每日供水 12 小時開始，勞動階層的其中一個生活習慣 —— 食飯時間改變了。香港早年大部份商戶皆為員工提供「包伙食」福利，由舖中的「伙頭」負責提供每日上午 9 時早飯，和下午 5 時的晚飯。但制水期間，由於每天早上 6 時才開始供水，伙計每天一早便要開始為覓得當日所需食水而辛勞頻撲，加上煮食用的廚房亦是儲水前線，因此往往令「伙頭」無暇亦無空間去處理早飯，進膳時間往往需延後至早上 10 時半。而晚餐時間亦受影響，為了趕及在制水前可以洗澡，員工們下午 4 時已要吃飽晚飯，然後分批洗澡。

當供水時間進一步收緊，便愈來愈多居民須到街喉和水櫃輪候食水。當時港府會派出警察到輪水處維持秩序，然而當時警民之間會因為言語不通或分水不公而造成衝突，更曾有居民於街喉處圍毆警察，或警察「濫用警棍」而被法院指責。各區街坊有見及此，於實施「七級制水」後決定組成自衛團，自行維持取水秩序。隨着街喉恢復全日供應，自衛團於 7 月尾自行解散。

而部份未能忍受制水生活的華人，則選擇了離港回鄉。在 1929 年 6 月底水荒愈見嚴重之時，每日有二、三千人乘搭火車返回廣州。總結整個水荒期間，約有七萬居民選擇離開香港。

In the community, during the 11-month water crisis, Hong Kong people responded to the drought by various means. One of the routines of the working class — meal times - had changed since May, when the daily water supply was reduced to 12 hours. In the early years of Hong Kong, most businesses provided 'meal package' for their employees. The cook in a shop was responsible for providing breakfast at 9am and dinner at 5pm every day. However, during water rationing, water supply started at 6am, so the staff had to start working early in the morning to get the water needed for the day. In addition, the kitchen was at the forefront of reserving water. The cook had no time or space to make breakfast, and the meal time was often delayed until 10:30am. Dinner time was also compromised. In order to take a shower before the suspension of water supply, the staff had to have dinner at 4pm and then took turns to take a shower.

When the supply of water was further tightened, more and more people had to turn to standpipes and water tanks to get water. Police officers were sent to maintain order at locations where people were queuing for water. However, there were conflicts between the police and the public due to language barrier or unfair distribution of water. There were even cases of residents beating up police officers stationing at the standpipes, or officers 'using batons indiscriminately' thus being accused by the court. As a result, local residents decided to form self-defence groups to maintain order when queuing for water, after the enforcement of 'tier 7' of water rationing. With the resumption of full-day water supply, the self-defence group was disbanded at the end of July.

Some of the Chinese people who could not endure water rationing chose to leave Hong Kong and return to their

homeland. At the end of June 1929, when the water crisis became more severe, 2,000 to 3,000 people were returning to Canton by train every day. In total, about 70,000 people chose to leave Hong Kong during the water draught.

一加侖水洗澡妙法

據 1963 年 5 月 19 日《香港工商日報》的報導，《南華早報》於 1929 年曾刊出「一加侖水洗澡妙法」，以兩塊海綿及四分一個火水桶的水，為身體進行「半乾洗」。

According to *The Kung Sheung Daily News* on May 19, 1963, the *South China Morning Post* published in 1929 'The Magic of Bathing with a Gallon of Water', which recommended people to use two sponges and a quarter of a bucket of water to give the body a 'semi-dry wash'.

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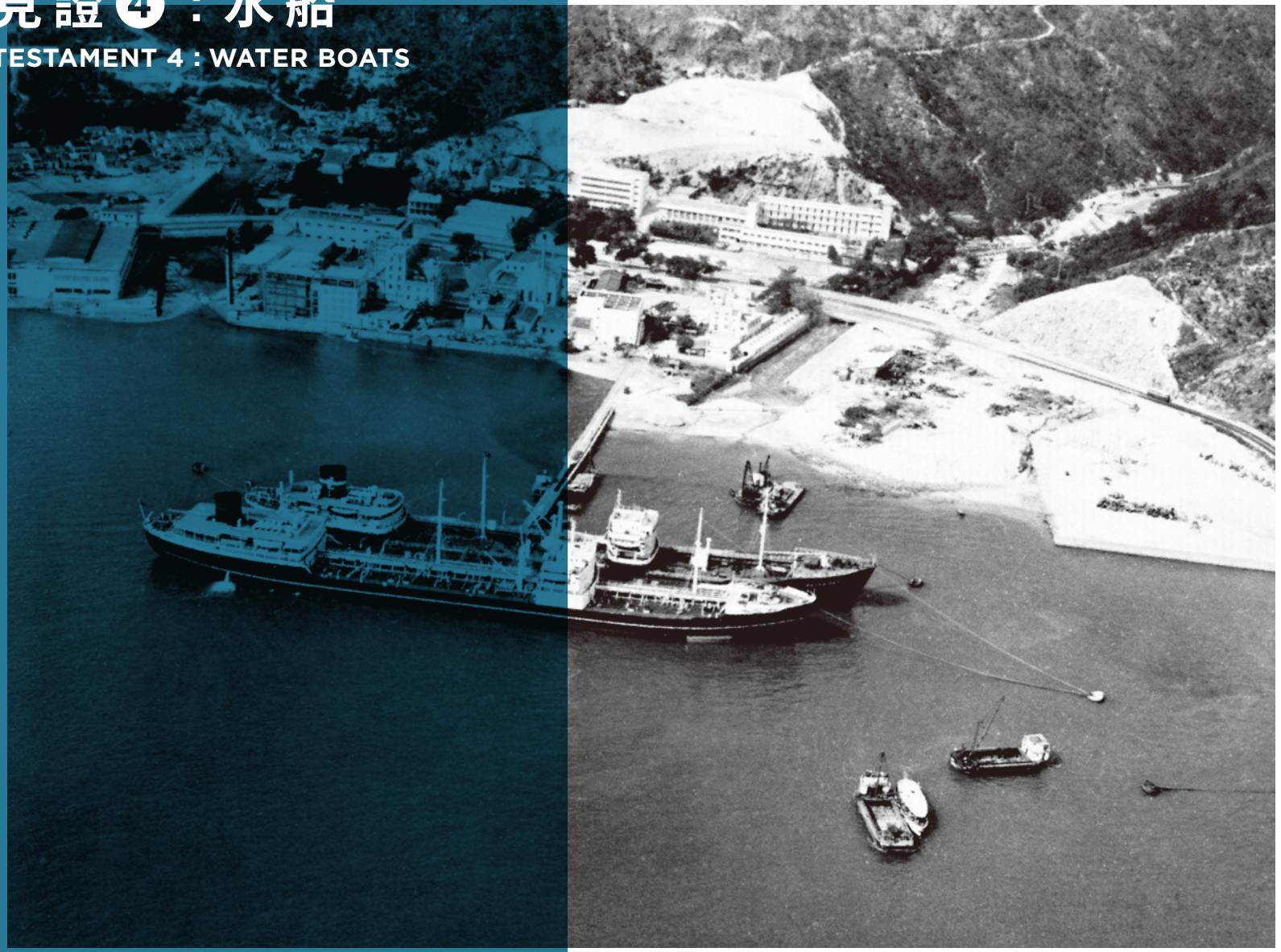
這一場九十年前的水荒已逐漸被人淡忘，但為期 11 個月的雨荒對香港供水影響深遠，包括加快興建橫跨維港的輸水隧道、令香港供水由區域性的一港兩制轉變為全港性的供水網絡。水荒後港府亦增加了各個水塘的集水量與儲水量，更開始研究於大欖涌興建大型水塘，尋求不用再陷於水荒的辦法。

The water drought of 90 years ago has gradually been forgotten, but having had no rainfalls for 11 months had far-reaching effects on Hong Kong's water supply policy, including speeding up the construction of a water tunnel across the Victoria Harbour and transforming a regional 'one Hong Kong, two water supply systems' to a territory-wide water supply network. After the drought, the government also increased the water catchment and storage capacity of various reservoirs, and began to study the construction of a large-scale reservoir in Tai Lam Chung, with the aim of looking for solutions to avoid being plagued by water scarcity again.

見證❹：水船

TESTAMENT 4 : WATER BOATS



1960 年代，難民逃港
香港五荒，其中包括水荒

恐慌與憂心之中
掘井賣水、鑽科學井、以船運水
是政府企業與民間各方大規模動員的求存努力

In the 1960s, refugees fled to Hong Kong. There were five shortages in Hong Kong, including water shortage.

Panicked and anxious, government, enterprises and the private sector mobilised people to dig wells and sell water, drill scientific wells, and transport water by boat in an effort to survive.

民間賣水業的黃金時期

THE GOLDEN AGE OF WATER TRADING BUSINESS

1929 年的水荒過後，政府已帶着危機意識繼續加建水塘。惟降雨量非人力所能控制，加上香港人口持續膨脹 —— 1929 年香港人口僅約六十萬人，來到 1963 年卻已達三百五十萬人，其時還持續有大批人口自國內逃難到港，兼之本地工業起飛，整個城市對食水及工業用水的需求皆愈發龐大。

偏偏在 1963 年，香港卻經歷了「五荒」，分別是屋荒、水荒、學校荒、醫院荒、墳墓荒。單看水荒，香港的全年降雨量跌至 901.1 毫米，比起 1929 年水荒的 946.7 毫米還要更低，是天文台成立以來最低的雨量紀錄。（註：據天文台記錄，2019 年本港全年降雨量近二千四百毫米）

不難想像，在那生活保障匱乏、涓滴難求的年代，民間、工廠、農民都是惜水如金，且常為水奔波。不少人更覷準機遇，將一桶桶水變成財富，由基層婦女和年輕小伙子挑水販賣，到鄉村居民挖掘水井謀利，連用貨車運水的販商都分了一大杯羹，買賣水業可謂百花齊放。在廣東話中，「水」常常用以代表金錢，「一嚟水」是一百元，「有錢」叫「疊水」、「借錢」叫「踱水」、「騙錢」叫「昆水」、「付款」叫「磅水」、「謀取暴利」叫「掠水」、「退錢」叫「回水」；在那制水年代，水確實與金錢有直接關係。

水荒期間，市民攜帶桶子排隊取水的景象隨處可見。
During the water crisis, the sight of people lining up with buckets to get water was commonplace.

After the water drought of 1929, the government continued to build more reservoirs with a sense of crisis. However, the rainfall was beyond human control, and the population of Hong Kong continued to grow - in 1929, there were only 600,000 people in Hong Kong, but by 1963 it had reached 3.5 million, and a large number of people continued to flee to Hong Kong from China. As local industries started to take off, the city's demand for fresh water and industrial water use became increasingly enormous.

Ironically, in 1963, Hong Kong was undergoing 'five shortages', namely housing shortage, water shortage, school shortage, hospital shortage and tomb shortage. Focusing on the water shortage, the annual rainfall in Hong Kong dropped to 901.1 mm, which was even lower than the 946.7 mm in the 1929 water drought, and was the lowest rainfall record since the establishment of the Observatory. (Note: According to the Observatory's records, the annual rainfall in Hong Kong in 2019 was close to 2,400 mm)

It is not difficult to imagine that in those days when livelihood security was poor and fresh water was hard to come by. Communities, factories, and farmers all cherished water like gold and were often running around in search of water. Some people saw the opportunity to turn buckets of water into wealth. Working-class women and young people carried water for sale, villagers dug wells for profit, and water vendors who transported water by truck got a big share of the pie. The water trading business was blossoming. 'Water' means 'money' in Cantonese slang. 'One Hulk of water' is 100 dollars; 'to stack up water' is to get rich, while 'to pace water' is 'to borrow money'. 'Boiling water' means 'to deceive someone in order to get money'; 'to weigh water' means 'to pay'. 'Ripped off water' is to describe the act of 'profiteering'; and giving back money or paying compensation is known as 'return of water'. In the days of water rationing, water was indeed directly related to money.

水荒亦導致田地乾裂，農民苦不堪言。
The water crisis also dried up the fields and farmers were plagued with hardship.

水漲船高的水價

SOARING COSTS OF WATER

街頭輪水苦 水桶擺長龍
秩序應設法維持
盛水器具繼續漲價
買水每担高至一元

據 1954 年 4 月 26 日的《香港工商日報》，除了水價上漲，連盛水器具亦因市民搶購而漲價。
According to *The Kung Sheung Daily News* of April 26, 1954, in addition to the increase in the water price, the price of water containers also increased due to panic-buying.

1954 年，水荒重現，香港再度每天供水僅四小時。因輪水困難，不少市民都逼不得已要買水，尤其住在如深水埗木屋區般人口稠密的地方，或如筲箕灣山村井水乾涸的村落。當時有賣水船從鯉魚門外運來井水，停泊於西灣河菜市場海旁外發售，一桶五加侖的水（即 22.5 公升）可賣一毫（當時一毫可買到兩碗粥）。亦有人買山坑水，更有九龍水務局的工人鋌而走險，偷竊水塘記錄站內的水，於夜間販賣，每兩加侖售一毫，最後由喬裝買水的警探拘控。

惟下個十年沒有更好，1960 年代，水荒危機仍是從未間斷。由初期每天只供水三小時到隔日供水，再到 1963 年實行最嚴厲的「七級制水」，每四天才供水一次，每次供水四小時。返回 1963 年，3 月時各水塘的總存水量已只剩下 51%，至 4、5 月亦未等待到甘霖降臨，政府遂於 5 月 2 日開始實施制水，每天供水三小時；到 5 月 16 日再改為每兩天供水四小時；最後

6 月 1 日當水塘總存量只剩 1.7% 時，便是最經典的每四天才供水一次。

當時每家每戶都會到街喉前排隊輪水，用火水鐵桶盛載。有些吃得苦的婦女以擔水維生，到不同地區，上門詢問是否需要賣水，被稱為「擔水婆」；又有還在唸初中的年輕人利用這個機會賺取外快，賺來的錢會用來補貼買菜，讓家人吃好一點。不過，擔水服務亦不時被壓價。據美荷樓生活館的口述歷史訪問，當年曾取水以賺外快的初中生仇振輝，曾住在砵蘭街，知道那一邊也有制水站，所以便去代人拿水，每次賺三毫子。惟當初他不習慣平衡水桶，前後各一個水桶，水桶裏的水經常會「浪」。當他回到徙置區的時候，水已經少了一部份，因此有些太太會壓價，扣仇振輝一毫子。

1963 至 1964 年制水期間，不論男女老幼都一起「出動」輪水、挑水，有人更以代人取水謀生。
During the water rationing in 1963 and 1964, men and women, young and old had to be all hands on deck to collect and carry water. Some even made a living by fetching water for others.

香港文化博物館藏品 The Collection of Hong Kong Heritage Museum

In 1954, Hong Kong was once again hit by a water drought and the water supply lasted only four hours a day. Many people had no choice but to buy water, especially those living in densely populated areas such as the squatter settlement in Sham Shui Po, or in villages such as Shau Kei Wan where the wells had dried up. There were water boats that brought well water from outside Lei Yue Mun and moored outside the waterfront of Sai Wan Ho Market. Each five-gallon bucket of water (22.5 litres) could be sold for ten cents (at that time, one cent could buy two bowls of congee). There were also people who bought water sourced from the hillside. Some workers from the Kowloon Waterworks Office took the risk of stealing water from the reservoir recorder house and selling it at night for ten cents per two gallons, and were finally arrested and charged by the police who disguised themselves as water buyers.

But the next decade was no better. In the 1960s, the water shortage crisis persisted. At the beginning, the water supply was three hours a day, then every other day, and then in 1963, the most severe 'seven-tier system' was implemented, with water supplied only once every four days, for four hours each time. In 1963, the total water storage in all reservoirs was only 51% in March, and there was no rain in April and May. The government started water rationing on May 2, with a three-hour supply every day. On May 16, it was changed to a four-hour supply every two days. Finally, on June 1, when the total water storage in reservoirs was only 1.7%, the four-day rationing measure was introduced.

At that time, every family would line up in front of the standpipes and fill the galvanised buckets with water. Some hardworking women made a living by carrying water, going to different districts to sell water, and were called 'water-carrying maids'. Some teenagers who were still in junior high school took this opportunity to earn extra money, and the money they earned went to subsidise the purchase of groceries, so that their families could have

better meals. However, the price of the water delivering service was suppressed from time to time. According to an oral history interview by the Heritage of Mei Ho House Museum, Chow Chun-fai, a junior high school student back then, who used to fetch water to earn extra money, lived in Portland Street and knew that there was a water station there. He went to fetch water for people and earned 30 cents each time. But at first he was not used to balancing the buckets, one at the front and one at the back, and the water in the buckets kept popping out. When he returned to the resettlement area, the buckets were already partly empty. Some of the housewives dickered with him over the price and deducted ten cents accordingly.

豬籠入水的井水買賣業

THE LUCRATIVE BUSINESS OF WELL WATER TRADING

除了一般市民飽受制水之苦外，一眾行業亦深受其害。飲食業、漂染業、五金工程等，為維持生意命脈，各行各業都窮盡方法「磅水」付費，以確保穩定的水源供應。此時井水買賣行業便應運而生，造就幾批靠着「水為財」致富的人。

自 1963 年 6 月開始實行制水措施，在此後一、兩個月內，沙田大圍與白田兩村已開始發展井水生意。兩村原有水井二十多個，因井水清冽，村民向來用作食水，自水荒日趨嚴重後，水井主人靈機一觸，開始出售井水，每五十加侖售一元，港九各大茶樓酒家都紛紛爭相買水。眼看財源滾滾來，兩村村民便立刻連夜開掘水井。短短半個月，兩村的水井便由二十多個增至百餘個。最繁忙的一天，每井幾乎同時有三個水泵汲水，水源仍能供應不絕，令水井主人每日收入近二百元，相當「疊水」。

根據當時報章報導，賣出市區的井水有逾六成來自沙田，供水量最高的是大圍村八個水井，24 小時內可供水 26 萬加侖。制水一年下來，水價曾因井水買賣競爭激烈而略減，但村民和販商仍獲利不少。

除了水井的主人外，在水荒中發財的，還有用貨車運水的販商，盈利額同樣驚人。每一輛大型貨車，可裝載廿個五十加侖的大水桶，而 1963 年 6 月從村民購買回來的每桶水的成本為一元，以每桶水售價三元算起來，每車淨收入達四十元。如果一天來回八次，扣減燃料、車租等，全日可獲二百五十元。最高峰時期，每天出入新界的運水貨車可達二百多輛，共同將四十萬加侖的「生命之源」交到食肆與工商用家手上，延續各行各業的生命線。

隨着 1964 年水荒結束，賣水行業曾一度式微，但在 1967 年制水重臨時，生意又告復現。1967 年水價已升至每一千加侖達七十元之高。眼看利之所在，有不少運輸貨車均改裝上大水桶，專門從新界運水到九龍供應各茶樓酒家。運水販商亦並非在市面隨意向人兜售，而是各有長期顧客，他們需經常派專人到各酒家茶樓接洽生意，故賣水已不單是代為運水的工作了。

至 1967 年制水期終於告終，當時自來食水仍有鹹度，而新界各區茶樓已多用井水泡茶而大受茶客歡迎。為爭取顧客，酒家茶樓不惜繼續增付一筆買水錢，運水車業務依然大有可為。


市區大鬧水荒沙田却有井水出賣
每天賣水收入萬餘元
兩村村民無端端發達
用貨車運水者多獲厚利
每五十加侖水一元買入三元賣出

據 1963 年 6 月 23 日的《香港工商日報》，大圍與白田村村民曾賣井水致富。
According to the June 23, 1963 issue of *The Kung Sheung Daily News*, villagers in Tai Wai and Pak Tin villages got rich by selling well water.

In addition to the general public suffering from the water rationing, many other industries had also been affected. In order to sustain their businesses, the catering industry, textile bleaching and dyeing industry, hardware engineering etc., had exhausted all means to pay for a stable water supply. The well water trading business came into existence and certain people got rich by selling water.

Within a month or two after the implementation of water rationing measures in June 1963, two villages, Tai Wai and Pak Tin in Shatin, started to develop the well water trade. There were more than 20 wells in the two villages. The wells were used for drinking water because of the crispness of the water. Since the water crisis became more severe, the owners of the wells started selling water at $1 per 50 gallons, and all the major teahouses and restaurants in Hong Kong and Kowloon competed to buy the water. Seeing that huge profits could be made, villagers immediately kept digging wells. In just half a month, the number of wells in the two villages increased from more than 20 to more than 100. On the busiest day, there were almost three pumps drawing water from each well at the same time, and the water supply was still uninterrupted. Owners of the wells each earned a huge profit of nearly 200 dollars a day.

According to newspaper reports at the time, more than 60% of the well water sold in the urban area came from Sha Tin, and the highest water supply was from eight wells in Tai Wai Village, which could supply 260,000 gallons of water in 24 hours. After a year of water rationing, the prices of water had been slightly reduced due to fierce competition in the well water trade, but villagers and vendors still made a huge profit from it.

In addition to the owners of the wells, those who made a fortune in the water crisis were vendors who transported water in trucks, and the profits were equally impressive. Each large truck could carry twenty 50-gallon buckets of water, and the cost of each bucket of water purchased

from the villagers in June 1963 was one dollar. With a price of three dollars per bucket, the net income per truck was forty dollars. If you make eight round trips a day, after deducting fuel and car rental, one could earn $250 a day. At its peak, there were more than 200 water trucks travelling in and out of the New Territories every day, collectively delivering 400,000 gallons of water to restaurants and industrial and commercial users, sustaining the lifelines of various businesses.

With the end of the water crisis in 1964, the water trade was once in decline, but resumed in 1967 when water rationing reinstated. The price of water rose to as much as $70 per 1,000 gallons. Motivated by the high profit of the trade, many trucks were retrofitted with large tanks and transported water from the New Territories to Kowloon to serve the restaurants and teahouses. Water vendors did not just sell water to people in the market randomly, but had long-term customers. They had to send people to restaurants and teahouses to negotiate deals, so selling water was not just a job of transporting water.

By 1967, water rationing finally came to an end. At that time, the tap water still had a salty taste, but teahouses in the New Territories were already using well water to make tea, which was welcomed by tea drinkers. In order to get more customers, restaurants and teahouses did not hesitate to pay an additional sum of money for buying well water, and the water truck business was still very promising.

缺水年代政府與企業的求存與求財

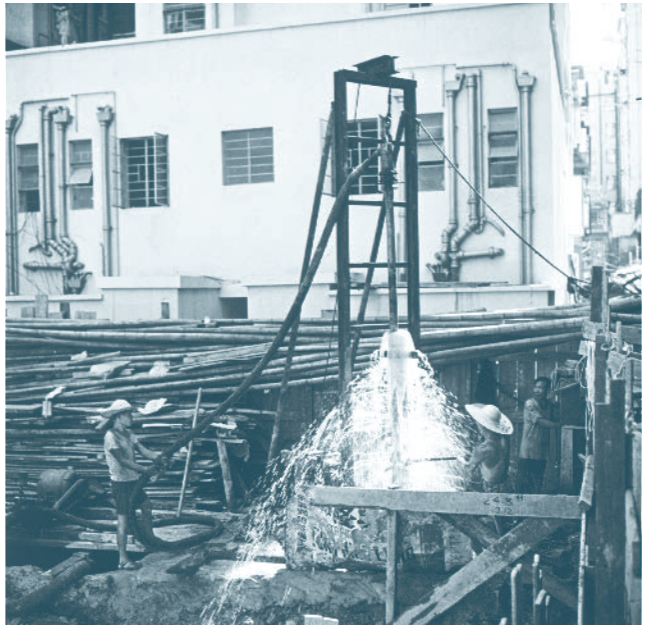
THE SURVIVAL AND PROFITABILITY OF GOVERNMENT AND ENTERPRISES IN TIMES OF WATER CRISIS

1960 年代的制水時期，井水買賣的生意並不限於將新界鄉村的水源運送全港；在市區裏也可以靠鑽井發財，一個井甚至可賺上七萬元。那是更大規模的「科學井」工程，流行於大企業和工廠之間。其勢所趨，最後連政府也不得不加入鑽井市場，並銷售「水券」，以應付工商業用水供不應求的情況。

During water rationing in the 1960s, well water trade was not limited to transporting water from the villages in the New Territories to other parts of Hong Kong. One could also make a fortune in the urban areas by drilling wells, and one well could make up to a profit of $70,000. These large-scale projects, namely ‘scientific wells’, were popular among large corporations and factories. Eventually, the government was forced to join the well-drilling business and sell ‘water tickets’ to meet the demand for water from the commercial and industrial sectors.

風生水起的科學鑽井

THE HIGHLY PROFITABLE SCIENTIFIC WELLS



1963 年於市區開掘的科學井。
A scientific well dug in the urban area in 1963.

1954 年，政府為解除水荒，除興建大欖涌水塘外，亦在何文田徙置區內試驗機械挖井。此舉引起各界興趣，工業界人士紛紛集資數十萬，向外國訂購最新式鑽井機械及配件，聘請專業技師，組織具規模的機械挖井公司。由於工程費不算昂貴，且鑽井期間不影響營業，因此如半島酒店、大同染廠等大企業與工廠，都已不單靠水務局供應的水源，而開展「科學井」之鑽井工程。科學井，顧名思義即以科學測量方法勘探土地的地下水泉源，再以機械鑽過地表土層，以獲取地下水。進展快慢視乎地質，以沖積泥層最快，沙質次之，石層最慢。由於半島酒店的地段屬花崗岩石層，所以相對較慢。1960 年代初，愈來愈多五金工程公司在香港推廣科學井。

最乾旱的 1963 年，更是亟需廣闢水源的一年。其時香港就有十餘家鑽井公司，生意空前興盛。一般大工廠及大企業雖已鑽有科學井，但仍不敷應用，於是便繼續多鑽數個，以求增大水源。當時，有規模宏大的公司擁有二百多名工人、鑽井機器七十餘部，月計生意額可超於四十萬元，工程超過四百宗，由此足見本港搜求水源之急切。

每項鑽井工程的造價不同，須視乎大小與地段地質而定。如開至三十呎以下即有充裕水源，工程費約二、三千元。倘認為水源不足，工程費用亦按照每呎遞增。一般來說，六吋口徑深度約三十呎之科學井，每小時所得水量為四、五百加侖，已足夠一幢樓宇之用，約十日即可竣工。較大規模的工廠所用的科學井多不只一個，其深度多為二、三百呎，工程費約為萬餘元。其時最貴的一張科學井訂單來自淺水灣公寓，高達七萬元，金額相當驚人。全因該處地質既屬全部石底，而鑽地之深達數百呎而口徑亦大。以當時物價來說，尖沙咀區屬繁華地段的金巴利道，其上的新洋樓每呎售八十多元，換言之，這一口井的價值足以買入一個逾八百呎的尖沙咀大單位。

除了工業區外，新界及郊外一般農場的用水量亦不容忽視，故此前赴新界開井的鑽井公司亦為數不少。有電影公司的新界片場，因需要大量水源，所以鑽了多個井口，其工程費用共達十餘萬元。另外，位於元朗的石崗軍營亦一再開鑽科學井，以確保水源供應豐足。

科學鑽井業生意滔滔，工人亦因日夜趕工加班而入息較前大增，鑽井工人供不應求。其盛況可從當時的新聞窺探：1963 年 7 月，有不少大廈的水井被水務局調查，業主被通知須加深水井的深度，以便有適量的井水供應大廈住戶。雖然事態嚴重，但當時每一間鑽井公司都忙得不可開交而不願接單。


開科學井或濬深舊井
可毋須申請
但闢淺水井則要備圖呈准

據 1963 年 6 月 12 日的《香港工商日報》，在最乾旱 1963 年，開闢科學井已毋須事前提交申請。
According to the June 12, 1963 issue of *The Kung Sheung Daily News*, in the driest year of 1963, prior application was no longer required for drilling scientific wells.

In 1954, in order to overcome the water crisis, the government not only built the Tai Lam Chung Reservoir, but also experimented with mechanical well-digging in the Ho Man Tin resettlement area. This attracted attention from various sectors, and industrialists raised hundreds of thousands of dollars to purchase the latest drilling machinery and equipment from overseas, hired professional technicians, and formed a large-scale mechanical well-digging enterprise. Since the operation cost was not high and the drilling did not affect the businesses, large enterprises and factories such as Peninsula Hotel and Dai Tung Dyeing Factory did not rely solely on the water supply from the government and

started drilling ‘scientific wells’ by themselves. Scientific wells, as the name suggests, are drilled mechanically through the surface soil to obtain groundwater after scientific measurements have been taken to detect the sources of groundwater. The progress of drilling depends on the geological structure, with alluvial deposits being the fastest, sand layers the second fastest, and rock layers the slowest. The drilling of wells in the Peninsula Hotel was relatively slow due to the granite formations of the site. In the early 1960s, more and more hardware engineering companies started to promote scientific wells in Hong Kong.

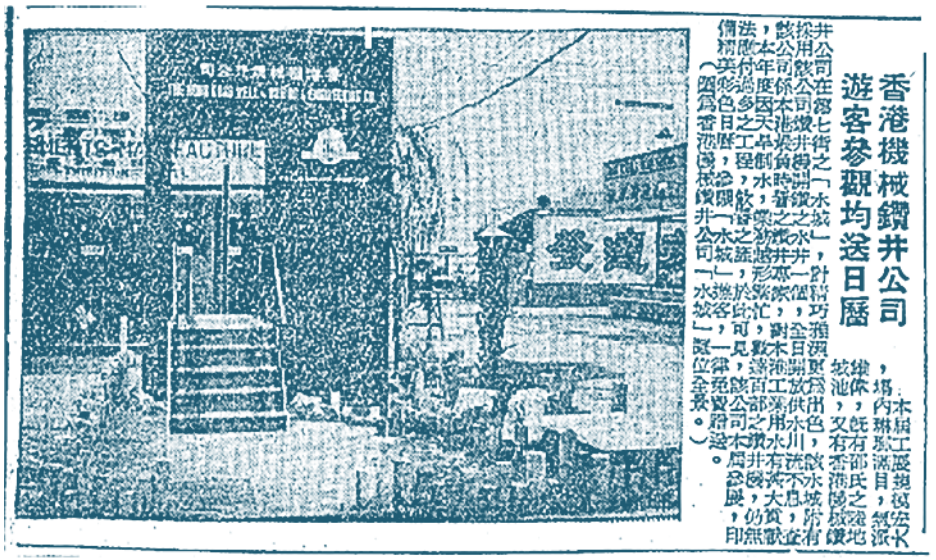
The driest year, 1963, was the year when the need for more water was urgent. At that time, there were more than ten well drilling firms in Hong Kong, and their businesses were booming. Although large factories and enterprises already had their own scientific wells, they were still unable to meet their needs, thus they continued to drill more wells to get more water. Some sizeable companies had more than 200 workers and over 70 drilling machines, generating a monthly turnover of more than $400,000 and undertaking more than 400 projects, thereby illustrating the urgency of the water search in Hong Kong.

The cost of each drilling project varied, depending on the size and geological formations of the site. If the well was drilled below 30 feet and there was sufficient water, the cost of the project was about $2,000 to $3,000. If the water was insufficient, the cost of the project would increase on a per-foot basis. In general, a six-inch diameter scientific well with a depth of about 30 feet could generate 400 to 500 gallons of water per hour, which was enough for a building and could be completed in about ten days. For larger factories, there was more than one scientific well, with a depth of 200 to 300 feet, and the cost of the project was about ten thousand dollars. The most expensive contract for a scientific well was from a building in Repulse Bay, which was a staggering sum of $70,000. This was because the entire site was covered with rocks,

and the borehole was a few hundred feet deep with a large diameter. In terms of prices at the time, Kimberly Road in Tsim Sha Tsui was a prime location. New buildings in the area were selling for more than $80 per square foot. In other words, the value of this well was equivalent to buying a flat of over 800 square feet in Tsim Sha Tsui.

In addition to industrial areas, the water consumption of farms in the New Territories and the countryside should not be ignored. Therefore, many well drilling firms started to operate in the New Territories. A film studio in the New Territories needed a large amount of water and drilled a number of wells at a cost of over $100,000. Shek Kong Barracks in Yuen Long also drilled scientific wells again to ensure an adequate supply of water.

The scientific well drilling business was booming, and workers were earning more than ever before because they were working overtime day and night. The demand for well-drilling workers was overwhelming, and the situation could be seen in the news at the time: In July 1963, many buildings were investigated by the Waterworks Office and owners were required to deepen their wells in order to secure an adequate supply of water for the residents of the buildings. Although the situation was urgent, all drilling firms were too busy to take more orders.



香港機械鑽井公司
遊客參觀均送日曆

據 1963 年 12 月 4 日的《華僑日報》，香港機械鑽井公司當年參加工展會，設「水城」攤位，特採用鑽井機開鑽水井，全日開放遊客參觀。

According to the December 4, 1963 issue of *Wah Kiu Yat Po*, the Hong Kong Machine Well Engineering Company participated in the Brands and Products Expo and set up the 'Water City' booth, which was open to visitors throughout the day to see the process of drilling a water well with a drilling machine.

大吐苦水與政府水券

GRIEVANCES AND WATER TICKETS

政府出售井水
佈宣法辦用購
小型冰箱五百加侖每箱三元
載水車輛須先行登記

據 1964 年 1 月 11 日的《香港工商日報》，政府於當年 1 月 10 日宣佈出售井水措施，以解小型工業燃眉之急。
According to *The Kung Sheung Daily News* of January 11, 1964, the government announced the sale of well waters on January 10 of that year in order to address the urgent needs of small industries.

當水井主人、運水貨車、鑽井公司都因水荒生財，但另一邊廂，食肆、廠商就因龐大的額外開支苦不堪言，如有茶居每月須花費三千元買水。在政府檔案處現存的信函中，不少廠家向水務局大談苦況，有廠家指「My business has been seriously jeopardised by the present water crisis, due to the fact that I have been paying exorbitant charges on buying water since 1st June, 1963（自 1963 年 6 月 1 日起，我因現時水危機之故而須支付高昂的買水費用，生意已嚴重受創。）」另一間工廠則直言即使已有購買井水，但仍然不敷應用，致產量已銳減一半。

有見及此，政府亦開始在市區開鑿科學井，並在 1964 年 1 月起設五個臨時水站（water depot）（又被稱為「水倉」），出

售未過濾之井水，協助小型工業渡過水荒難關。每個倉每日可供水約六萬加侖。凡有意購水的人士，必須書面向水務局申請，以便量度其所設水箱及登記車輛。水箱一經量度，便可向港島庫務司或九龍分署購買「水券（water ticket）」（又作「水票」），購買單張或整冊五十張均可，於取水時須交收水券。

水券按水箱容量分為三款，收不同費用：五百加侖的，每車三元；一千加侖的，每車五元；逾一千加侖的，每車則十元。買得的水可自由轉賣，用途亦無限制，惟因未經過濾，不宜飲用或製造食物。

五個水倉分別設於：（1）跑馬地體育路、（2）新蒲崗敬福街（即景福街）、（3）旺角鴉蘭街附近之塘尾道、（4）牛頭角淘化大同工廠附近之佐敦谷及（5）觀塘區觀塘道附近之將軍澳道。水倉每天開放，頭三個須自備水泵，後兩個有直接壓水機，不用水泵。

當時，政府透過電台及報紙宣傳臨時水站，消息一出，隨即有不少工廠去信購買水券，商戶在信中感激這安排，謂令他「心滿意足（gratifying）」。另有運輸公司代客戶寫信申請，信中備有車牌與水箱容水量等資料。雖然如此，但仍有工商業不了解安排，由水務局職員聯絡通知。

While well owners, water trucks and drilling firms were making money out of the water crisis, restaurants and manufacturers were struggling because of the huge additional costs of buying water. For instance, tea houses had to spend $3,000 a month to acquire fresh water. In the letters filed in the Government Records Service, many manufacturers told the Waterworks Office about their plight, with some saying, 'My business has been seriously jeopardised by the present water crisis, due to the fact that I have been paying exorbitant charges on buying water since 1st June, 1963.' Another factory said that the

well water they acquired was not enough to meet their needs and production had been cut in half.

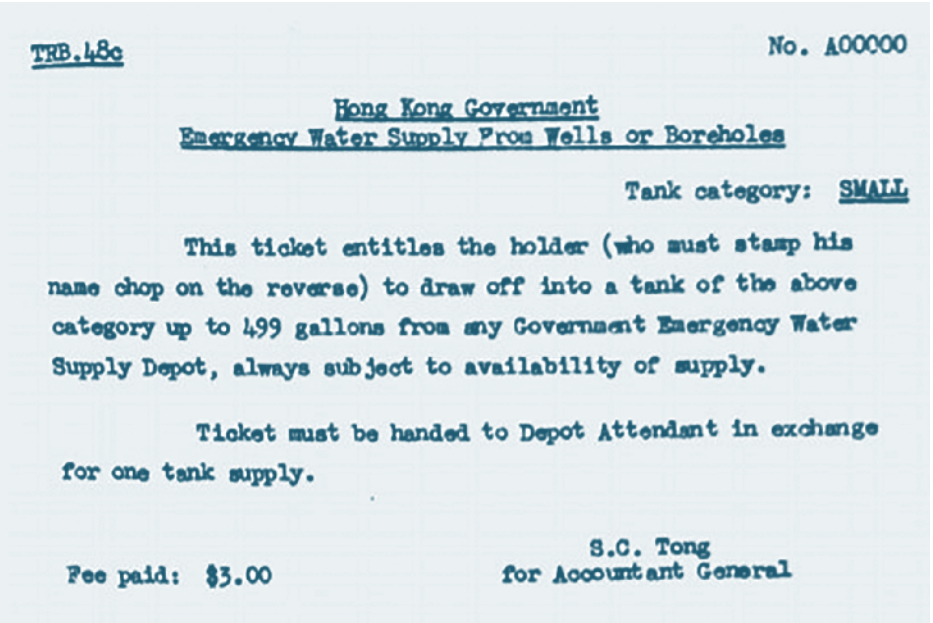
In view of this, the government also began to dig scientific wells in the urban areas and set up five temporary water depots (also known as 'water warehouses') in January 1964 to sell unfiltered well water so as to help small industries survive the water crisis. Each depot could supply about 60,000 gallons of water per day. Those who wanted to purchase water must apply in writing to the Waterworks Office to have their tanks measured and their vehicles registered. Once the tank was measured, a 'water ticket' could be purchased from the Secretary for the Treasury or the Kowloon Branch. Water tickets can be purchased piece by piece or in a bundle of 50 pieces, and must be presented at the time of collection.

Depending on the capacity of the tank, there were three types of water tickets available, with different fees: $3 per cart for 500 gallons; $5 per cart for 1,000 gallons; and $10 per cart for more than 1,000 gallons. The water bought could be resold freely and there were no restrictions on its use, but because it was not filtered, it was not suitable for drinking or preparing food.

The five water depots were located at: (1) Sports Road in Happy Valley, (2) King Fook Street in San Po Kong, (3) Tong Mei Road near Arran Street in Mongkok, (4) Jordan Valley near Amoy Food Factory in Ngau Tau Kok and (5) Tseung Kwan O Road near Kwun Tong Road in Kwun Tong District. For the first three depots, users had to bring their own pumps, while the last two had direct water presses, so no pumps were needed.

The government publicised the temporary water stations through radio and newspapers. As soon as the news was announced, many factories wrote letters to buy water tickets and expressed their gratitude for the arrangement, saying they were 'gratifying'. In addition, some transport companies wrote letters on behalf of their customers

to apply for the tickets, which included information such as vehicle license plates and water tank capacity. Despite this, some businesses and industries were still unaware of the arrangement and were contacted by the Waterworks Office.



TRB.48c No. A00000

Hong Kong Government
Emergency Water Supply From Wells or Boreholes

Tank category: SMALL

This ticket entitles the holder (who must stamp his name chop on the reverse) to draw off into a tank of the above category up to 499 gallons from any Government Emergency Water Supply Depot, always subject to availability of supply.

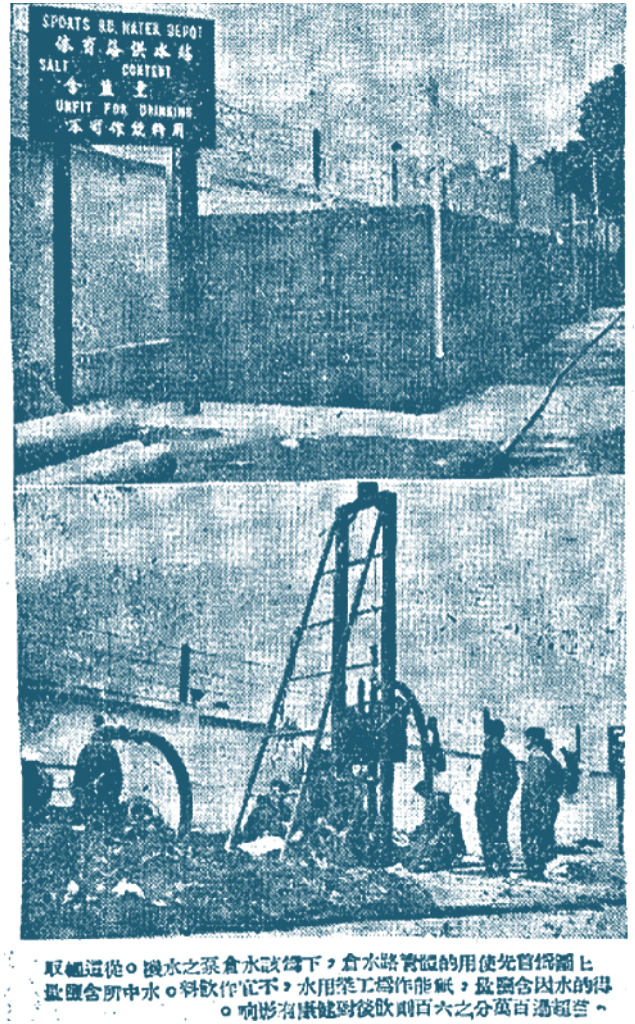
Ticket must be handed to Depot Attendant in exchange for one tank supply.

Fee paid: $3.00

S.C. Tong
for Accountant General

1964 年最低容量的一款水券。
A coupon for purchasing minimum capacity of water in 1964.

(HKRS287-1-336)



最先啟用的體育路水倉。圖取自 1964 年 1 月 30 日的《工商晚報》。
The first water depot was opened in Sports Road. The image is extracted from the January 30, 1964 issue of *The Kung Sheung Evening News*.

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1960 年代，水荒危機可謂催生了賣水行業的黃金盛世，尤其是 1963 年制水剛實施不足一個月內，這產業更如雨後春筍般急速擴張。井水販商以至鑽井公司，都曾一度認為這興旺之象可以維持數年之久。所幸這如意算盤打不響，一年後颱風「維奧娜」到來，市民終於有水用，制水亦進入「尾水」階段，賣水生意戛然蕭條，直到 1967 年再度缺水時才告恢復。

In the 1960s, the water shortage crisis gave rise to a golden era for the water trade, especially in 1963, when the water rationing system was first implemented, in less than a month the trade expanded exponentially. Water vendors and drilling firms alike believed that this boom would last for years. However, their predictions were wrong. When Typhoon Viola hit Hong Kong a year later, the public finally had access to water, and water rationing came to an end. The business of selling water was abruptly declined and only resumed in 1967 when water shortage occurred again.

打工仔的缺水生活

THE LIFE OF A WAGE EARNER SUFFERING FROM WATER SHORTAGE

有關 1960 年代的制水記憶，當然不止官方政策和買賣活動，畢竟那是長達一整年的刻苦歲月。隨意走到街頭訪問人，只要對方滿一定歲數，相信都能道出制水二三事。下文綜合檔案、文件和報章的研究所得，嘗試拼湊出那一年更紛陳的社會面貌。

The memory of water rationing in the 1960s is not only about official policies and trading activities, after all, it was a whole year of hardship. If you interview people randomly, they are likely to tell you about water rationing if they are over a certain age. The following is a synthesis of research from archives, documents and newspapers, trying to put together a more complete picture of the society during that year.

(一)

打工仔被迫放的無薪休假

WORKERS WERE FORCED TO TAKE UNPAID LEAVE

在 1960 年代，不少工友都寧願多勞多得，不過制水期間，因為供水是按地區、樓宇、層數輪替，工友都逼不得已須請假來輪水。重看 1964 年報章，有「工廠妹」在制水結束時受訪說：「提起用水，就夠晒冤氣囉。大家都知道啦，撲水是一件苦事……」事關她居住在「舊石屎樓」的二樓，取水的時間，為隔四天的下午五時至六時，其時她正上班。為了取水，她不得不在儲水的日子，在下午休假，一個月共須休七個下午，因此「唔見咗」工錢 17.5 元，更錯失勤工獎。每月損失的 27 元，「比起叫人擔水差不多呢」。無奈之下放取的無薪假期，相信對不同時代的僱員來說，都是噩耗。

In the 1960s, many workers preferred to work more and earn more. However, during the water rationing period, workers were forced to take leave to queue for water because the water supply took turns by district, building, and floor. In the 1964 newspaper, a 'factory girl' was interviewed at the end of water rationing and said, 'When it comes to water, it makes people angry. We all know that it is very difficult to get water....' She lived on the second floor of the 'old concrete building' and had to collect water from 5pm to 6pm once every four days, which fell on her work hours. In order to collect water, she had to take off in the afternoon, a total of seven afternoons a month. She 'lost' $17.50 in wages and missed out on the attendance bonus. The loss of $27 per month is 'more or less the same as asking someone to carry water'. Being forced to take no pay leave is probably bad news for any employee regardless of their ages.

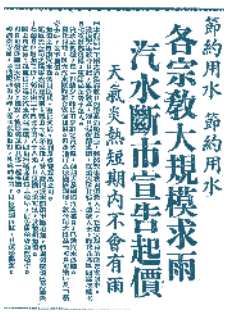
(二)

減產又加價的汽水

SODA PRODUCTION CUT AND PRICE RISE

四日供水一次的消息一出直接打擊工商各界，飲食業總商會更因此在 5 月 31 日召開緊急會議。其時汽水廠無奈地一再減產，例如淘化大同公司綠寶汽水廠的產量便銳減 75%，香港荳品公司所出產的百事可樂、維他奶等亦比正常量減半。水荒以外，加上糖價高漲，當時四大汽水商 —— 淘化大同公司、香港荳品公司、屈臣氏汽水有限公司及美國寶利汽水廠，亦曾聯合登報聲明，指因成本上漲而須加價，由兩毫加至三毫，加幅達五成。至於可口可樂及新奇士則沒有加價。

The news of the four-day water rationing was a direct blow to the industrial and commercial sectors. The Hong Kong Restaurant and Eating House Merchants General Association even called an emergency meeting on May 31. At that time, soda factories had no choice but to cut production again. For example, the output of Amoy Food's Green Spot soda factory was drastically reduced by 75%, and the production of Pepsi Cola and Vitasoy by The Hong Kong Soya Bean Products, Co., Ltd. was also reduced by half of the normal amount. Water shortage, coupled with the high price of sugar, the four major soda manufacturers — Amoy Food, Hong Kong Soya Bean Products, Watson's Soda Limited and Bireley's California Orange Limited, also jointly released a statement, stating that due to rising costs, the price had to be adjusted from 20 cents to 30 cents, an increase of 50%. As for Coca-Cola and Sunkist, there was no price rise.


節約用水 節約用水
各宗教大規模求雨
汽水斷市宣告起價
天氣炎熱短期內不會有雨

據 1963 年 5 月 20 日的《工商晚報》，各宗教紛紛舉辦儀式，祈福求雨。同時，缺水不但影響汽水及啤酒的缺貨，更導致汽水商宣佈加價。

According to the May 20, 1963 issue of *The Kung Sheung Evening News*, a number of religious groups held prayers for rain. The shortage of water not only led to the shortage of soft drinks and beer, but also resulted in the announcement of price rises bysoda manufacturers.

(三)

祈雨法會及其促成的六合聖室

THE RAIN RITUALS AND THE LUK HOP SING SHUT

由於 1963 年上半年幾乎沒下過雨，佛教、道教等宗教組織均有舉辦不同儀式，如齋戒、法事、放生超幽、建祈雨亭、演戲法事等，祈求天降甘霖。最為人認識的大概是跑馬地的求雨法會，當時三百僧尼與三千信眾共聚一堂。

而在西營盤的六合聖室，原來其成立伊始與當年祈雨息息相關。那時位於干諾道西的臘味店「協和」的幾位員工均已入道，並於工場天台設道壇作潛修之用，惟道壇一直未有對外開放。根據口述歷史訪問，就在 1963 年大旱之際，他們扶乩求問祖師可否求雨，及後在祖師教訓及指示下設壇，經歷了七日七夜求雨，期間不吃不喝，齋戒沐浴。在求雨三、四天後還真漸有微雨，至呂祖誕之時，即祈雨第七天終現傾盆大雨。這次祈雨促使六合的普渡工作，並於 1969 年入伙現址時對公眾開放服務，包括扶乩及提供免費中西醫服務。

Since there was almost no rain in the first half of 1963, Buddhist and Taoist religious organisations held various rituals, such as fasting, *pujas*, releasing captive animals, building pavilions for rain praying, and performing *pujas* to pray for rain. The most well-known one was probably the ritual performed in Happy Valley, where 300 monks and nuns as well as 3,000 believers got together to pray for rain.

The establishment of the Luk Hop Sing Shut in Sai Ying Pun is closely related to the rain rituals. Back then, several employees of Heep Wo, a dried meat store located in Connaught Road West, had already taken Taoist precepts and set up a Taoist altar on the rooftop of the workplace for spiritual retreats, but the altar had never been opened to the public. According to an oral history interview, in 1963, when there was a severe drought, they communicated with their ancestral spirits by the means of mediumship and asked if they could pray for rain. Under the guidance and instructions of the ancestral spirits, they set up the altar, prayed for rain for seven days

and nights, during which they did not eat or drink and had to bathe and purify themselves. After three or four days of praying for rain, there were indeed some drizzle drops, and by the time of Lu Zu's birthday, the seventh day of praying for rain, there was finally a downpour. This prayer led to the opening of the temple to the public in 1969, when it moved into its current location, providing services such as mediumship and free Chinese and Western medical services.

1963 年六合聖堂創辦人祈雨照片。
An image of the founders of Luk Hop Sing Shut praying for rain in 1963.

(四)

街坊福利會的節水辦法比賽

KAIFONG WELFARE ASSOCIATIONS' WATER CONSERVATION COMPETITION

如請你寫下任何一個香港郵寄地址，該地址大抵至少有十多個中文字。但原來在 1963 年制水期間，就誕生了一個打破郵寄地址最短中文字數的世界紀錄。

當時雖然水務局的展覽告吹，不過各部門還是落力推廣節水。廿九區街坊福利會便曾聯合舉辦過一個名為「節約用水最佳辦法」的徵文比賽。比賽分為成人男子組、成人女子組、青年組（十八歲以下）。比賽獎品豐富，成人男子組冠軍為東南亞來回機票、亞軍為名貴金錶、季軍風扇一把；女子組冠、亞、季軍分別得星港來回機票、洗衣機及女裝手錶。

除了獎品外，為了吸引大家參加及增加噱頭，是次比賽更獲郵政局配合。參加者只要在信封上寫上「慳水」二字，不用寫地址，也能寄到主辦單位處。

A Hong Kong postal address is likely to consist of at least ten Chinese characters. But in 1963, during the water rationing period, a world record was set for the shortest number of Chinese characters in a postal address.

Although the Waterworks Office's exhibition fell through at the time, various departments were still working hard to promote water saving. Twenty nine kaifong welfare associations jointly organised 'The Best Ways to Save waters' writing competition, which was divided into adult male, adult female and youth (under 18 years old) categories. The prizes were attractive. The champion of the adult men's category would get a round-trip air ticket to Southeast Asia, the first runner-up would get a valuable gold watch and the third runner-up would get a fan; the first, second and third runners-up of the women's category would get a round-trip air ticket to Singapore, a washing machine and a ladies' watch respectively.

In addition to the prizes, the competition was supported by the Post Office in order to attract people to participate and add to the gimmick. Participants could send the envelope to the organiser without the need to put an address on it. Simply wrote 'Save Water' on it and it would be sent to the organiser.

（五）

香港電台的「慳水歌」

RTHK'S
'WATER SAVING SONG'

「夠哪，勿多貪，快把水喉閂，一盆用過再留番，你慳我更慳，齊心慳水渡難關！」

這是 1963 年的得獎慳水歌。短短幾句歌詞提醒各人都要珍惜食水，才可同心協力渡過難關。作詞人更憑藉歌詞，獲得獎金三百元，又得各大報章上刊登。原來 1963 年旱魃肆虐至年末都寸步不讓，政府因此在 12 月 14 日舉辦慳水運動，香港電台為響應活動，亦舉辦「慳水歌」徵求比賽，分別設歌詞及歌曲組，冠軍正正可獲得三百大元。玩法如下：香港電台先徵歌詞，一共徵得 2,303 首。其後為配合冠軍歌，再徵求歌譜，以譜成動聽及易唱的歌曲，此次參賽作品亦達 512 首。頒獎禮於 1964 年 1 月假大會堂舉行，當天有即場朗誦與演唱環節，後來得獎作品更有機會在電台播放。

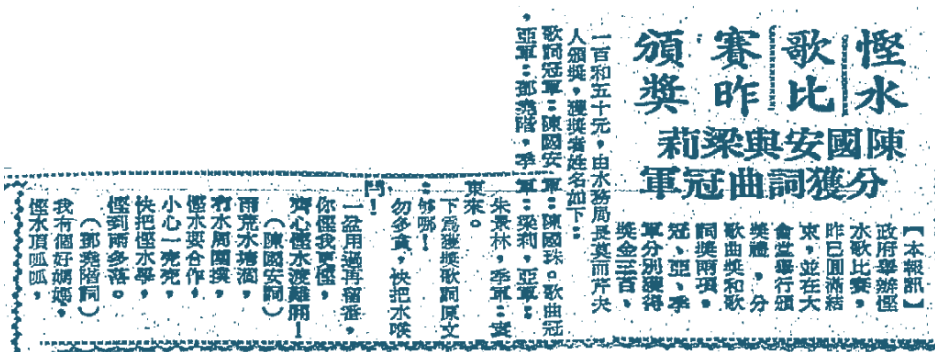
不過，最為人熟悉的慳水歌，相信是由香港電台製作那一首，改編自《漁歌晚唱》，其「洗腦」程度足以讓人事隔半世紀仍記憶猶新。在《水展》中，就有一條由中英劇團提供，一班老友記重新演繹的慳水歌片段。「人人呀要慳，人人呀要一齊！」歌詞非常琅琅上口。

'Don't be greedy, turn off the tap, you can use the water again, you save, I save, we save!'

This was the award-winning water saving song in 1963. In a few short lines, the song reminded everyone to save water so that difficult times could be overcome in solidarity. The lyricist was awarded a $300 prize for his work, which was published in major newspapers. In response to the 1963 drought, which did not abate until the end of the year, the government held a water saving campaign on December 14. To support the event, Radio Television Hong Kong (RTHK) also held a 'Water Saving Song' competition, with separate categories for lyrics and music. The winner of the competition would be awarded $300. The rules

were as follows: RTHK first collected lyrics, and 2,303 entries were collected. Then, to match the winner's lyrics, the music was collected to make a song that was easy to sing and catchy, and 512 entries were submitted. The award ceremony was held at the City Hall in January 1964, with a live reading and singing session, and the winning entries were later broadcast on the radio.

But the most popular song was the one produced by RTHK, adapted from 'Song of the Homebound Fishermen', which is still fresh in people's minds even after half a century. In the 'Water Exhibition', there was a reinterpretation of the water saving song by a group of elderly, provided by Chung Ying Theatre Company. 'Everyone needs to save, everyone needs to be together!' The lyrics were catchy and easy to remember.



慳水歌比賽昨頒獎
陳國安與梁莉莉分獲冠軍曲詞

【本報訊】政府舉辦慳水歌比賽，昨已圓滿結束，並在大會堂舉行頒獎禮，分歌曲獎和歌詞獎兩項，冠、亞、季軍分別獲得獎金三百、一百和五十元，由水務局長莫其芹夫人頒獎，獲獎者姓名如下：

歌詞冠軍：陳國安　亞軍：梁莉莉　季軍：麥下為獲獎歌詞原文：

朱景林，季軍：麥

其來。

夠哪！勿多貪，快把水喉閂！

一盆用過再留番，
你慳我更慳，
齊心慳水渡難關！
（陳國安詞）

雨荒水搶濁，
有水周圍撲，
慳水要合作，
小心一旱死，
快把慳水學，
慳到雨多落。
（鄧發階詞）

我有個好媽媽，
慳水頂呱呱，

1964 年 2 月 12 日的《香港工商日報》。
The Kung Sheung Daily News of February 12, 1964.

(六)

被緊急剎停的展覽

THE EXHIBITION THAT WAS HALTED IN AN EMERGENCY

翻查政府檔案（HKRS7224—Water Exhibitions 1963），原來水務局曾在 1963 年計劃一個與水務相關的展覽，並擬定題目為「People and Water 1863 – 1963」。當年是香港第一個水塘薄扶林水塘竣工一百周年紀念的年期，可謂香港現代供水歷史的第一個里程碑。展覽設計的草圖手稿保存至今，以簡約圖示呈現由 1863 年至 1963 年百年間香港人口及工業發展的增長速度、香港平均降雨量、供水網絡發展及其限制等，更計劃披露船灣淡水湖工程的機密信件。凡此種種，用意是希望大眾認識水務局的工作，亦解釋供水不足的多種因素，具備公眾教育及公關作用。

奈何 1963 年香港迎來一場世紀水荒，水務局擔心展覽會引起反效果，造成更壞觀感，唯有把長達半年的展覽籌備工作煞停，水展因此胎死腹中。

According to the government records (HKRS7224-Water Exhibitions 1963), the Waterworks Office had planned a water-themed exhibition in 1963, and the title was 'People and Water 1863 - 1963'. The year was the centenary of the completion of Pok Fu Lam Reservoir, the first reservoir in Hong Kong, and it could be considered as the first milestone in the history of modern water supply in Hong Kong. The sketches of the exhibition design have been preserved to date, illustrating the growth of Hong Kong's population and industrial development, the average rainfall in Hong Kong, the development of the water supply network and its limitations during the century from 1863 to 1963, and the plan to reveal the confidential letters related to the Plover Cove Reservoir project. All of these were intended to educate the public about the work of the Waterworks Office and to explain the various factors that contribute to the shortage of water supply.

However, in 1963, Hong Kong was hit by an unprecedented water crisis, and the Waterworks Office was worried that the exhibition would be counter-productive and bring

about an even worse perception. It was finally decided that the exhibition had to be halted even though it had been in preparation for six months. The water exhibition was officially cancelled.

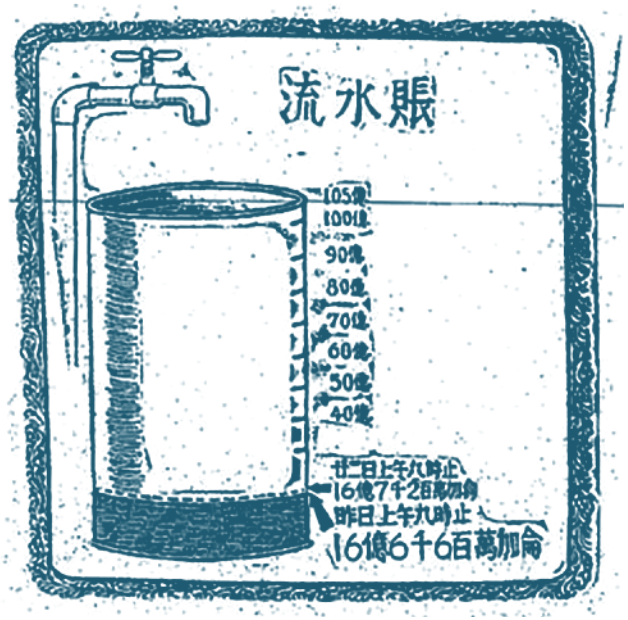
向外求救的緊急救援方案

SEEKING FOR EMERGENCY AID FROM BEYOND THE CITY

上文還未處理的是，在那缺水年代，陸續提升制水級別僅是節流之法，以科學井提取深層地下水亦只能用作非飲用用途，那麼當年的飲用水又是如何獲取的呢？香港是世界船運業的重要樞紐。海上輪船除了造就香港的商埠地位，原來也曾在城市最危急的年代帶來續命之水，更有水手及船塢工人在運水船工作時喪命。

1920 及 1950 年代，政府均曾測試人造雨技術，希望藉此提升降雨量，結果因成本太貴、效果不彰而失敗收場。政府又曾研究以火車從廣州運來食水，但發現每天需要四千卡運水車廂才能滿足香港的使用量，這數量根本難以在短時間內製作完成。

要長距離運送重量高而量多的水資源，船隻，遂成為較合乎成本效益的選擇。在 1929 年大水荒中，香港政府便曾透過船隻從荔枝角、大埔，以至廣東中山運送食水至缺水的維多利亞城；1963 年旱災時，政府亦再次以船隻為香港運來食水。



據 1963 年 6 月 25 日的《香港工商日報》，為確保旱季時有水可用，香港須於雨季結束前收集到一百億加侖食水，惟 1963 年 6 月最嚴峻時水塘只有 16 億加侖存水，僅足夠香港人用七十天。

According to the June 25, 1963 issue of *The Kung Sheung Daily News*, in order to ensure the availability of water during the dry season, 10 billion gallons of potable water had to be secured before the end of the rainy season. Unfortunately, only 1.6 billion gallons of water was available in reservoirs in June 1963, which was only enough for Hong Kong people to use for 70 days.

What has not been mentioned above is that in those years of water shortage, the gradation of water rationing was only a way to save water, and the extraction of deep groundwater by scientific wells could only be used for non-potable purposes, so how was the potable water obtained back then? Hong Kong was an important hub for the world's shipping industry. The ships that made Hong Kong a commercial port also brought life-saving water to the city during the most critical years. There were sailors and dock workers who lost their lives while working on the water boats.

In the 1920s and 1950s, the government experimented with artificial rainfall technology in the hope of increasing precipitation, but it failed because it was too expensive and ineffective. The government also studied the use of trains to transport water from Guangzhou, but found that it would take 4,000 carloads of water per day to meet Hong Kong's usage, a quantity that would be difficult to meet in a short period of time.

To transport high volumes of water over long distances, ships became a more cost effective option. In the 1929 water drought, the government transported water by boat from Lai Chi Kok, Tai Po, and even Zhongshan in Guangdong to the water-stressed city of Victoria, and again in the 1963 drought.

香港曾研究向亞洲各大城市購水以解決缺水危機。圖為 1963 年 5 月 27 日的《香港工商日報》，顯示了向外買水的可能路線。

Hong Kong had studied the possibility of buying water from major Asian cities to solve the water shortage crisis. The image shows the May 27, 1963 issue of *The Kung Sheung Daily News*, indicating possible routes to purchase water from beyond the city.

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向東亞、東南亞、內地尋求淡水

SEEKING FRESH WATER FROM EAST ASIA, SOUTHEAST ASIA, AND THE MAINLAND

在 1963 年的水荒之前，政府剛好根據當時的用水量定下了一百億加侖的水塘集水目標，其中五十億加侖向深圳水庫購買，餘下食水則期望於本地收集。偏偏 1963 年卻是香港有紀錄以來最少降雨量的一年。

這一年，政府首先於 5 月底開始在荃灣及深井興建運水船卸水設備，又委任四大石油公司代表連同海事處、香港海軍、水務局及財政司代表等組成「運水船租用委員會」，負責研究可行的海外水源、購買方法及成本等。委員會研究過的地區非常廣泛，有菲律賓的馬尼拉與宿霧、日本的大阪與橫濱、越南的峴港與西貢（今胡志明市）等，供水的城市除了要有剩餘的淡水資源外，還需設有石油裝卸設備的大型碼頭，只須換上全新喉管便可為運水船裝水。政府又於 6 月 1 日派出官員到廣州與廣東省政府商討派船到珠江汲取河水，並於 6 月 7 日派出「金文泰爵士號」到珠江航行五天，抽取水辦檢驗鹹度。

1963 年 6 月份最嚴峻時期，水塘只剩下 16 億加侖存水，部份水塘水位更低於取水口而停止供水，城市的人均用水量降至每天約二十公升（現時人均家用用水量為每天 130 公升）。但即便如此，水塘存水亦只足夠香港使用約七十天，短時間內開拓足以讓香港人維生的水源，成為港府最燃眉之急的問題。

Before the water crisis in 1963, the government set a target of 10 billion gallons of water to be collected from reservoirs based on the water consumption at that time, of which 5 billion gallons were to be purchased from Shenzhen Reservoir and the remaining water was expected to be collected locally. However, 1963 was the year with the lowest rainfall in Hong Kong's recorded history.

In that year, the government began to build water unloading facilities for water carriers in Tsuen Wan and Sham Tseng at the end of May, and appointed representatives from the four major oil companies, together with representatives from the Marine Department, the Hong Kong Navy, the Waterworks Office and the Financial Secretary, to form a 'Water Carrier Charter Committee' to study the feasibility of getting overseas water sources, means of acquisition and costs. The committee studied a wide range of areas, including Manila and Cebu in the Philippines, Osaka and Yokohama in Japan, Da Nang and Saigon (now Ho Chi Minh City) in Vietnam, etc. In addition to having surplus fresh water resources, the cities were required to have a large terminal with oil loading and unloading facilities, where water could be loaded onto water boats simply by replacing the pipes with new ones. The government sent officials to Guangzhou on June 1 to negotiate with the Guangdong Provincial Government to deploy a ship to draw water from the Pearl River. The Sir Cecil Clementi was sent to the Pearl River on June 7 for a five-day voyage to collect water for salinity testing.

At the height of the crisis in June 1963, there were only 1.6 billion gallons of water left in the reservoirs. Some of the water levels in reservoirs were even lower than the intake and water supply was stopped, reducing the city's per capita water consumption to about 20 litres per day (currently it is 130 litres per day for domestic use). Even so, the reservoirs only had enough water to last for about 70 days, and it had become an urgent issue for the Hong Kong government to develop a water source that can sustain Hong Kong people in a short period of time.

往珠江取水

FETCHING WATER FROM THE PEARL RIVER

根據當時估算，假使租用一支由三十艘大型運油輪組成的船隊，不斷來回日本及香港運來淡水，亦只能滿足香港每天用水量的四份之一，這還未計算燃油費的「食水」成本為每千加侖港幣 25 元，為本地集水成本的五倍。除了價格高昂外，全球亦沒有足夠的運油輪能於短期內讓政府租用。至於從珠江汲取河水，則只需租用十艘大型運油輪，即可達至香港一天的食水最低需求量，初步估計成本為每千加侖港幣六元，方案較為方行。

是以政府與世界各地船公司聯絡，於 6 月中旬開始租用運油輪到珠江汲水。其中第一艘運油輪「伊安德號」於 6 月 17 日抵港，並駛往九龍船塢作油槽清洗工作。由於油槽原是儲存石油，要存放供數百萬港人飲用的食水，清潔過程絕不簡單。船倉先要填滿加入梳打的水蒸氣，讓船倉壁的石油殘餘慢慢跌下至船倉底部；抽走殘餘物後再以高壓海水清洗船艙。惟即使經過多番清洗，政府於船隻到港翌日安排記者上船參觀時，記者仍然於船上聞到強烈的油渣氣味，油槽內的水仍充滿油污與鐵鏽。

經過一星期的清洗與檢查，「伊安德號」於 6 月 24 日第一次前往廣洲一帶的珠江河域汲水。前後費時八十小時，汲取未經過濾的淡水三百萬加侖，約是香港一日消耗量的 10%。同一時間，政府陸續擴充運水船隊，最終於 8 月組成一支由十艘大型運油輪組成的運水船隊。受到珠江的深度限制，政府只能租用食水深度為 29 呎的運油輪， 每艘船可載水一萬五千至二萬公噸。

According to estimates at the time, even if a fleet of 30 large oil tankers were chartered to bring fresh water back and forth between Japan and Hong Kong, they would only be able to meet one quarter of Hong Kong's daily water consumption. The fuel cost was $25 per 1,000 gallons, five times the cost of local water supply. In addition to the high costs, there were not enough oil tankers in the world for the government to charter any time

soon. As for getting water from the Pearl River, only ten large oil tankers were needed to meet Hong Kong's minimum daily water consumption, and the initial cost was estimated to be HK$6 per 1,000 gallons, which was a more feasible option.

The government contacted shipping companies around the world and started chartering oil tankers to collect water from the Pearl River in mid-June. The first tanker, IANTHE, arrived in Hong Kong on June 17 and was sent to Kowloon Dockyard for tank cleaning. Since the tank was designed for oil storage, the process to clean it and turn it into a water tank was by no means simple. The tank had to be filled with soda and vapours to allow the oil residue on the walls of the tank to slowly fall down to the bottom of the tank; the residue was pumped away and then the tank was cleansed with high pressure seawater. However, even after numerous rounds of cleansing, when journalists were invited to see the ship on the day after its arrival, it was reported that the smell of the oil residue was still strong and the water in the tank was mixed with oil and rust.

After a week of cleaning and inspection, IANTHE sailed for the first time on June 24 to draw water from the Pearl River in the vicinity of Guangzhou. It took 80 hours to draw 3 million gallons of unfiltered fresh water, about 10% of Hong Kong's daily consumption. At the same time, the government expanded the fleet of water carriers, finally forming a fleet of ten large oil tankers in August. Due to the depth of the Pearl River, the government could only charter tankers with a water depth of 29 feet, each of which could carry 15,000 to 20,000 tons of water.

第一艘運水船抵港
一週後開珠江汲水
今日進行蒸氣洗滌
政府繼續租第三艘運水船

據 1963 年 6 月 18 日的《工商晚報》，萬眾期待的運水船終於在 6 月 17 日抵港，駛至船塢進行清洗工作。

According to the *The Kung Sheung Evening News* of June 18, 1963, the much-anticipated water boat finally arrived in Hong Kong on June 17 and drove to the dockyard for cleaning.

運水船隊中第一架投入服務的「伊安德號」（IANTHE）。
相片由 Mr. Ken Lubi 提供。

The IANTHE, the first vessel in the water carrier fleet to be in service.
Photo courtesy of Mr. Ken Lubi.

一個月內極速完工的碼頭工程

COMPLETION OF THE PIER PROJECT IN JUST ONE MONTH

為了容納運水船於鄰近水塘地方卸水，政府租用了荃灣德士古油庫碼頭及深井生力啤酒廠碼頭，再於深井建造了一個額外的躉船碼頭以安裝卸水設備，所有工程皆快速於一個月內完工。淡水於碼頭卸水後，會經水管接駁至荃灣濾水廠或大欖涌水塘。惟荃灣海面空間不足，同一時間只能容納兩艘運水船，是以船隻主要停泊於深井海面，高峰期更有四艘大型船隻停泊於深井海面同步卸水。根據深井街坊回憶，當時運水船的船員會到岸上休息及購買啤酒，部份深井村民又會攜帶物資到船上出售，令深井變得熱鬧非常。

以船運水是當時香港供水唯一可依賴的方法，這令政府高層亦非常重視運水船的船員。除了港督柏立基會親身視察卸水工作外，輔政司戴斯德亦曾親身走上運水船了解工作情況、查詢船員福利問題。眼見各運水船的水手多來自斯堪的納維亞地區（約為現時北歐五國），政府更於 1963 年的聖誕節，向每艘運水船送贈一棵聖誕樹，讓船員可以根據斯堪的納維亞地區傳統於桅桿上懸掛聖誕樹。

In order to accommodate carriers to unload water at the nearby reservoirs, the government rented the wharf of Texaco Oil depot in Tsuen Wan and the San Miguel Brewery in Sham Tseng, and built an additional barge wharf in Sham Tseng for the installation of water unloading facilities. Once discharged from the piers, fresh water would be piped to the Tsuen Wan Water Treatment Works or Tai Lam Chung Reservoir. However, there was not enough space on the waterfront in Tsuen Wan, and only two water boats could be accommodated at the same time, so the vessels were mainly moored at Sham Tseng, with four large vessels moored at Sham Tseng during the peak period. According to the recollections of Sham Tseng residents, the boatmen would go to the shore to rest and buy beer. Some villagers would bring goods to the boats for sale, thus making Sham Tseng full of hustle and bustle.

The use of vessels to transport water was the only way to supply water to Hong Kong at that time, and this made the senior government officials pay great attention to the crew of water carriers. Apart from the Governor Robert Black's inspection of the water unloading from the boats, the Chief Secretary, Edmund Teesdale, also went to the water tankers to understand the working conditions and inquire about the welfare of the crew. Since most of the sailors came from the Scandinavian region (approximately the area of the existing five Nordic countries), the government gifted a Christmas tree to each ship on Christmas Day in 1963, so that the crew could hang a Christmas tree on the mast according to the Scandinavian tradition.

水荒的結束

THE END OF THE WATER CRISIS

本港存水接近一百億
運水船分批離港
提前結束赴珠江運水工作

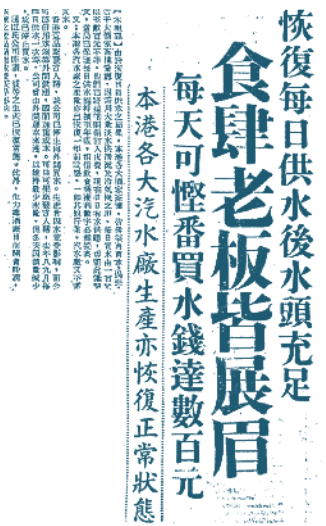
從1964年6月17日的《工商晚報》可見，23艘運水船接力為港供水一年後，香港水塘存水終於接近100億加侖，水船終結東運水工作。
As seen in the June 17, 1964 issue of *The Kung Sheung Evening News*, after 23 water carriers had been supplying water to Hong Kong for a year, the water in Hong Kong's reservoirs was finally reaching 10 billion gallons and the water carriers finally completed their mission.

惟相對於水塘儲雨水，運水船到珠江汲水始終是一項成本高昂而效益甚低的供水方法。比如該年7月2日下了一場六小時的豪雨過後，大欖涌水塘及城門水塘存水便已增加了四億加侖存水；而1964年5月28日颱風「維奧娜」襲港，更一次過為香港水塘帶來了三十億加侖存水。至於由1963年6月17日「伊安德號」抵港開始，政府於12個月內一共租用過23艘運油輪，組成一支約十艘船組成的船隊，每月才為香港提供到三至七億加侖食水，僅僅滿足到城市最低的用水需求。可見運水船並非解決香港長遠供水問題的方法。

隨着颱風「維奧娜」於1945年5月28日襲港，水塘的存水量達至六十億加侖，政府亦於5月29日宣佈由四日供水四小時，放寬為隔日供水四小時。工務司亦宣佈，當水塘存水量達至76億加侖時，香港便可恢復全日供水。最終政府於6月11日開始回復每日供水四小時。租用運水船成本致政府財政入不敷支，船隊終在6月15日起停止運作，並把部份運水船提早退租，結束了這一場破天荒的救援方案。

總結一年的運水成績，23艘運水船共前往珠江取水1,371次，一共取得未過濾淡水約43億加侖，每千加侖成本達二十多元，遠超原先估計港幣六元。

自水荒完結後，一眾運水船便離開香港重投運送石油的工作，深井街頭亦再次恢復平靜。但政府並未即時拆卸運水碼頭的卸水設備，以備不時之需。水荒完結後《華僑日報》曾報導深井的冷清情況，當描述到深井海面三個空置的運水碼頭，便寫到希望碼頭「永遠不會再被使用」。



恢復每日供水後水頭充足
食肆老板皆展眉
每天可慳番買水錢達數百元
本港各大汽水廠生產亦恢復正常狀態

從1964年6月16日的《工商晚報》可見，香港終於重回每天都有供水的時光。
As seen in the June 16, 1964 issue of *The Kung Sheung Evening News*, Hong Kong finally resumed having water supply every day.

However, compared to reservoirs, getting water from the Pearl River by boat is a costly and inefficient way to supply water to Hong Kong. For example, after a six-hour downpour on July 2, 400 million gallons of water were added to the Tai Lam Chung Reservoir and Shing Mun Reservoir; and Typhoon Violet on May 28, 1964, brought 3 billion gallons of water to Hong Kong's reservoirs in one go. From June 17, 1963, when the IANTHE arrived in Hong Kong, the government chartered 23 tankers in 12 months, forming a fleet of about 10 vessels, which provided Hong Kong with 300 to 700 million gallons of water per month, barely enough to meet the city's minimum water needs. This showed that water tankers were not a solution to Hong Kong's long-term water supply.

With Typhoon Violet hitting Hong Kong on May 28, 1945, the reservoir capacity reached 6 billion gallons, and the government announced on May 29 that the water rationing would be relaxed from four hours every four days to four hours every other day. The Secretary for Works also announced that when the reservoir storage capacity reached 7.6 billion gallons, full-day water supply would be resumed. Finally, the four-hour daily water supply was resumed on June 11. The cost of chartering water tankers led to a shortfall in the government's budget. The fleet finally ceased operations on June 15, with some of the chartered tankers being terminated prematurely, ending this unprecedented aid programme.

To sum up, 23 water carriers made 1,371 trips to the Pearl River to collect water, bringing in a total of 4.3 billion gallons of unfiltered fresh water, at a cost of more than $20 per thousand gallons, far exceeding the original estimate of HK$6.

Since the end of the water crisis, the water tankers had left Hong Kong to resume oil operations and the streets of Sham Tseng became quiet again. However, the government did not immediately demolish the water unloading facilities at the wharf for contingency purposes. After the end of

the water crisis, *Wah Kiu Yat Po* reported on the deserted state of Sham Tseng. When describing the three vacant water tender terminals in Sham Tseng, it was written that it was hoped that the terminals would 'never be used again'.

今日仍可在深井海面上見到運水船碼頭的兩個船隻泊台。
Today, the two berths of the water tender terminal in Sham Tseng can still be spotted in the sea.

見證❺：水管

TESTAMENT 5 : AQUEDUCTS

1959 年，內地開始輸水供港，同期香港繼續開展大規模水利工程

自主或依賴貿易，水該由何處而來
是城市必備的考量

由海水化淡廠，到東江水管
這兩種城市景觀，象徵著殖民地政府曾經徘徊的兩種進路

In 1959, the Mainland began supplying water to Hong Kong, while Hong Kong continued to undertake large-scale water works.

The city had to consider where to get the water from, whether it was independent or dependent on trade.

The construction of the desalination plant and the aqueduct that supply water from Dongjiang River symbolised the two approaches that the colonial government once considered and weighed.

供水自主：領先全球但曇花一現的海水化淡大計

講起完善的供水系統，可能很多人會先想起新加坡。新加坡缺乏大型天然湖泊儲水，現時是靠收集雨水、生產新生水及海水化淡來供應食水。在 2005 年，其國內首座海水化淡廠已正式投產，現時共擁五座海水化淡廠。不過提到海水化淡，其實香港才是亞洲地區的先行者。早於 1910 年代，香港便已有人提出海水化淡的可能，香港政府更曾於 1950 年代研究興建核能海水廠，並於 1970 年代建成屯門樂安排海水化淡廠。可惜，這座要借下巨債才建成的化淡廠，只用了數年便停用，及後再被炸毀。

接下來，我們會跟大家回顧、探討香港各式供水方案。這一章，先由那座規劃了數十年卻異常短命的海水化淡廠說起。

WATER SUPPLY AUTONOMY: THE WORLD'S LEADING BUT EPHEMERAL DESALINATION PROJECT

When it comes to a well-developed water supply system, Singapore may come to mind for many people. Singapore does not possess any large natural lakes to store water, and currently relies on rainwater, production of NEWater and desalination to supply water. In 2005, the first desalination plant in the country was officially commissioned, and now there are five desalination plants. When it comes to desalination, Hong Kong is actually the pioneer in Asia. In the 1910s, the possibility of desalination of seawater was already proposed in Hong Kong. The government also studied the construction of a nuclear power desalination plant in the 1950s, and built the Lok On Pai Desalting Plant in Tuen Mun in the 1970s. Unfortunately, the plant, which was completed after incurring huge debts, was decommissioned after only a few years of operation, and was then dismantled.

Next, we will review and explore various water supply options in Hong Kong. In this chapter, we will start with the desalination plant that was planned for decades but had an unusually short life.

海水化淡的出現

THE EMERGENCE OF DESALINATION

海水化淡，簡單而言便是將海水脫鹽令其成為淡水之方法，本是在船上使用的技術，傳統方法是透過蒸餾加熱海水使其脫鹽，讓船上的人有淡水可用。後來，不少蓄水能力較弱的小型島國開始將這技術搬上岸試用，有指位於地中海中心的馬爾他，便是全球首個設置小型海水化淡建築的島國。

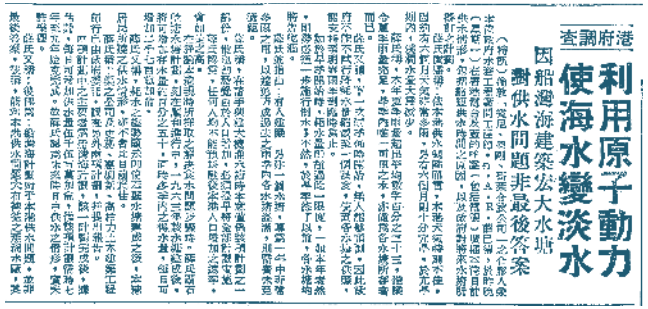
位於馬爾他東北部的城市 —— 斯利馬，有一座於 1881 年落成的小屋，門口上方刻有「Sea Water Distilling 1881」的字樣，據說它便是全球首座與海水化淡有關的建築。不過它比屯門樂安排海水化淡廠更「短命」，有記錄指它只用了一年便停用，及後變成了一間印刷廠。

Desalination, in short, is a method of desalinating seawater to make it fresh water, originally a technology used on vessels. The classical method is to heat seawater by distillation to desalinate it so that fresh water is available for people on board. Many small island countries with insufficient water storage capacity began to use this technology ashore for pilot use, with Malta, located in the centre of the Mediterranean Sea, being the first island country in the world to build a small desalination plant.

The city of Sliema, located in the northeast of Malta, has a hut built in 1881 with the words 'Sea Water Distilling 1881' engraved above the entrance, which is said to be the world's first building related to desalination. However, it was even more 'short-lived' than Lok On Pai Desalting Plant in Tuen Mun, as it was recorded to have been decommissioned after only one year, and later turned into a printing factory.

二戰後的核能研究

STUDY OF NUCLEAR POWER AFTER WORLD WAR II



港府調查
利用原子動力
使海水變淡水
因船過海建築宏大水塘
對供水問題非最後答案

從 1959 年 10 月 27 日的《華僑日報》可見，政府工程師公開透露正探索核能海水化淡技術。

As seen in the October 27, 1959 issue of *Wah Kiu Yat Po*, government engineers revealed that nuclear desalination technology was being studied.

自港府於 1860 年起建造水塘，收集雨水一直是香港食水的主要來源，期間 1890 年代至 1900 年代則斷續缺水及制水。1914 年，潔淨局為了開源，曾討論過海水化淡的可能性，不過由於成本高昂，每日燃燒二十噸煤的開支已要一千元，還有人手、機器折舊及保養等考慮，便將討論暫時擱置。

1910 年代以後，港府其實沒有放棄海水化淡的規劃，多年來一直研究海外例子。海水化淡一直以來最棘手的是成本問題，到了 1950 年代，二戰後的各國沒放棄具毀滅能量的核能，仍在研究以核能動力蒸餾海水，以減低成本並生產更多淡水，香港亦有探索其可行性。1959 年，香港政府的水務工程顧問工程師便曾於《香港電台》及《麗的呼聲》的訪問中預視，香港如遇極端天氣便會出現嚴重水荒，故建造水塘並非「最後答案」，更透露正研究核能海水化淡廠。

香港中文大學政治與行政學系講師李家翹曾研究「東江水背後的政治角力」，他曾引述一份 1964 年的政府檔案指，

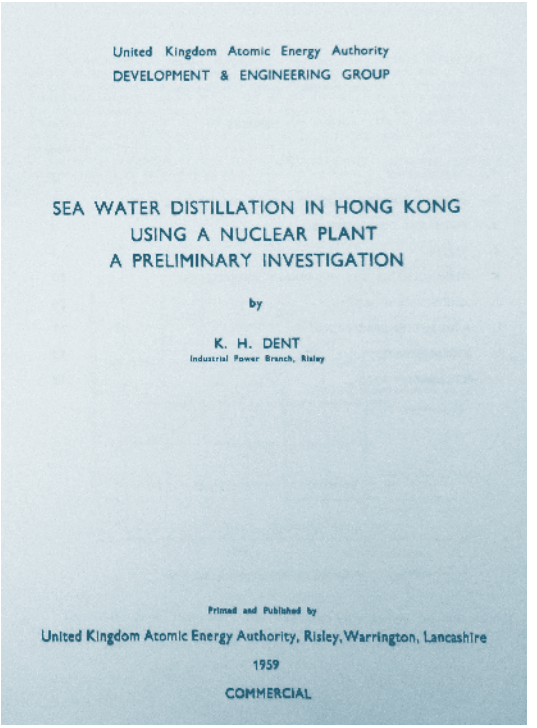
港府自 1959 年起便與英國原子能管理局緊密聯繫，深入研究適合的核反應堆。當中更有一份殖民地政府與英國政府來往的書信，隱隱透露對中國會因此得到核資料的憂慮。從另一份 1959 年由英國原子能管理局印製的初步調查報告中，我們可以看到當時已開始為選址做調查，終因技術未成熟而擱置。

Since the government started building reservoirs in 1860, rainwater has been the main source of drinking water in Hong Kong, with intermittent water shortages and rationing from the 1890s to the 1900s. In 1914, the Sanitary Board considered the possibility of seawater desalination in order to generate more water, but due to the high cost of burning 20 tons of coal per day, which would have cost $1,000, as well as manpower, depreciation and maintenance of machinery, the proposal was shelved.

After the 1910s, the government had not given up on desalination and had been studying overseas examples. The most challenging aspect of desalination has always been the cost. By the 1950s, countries in the post-World War II era had not given up on the destructive nuclear power and were still studying the feasibility of using nuclear power to distill seawater in order to reduce costs and produce more fresh water. Hong Kong also studied its feasibility. In 1959, the government's water works consultant engineer anticipated in an interview with RTHK and Rediffusion Television that Hong Kong would experience severe water drought in the event of extreme weather, so building reservoirs was not the 'last resort', and revealed that a nuclear desalination plant was being studied.

The Chinese University of Hong Kong's Department of Government and Public Administration lecturer Nelsen Lee Ka Kiu has studied 'the political tug-of-war behind the Dongjiang water'. He cited a government file of 1964, according to which the Hong Kong government had been in close contact with the UK Atomic Energy Authority

since 1959 to study in depth the option of nuclear reactors. There is also a correspondence between the colonial government and the British government, which implicitly reveals the concern that China would have access to nuclear data as a result. From another preliminary investigation report printed by the UK Atomic Energy Authority in 1959, it can be seen that the study for the site was already underway, but was shelved due to the immaturity of the technology.


United Kingdom Atomic Energy Authority
DEVELOPMENT & ENGINEERING GROUP

SEA WATER DISTILLATION IN HONG KONG
USING A NUCLEAR PLANT
A PRELIMINARY INVESTIGATION

by

K. H. DENT
Industrial Power Branch, Risley

Printed and Published by
United Kingdom Atomic Energy Authority, Risley, Warrington, Lancashire
1959
COMMERCIAL

1959 年由英國原子能管理局印製，有關於香港建造核能海水化淡廠的初步調查報告。相片由馬冠堯先生提供。

Preliminary investigation report on the construction of a nuclear desalination plant in Hong Kong, printed by the Atomic Energy Authority, UK, 1959. Photo courtesy of Mr Ma Koon-yiu.

制水令市民期待海水化淡

THE PLIGHT OF WATER RATIONING LED THE PUBLIC TO LOOK FORWARD TO DESALINATION

興建核能廠房的計劃是擱置了，但海水化淡廠的規劃則從未間斷，尤其 1963 年香港遇上大旱，市民每日深受制水之苦，對海水化淡廠的渴望更是愈來愈強烈。1963 年 12 月，《華僑日報》便報導指有傳會於北角建海水化淡廠，選址在炮台山稍上之山腰間，更描述市民「不論士農工商，男女老幼，均希望解除此種困苦」，又指「海水蒸餾呼聲一次比一次切實」，「希望傳聞盡快成事實」。

1964 年 4 月，又再傳出政府將斥四千萬元訂購兩座海水化淡機，分別設於北角及荔枝角。終於到 1965 年 2 月，政府正式宣佈將於荔枝角建首座海水蒸餾廠，會連同垃圾焚化爐一同興建，計劃日產二、三百萬加侖淡水，並正式展開招標。不過，當大家都引頸盼待這座化淡廠落成之時，一年之後，1966 年 4 月，政府再宣佈計劃延期。由於燃料成本問題未解決，翌年工務司接受傳媒訪問時就曾直指，在當時動工興建海水化淡廠猶如「投錢入溝」，承認必須先建水塘，再慢慢研究海水化淡廠，更曾估計於 15 年後會大量進行海水化淡。

The plan to build a nuclear power plant was shelved, but the planning of a desalination plant was never interrupted, especially in 1963 when Hong Kong was hit by a severe drought and the public was suffering from water rationing every day, so the desire for a desalination plant became increasingly strong. In December 1963, *Wah Kiu Yat Po* reported that there was a rumour that a desalination plant would be built in North Point, and the site would be located on the hillside slightly above Fortress Hill. It was also described that the public, 'no matter their professions, men, women and children, every one wants to be freed from such hardship' and 'it is hoped that the call for seawater distillation will become a reality as soon as possible'.

In April 1964, it was rumoured again that the government would spend $40 million to order two seawater desalination machines, to be installed in North Point and Lai Chi Kok. Finally, in February 1965, the government officially announced that the first seawater distillation plant would be built in Lai Chi Kok, together with a waste incinerator, with a capacity of two to three million gallons of fresh water per day, and officially called for tenders. However, while everyone was waiting for the completion of the plant, a year later, in April 1966, the government announced that the project would be postponed again. In the following year, the Director of Public Works, when interviewed by the media, pointed out that the construction of a desalination plant at that time was like 'throwing money into a ditch' because the problem of fuel costs had not yet been solved, admitting that reservoirs had to be built first and then the desalination plant would be studied slowly. It was even estimated that desalination would be carried out on a large scale in 15 years.

選址屯門樂安排，斥巨額建廠

THE PLANT WAS BUILT WITH ENORMOUS COST AND LOCATED IN LOK ON PAI, TUEN MUN

雖然海水化淡計劃遇上一次又一次的阻滯，但港府為了籌備計劃，確實下了不少苦功。1967 年，時任水務局局長羅弼臣便曾遠赴格拉斯加大學進修碩士課程，學習海水化淡的理論及海水化淡廠的設計。1969 年，政府宣佈耗資一百二十萬訂購海水化淡機，並將於兩年內設立試驗性質的海水化淡廠。1970 年，政府宣佈化淡廠選址青山，由日本公司承建，水務局局長羅弼臣亦深造完畢，回港主理建廠一事。

造價 137 萬的試驗性海水化淡機，於 1971 年終於開始運作，使用「多階段降鹽蒸餾法」，為在大欖涌水塘附近設大規模廠房做準備。實驗成果理想，政府翌年便在屯門樂安排附近、青山十七咪處填海，並預計廠房每日可供水四千萬加侖（約是當時每日用水量的兩成）。由於海水加熱後要再降壓、冷凝等，反覆四、五十次，故設備還包括水泵及蒸汽爐等，造價四億五千多萬。為了興建它，政府更要向銀行貸款一億，分 15 年攤還。其實當時東江水供港已有五、六年，但政府明顯很有決心要建立更完善、自主的供水系統，不惜欠債也要上馬。

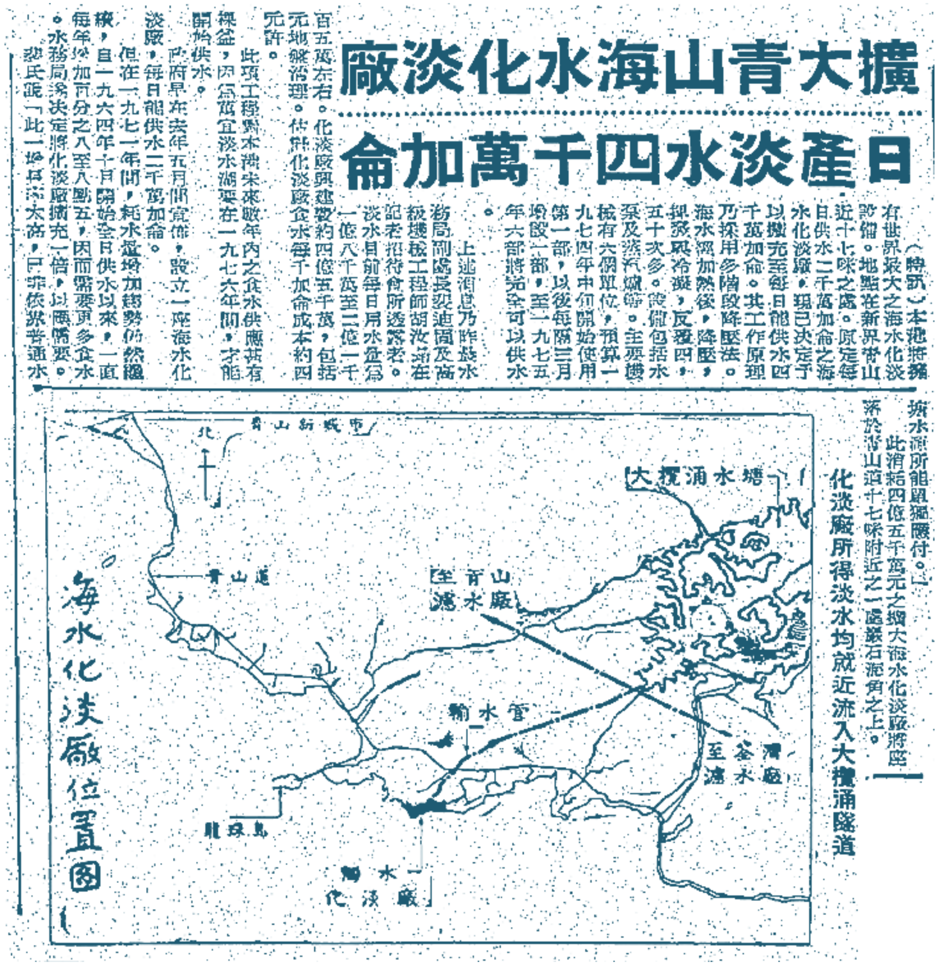
擴建後的樂安排海水化淡廠於 1975 年落成，是當時全球最大的海水化淡廠。市民曾一度幻想香港可以從此靠海水化淡和本地集水自給自足，偏偏卻遇上全球燃油價格急升。由於燃料成本已比動工時上升兩倍，最終化淡廠於 1982 年因成本太高而停運，只運作了短短數年。這數年間，中英雙方為香港前途問題下了定案，建立獨立供水體系的命題亦隨之悄然落幕。

Although the desalination project was hampered time and again, the government did make a lot of efforts to bring it to fruition. In 1967, the then Director of Water Supplies, Alexander Robertson, went to Glasgow University to take a postgraduate course in desalination theory and desalination plant design. In 1969, the government announced that it would spend $1.2 million to procure

desalination machines and set up a pilot plant within two years. In 1970, the government announced that the desalination plant would be built at Castle Peak by a Japanese firm. The Director of Water Supplies, Robertson, also completed his studies and returned to Hong Kong to take charge of the construction of the plant.

The $1.37 million experimental desalination plant finally came into operation in 1971, using the 'multi-stage flash distillation'. It was designed to prepare for a large scale plant near the Tai Lam Chung Reservoir. Due to the satisfactory results of this experiment, the government reclaimed the land near Lok On Pai, Tuen Mun, at Castle Peak Road (17 MS) the following year, and estimated that the plant could supply 40 million gallons of water per day (about 20% of the daily water consumption at that time). Since the seawater had to be heated and then depressurised and condensed for 40 to 50 times, the machinery also included pumps and steam furnaces, costing more than $450 million. In order to build the plant, the government had to obtain a bank loan of $100 million, which was to be repaid over 15 years. In fact, Dongjiang River had already been supplying water to Hong Kong for five to six years, but the government was obviously determined to build a better and more autonomous water supply system, so it had to start the project even though it was in debt.

The expansion of the Lok On Pai Desalting Plant, the world's largest desalting plant at the time, was completed in 1975. The public was once under an illusion that Hong Kong would be self-sufficient from desalination and local water catchment, but the global fuel price rose sharply, twice as much as when the construction of plant commenced. The plant was finally shut down in 1982 due to high costs of operation. During these years, the future of Hong Kong was decided by both the British and the Chinese governments, and the idea of establishing an independent water supply system came to an end.



擴大青山海水化淡廠
日產淡水四千萬加侖

（時訊）本港將擴建世界最大之海水化淡設備。地點在新界青山近十七咪之處。原定每日供水二千萬加侖之海水化淡廠，現已決定予以擴充至每日能供水四千萬加侖。其工作原理乃採用多階段降壓法，海水經加熱後，降壓，使蒸發冷凝，反覆四，五十次多次。設備包括水泵及蒸汽爐等。主要機械有六個單位，預算一九七四年中開始使用，第一部，以後每隔三月增設一部，至一九七五年六部將完全可以供水。

上述消息乃昨日水務局副處長梁迪爾及高級機械工程師胡汝藩在記者招待會所透露者。

淡水目前每日用水量爲一億八千萬至二億一千百五萬左右。化淡廠興建費約四億五千萬，包括元，地盤將平整。估計化淡廠食水每千加侖成本約四元許。

此項工程對本港未來數年內之食水供應甚有裨益，因爲萬宜淡水湖要在一九七六年間，才能開始供水。

政府早在去年五月間宣佈，設立一座海水化淡廠，每日能供水二千萬加侖。

但在一九七一年間，耗水量增加趨勢仍然繼續，自一九六四年十月開始全日供水以來，一直每年增加百分之八至八點五，因而需要更多食水。水務局決定將化淡廠擴充一倍，以應需要。

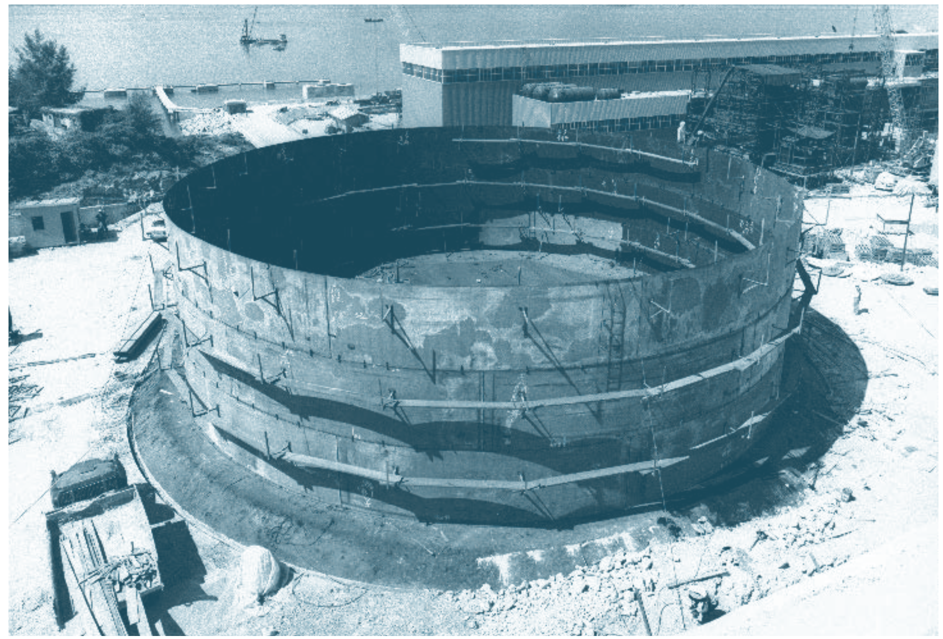
梁氏說「此一增長率太高，已非依照普通水濾水廠所能單獨應付。」

此消耗四億五千萬元之擴大海水化淡廠將座落於青山道十七咪附近之一處巖石海角之上。

化淡廠所得淡水均就近流入大欖涌隧道

在 1972 年 1 月 22 日的《香港工商日報》上，政府公佈海水化淡廠選址。

In the January 22, 1972 issue of *The Kung Sheung Daily News*, the government announced the location of the desalination plant.



1974 年興建中的樂安排海水化淡廠。

Lok On Pai Desalting Plant under construction in 1974.

拆卸後，新化淡廠於2023年重臨

THE NEW DESALINATION PLANT WILL COME BACK IN 2023

樂安排海水化淡廠於 1992 年被拆卸，或許當時誰也沒想過，海水化淡廠有天會重臨香港，座落將軍澳。不過，新廠用的是逆滲透新技術，2023 年落成後可為香港提供 5 至 10% 的食水。

當東江水的流量每十年都在下跌，珠江三角洲附近依賴東江水的各個城市又不斷發展，作為一個有資源的城市，自主的供水系統不再只是關乎政治角力的命題，而是在資源不足而競爭隨之的處境下，一個負責任的打算。

The Lok On Pai Desalting Plant was demolished in 1992. Perhaps no one thought at the time that the desalination plant would one day return to Hong Kong and be located in Tseung Kwan O. The new plant uses the new reverse osmosis technology and will provide 5 to 10% of Hong Kong's water supply in 2023.

At a time when the flow of Dongjiang water is declining every decade and the cities around the Pearl River Delta that depend on it are growing, an autonomous water supply system for a city with resources is no longer just a matter of politics, but a responsible plan in a situation where resources are scarce and competition follows.

只運作了短短三年的樂安排海水化淡廠。
The desalting plant was operated for only three years in Lok On Pai.

購水輸港：東江水的前世今生

PURCHASING WATER FOR HONG KONG: THE PAST AND PRESENT OF DONGJIANG WATER

香港今天有七至八成的食水來自東江，最早源自 1950 年代。為了解決水荒，港府於 1950 年代末開始商討，並於 1960 年正式向中國的深圳水庫購買食水。不過到了 1963 年，即使民間要求政府向中國購買更多食水，但期時不只香港遇上極端乾旱天氣，深圳水庫亦告缺水。

1963 年 7 月，不少報章引述消息指，港府為計劃解決長期水荒，由英國駐北京代辦人員與中方協商，擬安裝巨型水管汲取東江水，並另於深圳開採深井增加水源。當時已傳出中方表示會基於「十分同情之考慮」，樂於供水到港。翌月，港督柏立基在外國記者俱樂部透露未來會汲取東江淡水，並指「現由中共當局考慮中」。直至同年 12 月，民間再有批評質疑何以不向中方買更多食水，政府便重申總督聲明，指當時中國亦陷於水荒，深圳水庫亦減供應量。

港府計劃解決長期水荒

擬裝管汲東江水

該案經由英駐北平代辦與中共洽商

並已另決定在深圳河開深井增水源

宜未雨而綢繆

已臨渴而掘井

據 1963 年 7 月 10 日的《工商晚報》，港府正與中方商談由東江引水。
According to the July 10, 1963 issue of *The Kung Sheung Evening News*, the Hong Kong government was negotiating with the Chinese Government to divert water from Dongjiang.

Today, 70% to 80% of Hong Kong's water comes from Dongjiang, which was first introduced in the 1950s. To resolve the problem of water shortage, the Hong Kong government began to negotiate in the late 1950s, and in 1960 formally purchased water from China's Shenzhen Reservoir. However, in 1963, even though the public urged the government to buy more water from China, not only was Hong Kong experiencing extreme drought, but the Shenzhen Reservoir was also short of water.

In July 1963, many newspapers quoted that the Hong Kong government was planning to resolve the chronic water shortage by having the British *chargé d'affaires* in Beijing negotiate with the Chinese government to install a giant aqueduct to draw water from the Dongjiang River and to drill deep wells in Shenzhen to provide more water. At that time, it was reported that the Chinese government would be 'very sympathetic' and would be happy to supply water to Hong Kong. In the following month, the Governor of Hong Kong, Sir Robert Black, revealed at the Foreign Correspondents' Club that fresh water from the Dongjiang River would be drawn in the future and that 'the Chinese authorities were considering it'. In December of the same year, when there were criticisms from the public questioning why the government did not buy more water from the Chinese side, the government reiterated the Governor's statement, saying that China was also in water shortage and the Shenzhen Reservoir had reduced its supply.

大型紀錄片《東江之水越山來》的截圖，歌頌中方供水予港。
A screenshot from the documentary film *Dongjiang Water Over the Mountains*, celebrating China's water supply to Hong Kong.

落實東江水供港的兩種演繹

TWO INTERPRETATIONS OF THE IMPLEMENTATION OF DONGJIANG WATER SUPPLY TO HONG KONG

東江水消息一直處於傳聞階段，到 1964 年 4 月，商談才終於圓滿。香港政府派出副工務司兼水務局局長毛瑾到廣州，與廣東省當局簽署東江水買賣協議，落實會引東江水到深圳水庫，再供應至香港。當時的供水量為每年一百五十億加侖，每一千加侖水價為一元零六分，比 1960 年簽定的協議貴四倍以上。協議會於 1965 年 3 月生效，10 月開始供水。

東江水終於落實供港，還源於與中方友好的商界賢達的穿針引線。當時《大公報》報導便指，隨團到廣州商談的還包括香港實業家王寬誠，他回港後亦大方暢談見聞。雖然殖民地政府僅視東江水買賣為一則解決逼切水荒問題的商業交易，但當時有製片公司卻拍攝了一部大型紀錄片，名為《東江之水越山來》，內容講述香港制水之苦、東江水工程之龐大，並歌頌中國工人為了建造供水系統的辛勞等，可見雙方對演繹供水一事的差異與角力。電影於 1965 年 3 月上映，於普慶戲院舉行首映禮，不少商界知名人士亦有出席，包括曾任華商總會的高卓雄、有「澳門影子總督」之稱的華人領袖何賢等。

The news of Dongjiang water was still at the stage of hearsay, and it was only in April 1964 that the negotiations were finally completed. The Hong Kong government sent the Deputy Director of Public Works cum Head of the Waterworks Office, T.O. Morgan, to Guangzhou to sign an agreement with the Guangdong authorities on the sale and purchase of Dongjiang water, confirming that Dongjiang water would be diverted to the Shenzhen Reservoir and then supplied to Hong Kong. The amount of water supplied at that time was 15 billion gallons per year, and the price per 1,000 gallons was 1 yuan and 6 cents, more than four times higher than the agreement signed in 1960. The agreement would take effect in March 1965 and the water supply would begin in October.

The finalisation of the supply of Dongjiang water to Hong Kong was made possible also through the efforts

of business leaders who were in good relations with the Chinese authorities. As reported by *Ta Kung Pao*, the delegation to Guangzhou included Hong Kong industrialist Wong Kwan Cheng who talked about his experiences upon his return to Hong Kong. Although the colonial government only saw the Dongjiang water trade as a commercial deal to solve the pressing water shortage problem, a production company made a documentary film *Dongjiang Water Over the Mountains*, which described the hardship of water rationing in Hong Kong, the enormous scale of the Dongjiang water project, and celebrated the hard work of the Chinese workers in building the water supply system, showing the difference between the two sides in interpreting the water supply issue. The film was released in March 1965 and the premiere was held at Astor Theatre. Many prominent figures from the business sector attended the premiere, including Ko Chuk Hung, who was a former member of the Chinese General Chamber of Commerce, and Ho Yin, a Chinese leader known as the 'Shadow Governor of Macau'.

逐年遞增的東江供水

ANNUAL INCREASE OF DONGJIANG WATER SUPPLY

1965 年東江水供港後，全球首個海上水塘 —— 船灣淡水湖亦於 1968 年落成，而政府依然繼續規劃容量更大的萬宜水庫，更斥巨資興建樂安排海水化淡廠。按香港中文大學政治與行政學系講師李家翹基於多年檔案研究的推論指，殖民地政府期望減少對東江水依賴的意圖非常明顯。直至 1979 年香港前途問題篤定。

此後，東江水的故事大家都很清楚了。1979 年，政府決定擴大東江水供港工程；1980 年，政府興建屯門配水庫，引入更多東江水，並簽訂東江水供港新協議，按年遞增至六億至九億立方米；1982 年，為配合東江水增加，建新輸水道系統。如今香港七至八成的食水都依賴東江水。

After the supply of Dongjiang water to Hong Kong in 1965, the world's first coastal reservoir, Plover Cove Reservoir, was completed in 1968. The government continued to plan for a larger reservoir at High Island, and also invested substantially in the construction of a desalination plant at Lok On Pai. According to Dr Nelson Lee, a lecturer in the Department of Government and Public Administration at the Chinese University of Hong Kong, based on years of archival research, the colonial government's intention to reduce its dependence on Dongjiang water was obvious. It was not until 1979 that the future of Hong Kong was decided.

Since then, the story of Dongjiang water is clear to everyone. In 1979, the government decided to expand the supply of Dongjiang water to Hong Kong; in 1980, the government built the Tuen Mun Service Reservoir to bring in more Dongjiang water and signed a new agreement to supply Dongjiang water to Hong Kong, increasing it to 600-900 million cubic metres annually; in 1982, a new aqueduct system was built to match the increase in Dongjiang water supply. Today, 70% to 80% of Hong Kong's water supply relies on Dongjiang River.

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四十多年後，當香港人打開水龍頭時已幾乎無感，翻查報告，近年的東江水流量報告卻顯示，水的總流量正持續減少，各個珠江三角洲附近城市更須訂立供水上限。供水自主，不再只是民生或政治問題。香港，又或香港人，在一片資源爭奪危機中又該如何立命？

Forty-odd years on, when the people of Hong Kong turn on the taps, they hardly treasure the access of running water. A review of recent reports on the flow of Dongjiang water shows that the total flow is decreasing, and that cities near the Pearl River Delta are required to set water supply ceilings. The autonomy of water supply is no longer just a matter of livelihood or politics. How can Hong Kong, or the people of Hong Kong, survive in the midst of a crisis of competing for resources?

番外篇：花灑

EPILOGUE : SHOWER

人有衛生清潔的需要，沐浴要有合適的空間

當水資源變得豐裕，人重視生活質素
始有與水相關的遊樂休閒場所

公共浴室，泳池，水上樂園
曾幾何時，這些公共場所發揮過重要的社會功能

People need to keep hygienic and clean, and there must be a suitable space for bathing.

When water resources become abundant and people value the quality of life, there are water-related recreational and leisure facilities.

Public bathhouses, swimming pools, water parks, there was a time when these public facilities served an important social function.

澡堂：早期香港的公共衛生課

THE BATHHOUSE: A PUBLIC HEALTH LESSON IN THE EARLY DAYS OF HONG KONG

在 2020 年的疫情下，大家每天洗手、搓手的次數，可能是以往幾天的總和，是否難以想像百多年前，在未有供水網絡前的疫情下是如何過活？其實香港建立供水網絡初期，除了是想改善食水品質，亦是為了改善維多利亞城的衛生情況。隨着水管與旁喉陸續接通城內各處，居民與清潔工得到清潔居所與街道的用水，亦減低了疫症蔓延的機會。然而在個人清潔衛生層面，沐浴除了需要有水，亦需要一個合適的空間。比如是，公共浴室。

During the outbreak of COVID-19 in 2020, the number of times people washed and rubbed their hands every day may be more than the total of the past few days. Is it hard to imagine how people lived under the plague more than 100 years ago when there was no water supply network? When the water supply network was first established in Hong Kong, it was not only to improve the water quality, but also to improve the sanitation of Victoria City. As water pipes and main riders were connected to the city, residents and cleaners were provided with water to clean their homes and streets, thereby minimising the risk of spreading diseases. However, in terms of personal hygiene, bathing requires not only water, but also a proper place to bathe. For example, public bathhouses.

澡堂作為抗疫政策

BATHHOUSES AS A RESPONSE TO THE PLAGUE

沐浴文化於世界各地皆有悠久歷史，在不少古城遺址中皆能發現澡堂遺跡。澡堂除了是沐浴空間外，亦是社交場所。19 世紀末的香港便有不少商營浴室，然而收費頗高，非一般低下階層能夠負擔。直至 1894 年香港爆發鼠疫後，港府研究興建免費公共浴室，期望能改善基層華人的衛生情況，浴堂開始走進基層生活。

1903 年，位處於西營盤的常豐里（第二街及第三街之間的一條小巷）亦曾爆發鼠疫，港府與華人鄉紳前往視察環境，發現衛生環境非常惡劣，遂把第二街及第三街劃為「試驗街區」，於區內實行三個月的防疫試驗。他們除了把街區內居民強制搬遷至石塘咀外，亦於第二街與常豐里交界租用了數幢木唐樓，改建成臨時浴室，旨在改善附近居民的衛生習慣，研究能否達至抗疫目標。

翌年，一座永久性公共浴室再於上環磅巷落成，以應對太平山區嚴重的疫情。亦因當時船隻是透過燃燒煤炭提供動力，不少工人得長期於鍋爐房添加煤炭，故港府於灣仔交加里亦建了一座男浴室，廣受煤炭工人歡迎。根據 1907 年的政府文件，不論是灣仔和上環的公共浴室，還是西營盤的臨時浴室，每年皆有約八至十一萬人次使用。所有浴室都設有獨立淋浴格，並有熱水爐房於冬天時提供熱水，更會有居民帶同木盆前往公共浴室內浸浴。

經過一段長時間研究，港府認為設立公共浴室能有效改善衛生環境。是以除了於 1920 年代將西營盤臨時浴室重建成永久浴室，亦於油麻地、灣仔等地加建公共浴室服務居民。直至 1939 年，香港共建有七座公共浴室。

圖為 1963 年西營盤高空照片。四方框內為試驗街區範圍。圓點為浴室位置。
The image is an aerial view of Sai Ying Pun in 1963. The area within the frame is the pilot street area. The dot is the location of the bathhouse.

(Aerial Survey Hong Kong Island Ref: 1963.4)

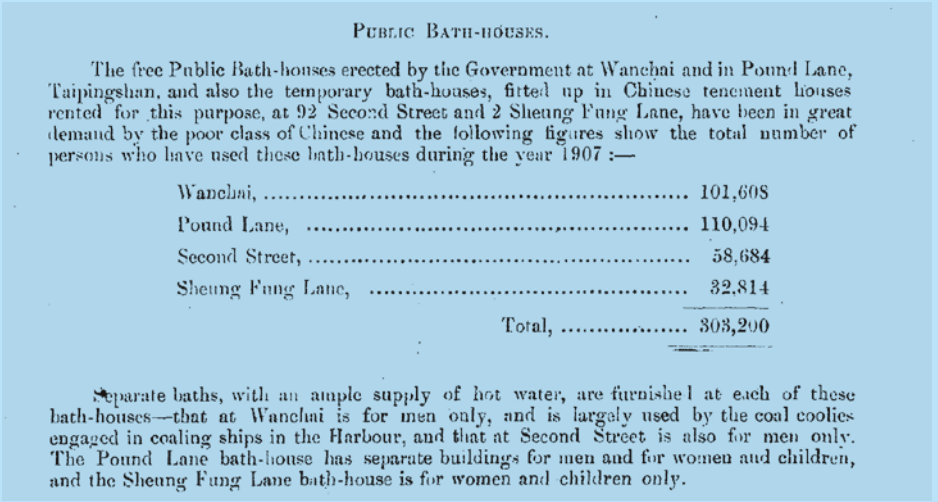
Bathing culture has a long history all over the world, and the remains of bathhouses can be found in many old cities. In addition to being a bathing space, bathhouses were also a place for socialising. In the late 19th century, there were many private bathhouses in Hong Kong, but the charges were quite high and not affordable to the low-income people. It was not until 1894, after the outbreak of the bubonic plague in Hong Kong, that the government studied the possibility of building free public bathhouses in the hope of improving the hygiene of the low-income Chinese community. Since then bathhouses began to enter the lives of the grassroots.

In 1903, there was an outbreak of plague in Sheung Fung Lane in Sai Ying Pun (an alley between Second and Third Streets). Government officials and leaders of the Chinese community inspected the area and found that the sanitary conditions were very poor. Therefore, Second and Third Streets were designated as a ‘pilot area’ and a three-month trial

of disease control was carried out in the area. In addition to the mandatory relocation of the residents to Shek Tong Tsui, several wooden tenement buildings were rented at the junction of Second Street and Sheung Fung Lane and converted into temporary bathhouses, with the aim of improving hygiene practices of the nearby residents and studying whether the goal of disease control could be achieved.

In the following year, a permanent public bathhouse was completed in Pound Lane, Sheung Wan, to combat the severity of the outbreak in the Tai Ping Shan District. Back then ships were powered by coal, and many workers spent hours in the boiler room shovelling coal. In response, the government built a men's bathhouse in Cross Lane, Wan Chai, which was popular with coal workers. According to government documents dated 1907, the public bathhouses in Wan Chai and Sheung Wan, as well as the temporary bathhouse in Sai Ying Pun, were used by about 80,000 to 110,000 people each year. All bathhouses were equipped with individual shower cubicles and had a boiler to supply hot water in winter. Some people would bring wooden tubs to the public bathhouses to enjoy a bath.

After a long period of study, the government decided that public bathhouses could effectively improve the hygiene and sanitation. Therefore, in addition to rebuilding the temporary bathhouse in Sai Ying Pun into a permanent bathhouse in 1920s, public bathhouses were also built in Yau Ma Tei and Wan Chai to serve the residents. By 1939, there were seven public bathhouses in Hong Kong.



PUBLIC BATH-HOUSES.

The free Public Bath-houses erected by the Government at Wanchai and in Pound Lane, Taipingshan, and also the temporary bath-houses, fitted up in Chinese tenement houses rented for this purpose, at 92 Second Street and 2 Sheung Fung Lane, have been in great demand by the poor class of Chinese and the following figures show the total number of persons who have used these bath-houses during the year 1907 :—

Wanchai,	101,608
Pound Lane,	110,094
Second Street,	58,684
Sheung Fung Lane,	32,814
Total,	303,200

Separate baths, with an ample supply of hot water, are furnished at each of these bath-houses—that at Wanchai is for men only, and is largely used by the coal coolies engaged in coaling ships in the Harbour, and that at Second Street is also for men only. The Pound Lane bath-house has separate buildings for men and for women and children, and the Sheung Fung Lane bath-house is for women and children only.

1907 年政府記錄公共浴室的使用人次。
Government records of the number of people using public bathhouses in 1907.

(SP 1908 - Report for 1907 Medical)

澡堂提供的專用沐浴間與私隱

EXCLUSIVE BATHING ROOMS AND PRIVACY PROVIDED BY BATHHOUSES

今天不少香港人家中都有獨立廚廁，但數十年前的香港仍有不少家庭居住於板間房、徙置區或木屋區中，獨立沐浴空間對他們而言是一個奢侈體驗。根據一位西營盤老街坊的回憶，小時候居於分租的唐樓單位，廚房便是屬於各合伙人的多用途空間，除了日常煮食外，成年人亦會於廚房燒水沐浴。為免洗澡時阻礙其他人使用灶頭，部份人洗澡時會於廚房門架上一把掃帚，提醒其他同屋主有人正在廚房沐浴，唯有先問清楚淋浴者是同性還是異性，才能決定繼續進入廚房煮食還是先返回自己房間。

廚房空間寶貴，不宜長時間佔用，因此小孩子並沒有在廚房洗澡的權利，要到唐樓的戶外後樓梯用木桶盛水洗澡。與在家中的環境對比，公共浴室除了提供免費的冷熱水外，更重要是提供到一個清潔自己身體的空間。

Today, many Hong Kong families have their own kitchen and toilet, but decades ago there were still many families living in cubicle apartments, resettlement areas or squatter areas in Hong Kong, and a private bathing space was a luxury for them. According to the memory of an old resident of Sai Ying Pun, when he was a child living in a tenement flat, the kitchen was a multi-purpose space belonging to each tenant. Apart from the daily food preparation, adults would also boil water for bathing in the kitchen. In order to avoid preventing other people from using the stove while bathing, some people would put a broom on the kitchen door to remind other tenants that someone was bathing in the kitchen, and only after asking whether the person taking the shower was of the same or opposite sex could they decide whether to go into the kitchen to cook or return to their own rooms.

Kitchen used to be a precious space and should not be occupied for a long time, so children did not have the right to take a bath in the kitchen, but had to go to the outdoor back stairs of the tenement building to take a bath with a wooden bucket filled with water. In contrast to the

environment at home, public bathhouses not only provided free hot and cold water, but more importantly, a space to clean oneself.

西營盤第二街公共浴室。
Public bathhouse in the Second Street of Sai Ying Pun.

現存最歷史悠久的公共浴室

THE OLDEST SURVIVING PUBLIC BATHHOUSE

位處第二街與西邊街交界的第二街公共浴室，是香港現存最歷史悠久的公共浴室，自 1925 年 11 月 18 日重建落成開幕後，至今已經歷了 97 個寒暑。若連同臨時浴室歲月計算，這浴室在過去 119 年皆以同一用途服務香港人。

自 1903 年「試驗街區」計劃開始，浴室鄰近土地相繼落成西約方便醫所、贊育醫院等醫療衛生建築，整個建築群可謂城市的歷史見證。雖然公共浴室外觀並不華麗，卻能展現出昔日公共建築以功能為先、簡化設計的特色。如今當你走進浴室時，可能會訝異於她仿如被時光凍結的設備。

現時浴室設計維持舊時的低私隱度，淋浴隔間的隔板高度只有 145 厘米，一般男性只能遮掩胸口以下、小腿以上的身體部份，而女性亦只能遮掩至膊頭位置，與現時體育館或游泳池更衣室內的淋浴格有極大差異。同時用家亦不能自己控制水溫，因每個淋浴格只配有一個控制水量大小的開關。此浴室亦不是全年有熱水供應，而是有一個有趣的開放熱水機制：若每年 11 月任何一天上午 7 時錄得攝氏 20 度或以下，浴室便會開始供應熱水直至翌年 4 月；若在翌年 4 月內任何連續三天上午 7 時錄得攝氏 25 度或以上，浴室便會停止供應熱水。

由於用家不能控制水溫，資深用家於冬季使用浴室時都會注意開啟水龍頭時的水溫，更有人會帶同水盆盛起熱水，等待水溫稍降後才以存水淋浴。

1925 落成的建築能保留至今，亦與周邊環境有關。1970 年代，政府文件已表示第二街公共浴室十分殘舊，但由於預期西營盤區短期內將有大型市區重建發展，因此未考慮重建浴室，而是等待整個區域重建後再拆卸。但西營盤的市區重建速度並不似預期，因此市政局於 1990 年代中曾翻新浴室，

讓浴室由昔日的棕白色外觀改變為現時的粉紅色，內部的低私隱設計則繼續保留。

現有的第二街公共浴室，其實當年是連同西邊街地底的地下公廁一同興建，是一個綜合地面上下而設計的建構物。但西邊街地下公廁已於 1990 年代中關閉及拆卸出入口，僅留下浴室部份，是港島區現時碩果僅存，唯一一個未經拆卸重建過的戰前浴室。

圖為現存的第二街公共浴室。浴格間的隔牆高度只有 145 厘米。
The image shows the existing Second Street Public Bathhouse.
The height of the partition wall between the bathing cubicles is only 145 cm.

現時第二街公共浴室已改用煤氣熱水爐。圖為浴室內的三個熱水爐。
相片由 Mr. Hoover Lee 拍攝。
Gas boilers are now installed in Second Street Public Bathhouse.
The image shows the three boilers in the bathhouse.
Photo courtesy of Mr. Hoover Lee.

The Second Street Public Bathhouse, located at the junction of Second Street and Western Street, is the oldest existing public bathhouse in Hong Kong, with a history of 97 years since it was rebuilt and opened on November 18, 1925. If the years of temporary bathhouses are taken into account, this bathhouse has been serving Hong Kong people for 119 years.

Since 1903, when the 'pilot area' scheme began, medical and health facilities such as the West Point Chinese Public Dispensary and Tsan Yuk Hospital were built in the vicinity of the bathhouse, making the entire complex a testament to the city's history in public health. Although the public bathhouses did not have an attractive appearance, they showcased the features of public buildings of the past, which were function-oriented and simplified in design. When you walk into a bathhouse today, you may be surprised by the way it looks as if it has been frozen in time.

The current bathhouse design retains the low privacy of the old days, with shower cubicles that are only 145 cm high, covering only the part of the body below the chest and above the calf for men and up to the base of the shoulder for women, a far cry from the shower cubicles in today's gymnasiums or swimming pools. Also, the water temperature is not controlled by the user, as each shower cubicle has only one switch to control the amount of water. The bathhouse does not have a year-round hot water supply, but has an interesting mechanism for hot water supply: if it is 20 degrees Celsius or below at 7am on any day in November, the bathhouse will start supplying hot water until April of the following year; if it is 25 degrees Celsius or above at 7am on any three consecutive days in April, the bathhouse will stop supplying hot water.

Since users cannot control the water temperature, experienced users will pay attention to the water temperature when turning on the tap in winter, and some will even bring a bucket with them to store hot water

and wait until the water temperature drops a bit before showering with stored water.

The fact that the building, completed in 1925, has been preserved to this day is also related to the surrounding environment. In the 1970s, government documents already indicated that the Second Street Public Bathhouse was very dilapidated, but since it was expected that there would be major urban redevelopment in Sai Ying Pun in the near future, rebuilding the bathhouse was not taken into consideration and the bathhouse would only be demolished after the whole area was redeveloped. However, the progress of urban redevelopment in Sai Ying Pun was not as fast as expected, so the Urban Council renovated the bathhouse in the mid-1990's, changing it from its former brown and white appearance to the current pink colour, while retaining the low-privacy interior design.

The existing Second Street Public Bathhouse was actually built together with the underground public toilet underneath Western Street, a structure designed to be an integrated structure above and below ground. However, the Western Street underground public toilet was closed in the mid-1990s and the entrance was demolished, leaving only the bathhouse as the only remaining pre-war bathhouse on Hong Kong Island that has not been demolished and rebuilt.

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日本的公共澡堂是社區內的社交場所，發揮了以水聚人的社會功能，而香港的公共浴室以往也是一個聚人的場所。1928 年香港大水荒前夕曾實施一級和二級制水，亦是第二街公共浴室錄得戰前使用量最高峰的一年，全年約七十萬人次使用，平均每天約二千人次。順帶一提，此浴室過去一百年來與香港人共同渡過疫症、水荒和戰亂，現時已獲評級為二級歷史建築。

Public bathhouses in Japan serve as a social venue in the community and bring people together with water. Public bathhouses in Hong Kong used to be a place to bring people together too. In 1928, when tier 1 and tier 2 water rationing were in effect just before a severe water drought hit Hong Kong, the Second Street Public Bathhouse was at its peak of use in the pre-war era, with about 700,000 users a year, an average of about 2,000 per day. Incidentally, the bathhouse has survived epidemics, water droughts and wars for the past 100 years. It is now classified as a Grade II historic building.

玩水：水曾發揮的文娛功能

WATER PLAY: THE CULTURAL AND RECREATIONAL FUNCTIONS THAT WATER ONCE SERVED

自水源開始穩定，市民有條件追求生活質素，水在這城市，開始被賦予其他功能。上世紀中段，香港政府陸續設計了不少嬉水的地方，以水聚人，建立市民對城市的歸屬感，亦希望提昇市民娛樂生活質素，以紓解因生活空間擠迫而積聚的社會民怨。尤其在六七暴動後，港府重新檢視施政，官員認為騷亂原因之一是當時的青少年缺乏文娛康樂設施，增加郊野公園、設立社區中心、興建游泳池等遂成為解決方法。游泳後來成為香港人，特別是青少年一大消閒活動，其中有這一層管治考慮。香港人這些年間究竟玩過「乜水」？今次就跟大家談幾個香港「第一」水。

When water sources began to stabilise and people were able to pursue quality of life, water began to serve other functions in the city. In the mid-20th century, the Hong Kong government designed a number of recreational spaces to bring people together with water, to build a sense of belonging to the city, and to improve the quality of recreational life, so as to alleviate the social grievances that had accumulated due to the overcrowded living conditions. In particular, after the 1967 riots, the Hong Kong government re-examined its policy and officials believed that one of the reasons behind the riots was the lack of cultural and recreational facilities for young people. Increasing the number of country parks, setting up community centres and building swimming pools became a solution accordingly. Swimming has since become a major leisure activity for Hong Kong people, especially teenagers, and governance considerations were actually taken into account. What kind of aquatic activities have the people of Hong Kong enjoyed over the years? Here we will share with you some of the major recreational events related to water in Hong Kong.

(一)

香港第一個公眾泳池

1. THE FIRST PUBLIC SWIMMING POOL IN HONG KONG

1965 年維園游泳池的主池。
The main swimming pool in Victoria Park in 1965.

在未有公眾泳池前，香港人都喜歡到私營泳棚。香港第一個泳棚在北角七姊妹區海邊，於 1911 年已建成，其後其他地區陸續出現泳棚，尤以西環的鐘聲泳棚最著名。當時，兩毫便租到一個以舊車軚內膽造的水泡輔助暢泳，對市民來說，是划算的一項消遣活動。不過，私營泳棚後來因公共泳池的出現而漸漸沒落。

香港第一個公眾泳池，則是維多利亞公園泳池，服務市民足足逾半世紀。泳池於 1957 年 10 月 16 日由時任港督葛量洪爵士揭幕，當日還有拯溺表演、花式跳水表演、警察銀樂隊奏樂助慶。泳池於翌日上午正式開放，其時的入場費是 14 歲以上人士五毫，14 歲以下人士為三毫。

維園泳池的設施新穎完善，共有三個露天泳池，分別是（1）附有跳水台的主池；（2）兒童用的淺水池；（3）幼童玩的戲水池。

主池符合國際標準，以便舉行比賽，如本港、埠際及亞洲游泳與跳水比賽，晚上游泳更有水銀燈光。至於小朋友用的淺水池，則設有水車與滑台。看台觀眾席數目近二千，泳池旁更有可散步的地方，另外日光浴場、更衣室、淋浴間、茶水部等一應俱全。

自開放後，維園泳池深受市民歡迎，首年就有超過 36 萬人次使用，每逢夏天便相當擠擁。1960 年的報章專欄就這樣向讀者介紹此消遣好去處：「小泳一回人擁倒也無傷大雅的，所費的入場券，只不過五毫錢，作為沐浴一下的代價也算值得。」就算不游泳，也可以在看台左邊的茶水部喝杯咖啡，「欣賞一下泳池中的游泳者，有風涼水冷之妙」。

昔日維園泳池已在 2013 年光榮退役，在此前，康文署特意開放予有興趣的市民免費參觀和拍照留念。新泳館於同年啟用，泳館外仍保留舊泳池揭幕的牌匾。不過，可留意的是，新舊泳池的地點並不相同，舊泳池原址為現時滾軸溜冰場及手球暨排球場的位置。

Before there were public swimming pools, Hong Kong people enjoyed going to private swimming sheds. The first swimming shed in Hong Kong was built in 1911 at the waterfront of the Tsat Tsz Mui area in North Point, and then in other areas, especially the famous Chung Sing Swimming Shed in Western District. At that time, one could rent a swim ring made of old tires for 20 cents to lounge on, which was a cost-effective pastime for the public. However, private swimming sheds gradually ceased to exist due to the emergence of public swimming pools.

The first public swimming pool in Hong Kong was the Victoria Park Swimming Pool, which has been serving the public for more than half a century. The pool was opened on October 16, 1957 by the then Governor, Sir Alexander Grantham, and was celebrated with a life

saving performance, a fancy diving show and music by the Police Silver Band. The pool was officially opened the following morning and the admission fee was 50 cents for those over 14 years old and 30 cents for those under 14 years old.

The facilities of the Victoria Park pool were new and well equipped. There were three open-air pools: (1) the main pool with a diving platform; (2) a shallow pool for children; and (3) a play pool for toddlers. The main pool was designed to meet international standards for competitions, such as local, inter-city and Asian swimming and diving competitions, and was lit by mercury-vapor lamps at night. The shallow pool for children was equipped with a water truck and a slide. The grandstand could accommodate nearly 2,000 people, and there was a strolling area next to the pool, as well as a sunbathing area, changing rooms, showers, and a kiosk.

Since its opening, the Victoria Park Swimming Pool was very popular with the public, with over 360,000 people using it in its first year, and it was crowded in the summer. A newspaper column in 1960 recommended this recreational spot to readers: 'It's not a bad idea to take a swim. It's crowded but there's no harm. The admission fee is only 50 cents, so it's worth the price even just to take a bath.' Even if you don't swim, you can still have a cup of coffee at the kiosk to the left of the grandstand and 'watch the swimmers in the pool and enjoy the cool breeze.'

The former Victoria Park Swimming Pool was demolished in 2013. Before that, the Leisure and Cultural Services Department opened the pool to interested members of the public for free visits and photo-taking. The new swimming pool was opened in the same year, and the plaque unveiled at the old pool is still hung outside the swimming pool. However, it should be noted that the location of the old and new swimming pools are different, as the old pool was located where the roller skating rink and handball cum volleyball court are now.

（二）

香港第一個模型船

2. THE FIRST MODEL BOAT POOL IN HONG KONG

維多利亞公園內不只有首個公眾泳池的誕生，更有另一個「第一」的出現——在 1960 年聖誕前夕，全港第一個模型船水池在公園建成，恰如為孩子送上一份大禮物。水池開放首日已吸引許多小孩前往，有領先潮流的孩子準備好以電芯發動的新購模型小船，放在水池上破浪奔馳，不只圍觀的小朋友拍掌叫好，連家長大人都笑逐顏開。這水池以白磁磚作底，全池直徑 50 英呎（15.24 米），深度僅一呎六吋（0.45 米），是經專家研究後，既有足夠浮力而又不致令小童失足遇溺的安全設計。

不過，這個不深的小池卻帶來管理及衛生問題。本來其興建只供放模型船之用，但由於無專人看管，有頑童赤足走入池中，又上上落落，將地面的泥沙帶入水池中，因此池水變得混濁不堪，水池成為藏污納垢之所。更甚者，大概因早期沒有經常換水的關係，1963 年更有報導指池水呈綠色，滿佈青苔，又發出陣陣惡臭，令人掩鼻，促請改善。雖然啟用最初幾年間，已不乏有關模型船池疏於管理的報導，然而至 1969 年，仍見當天氣酷熱時，不少區內小學生因無錢購票入維園泳池，群入船池中。

Victoria Park not only has the first public swimming pool in Hong Kong, but also has another first pool of Hong Kong — on Christmas Eve in 1960, the first model boat pool in Hong Kong was built in the park, which was like a big gift for all children. On the first day of opening, many children visited the pool. Some trendsetting kids had their newly purchased battery-powered model boats ready to be placed on the pool and run through the waves. Not only the children onlookers applauded, but also parents and adults were all full of joy. This pool is designed with a white tile bottom, 50 feet (15.24 metres) in diameter and a depth of only one foot six inches (0.45 metres), a safe design that has been studied by experts and is buoyant enough without causing children to drown.

However, this small and shallow pool had brought about management and hygiene problems. Originally, it was built only for the use of model boats, but due to the lack of supervision, some naughty kids walked barefoot into the pool repeatedly, bringing mud and sand on the ground into the pool and thus the water became muddy and the pool was full of accumulated grime and dirt. What's more, perhaps the pool water was not replaced regularly in the early days, there were reports in 1963 that the pool water turned green, covered with moss, and emitted a stench that made people cover their noses and urged for improvement. During the first few years of operation, there was no shortage of reports of negligence in the management of the model boat pool. However, in 1969, when the weather was hot, many primary school students in the area did not have the money to buy tickets to enter the swimming pool, so they entered the boat pool instead.

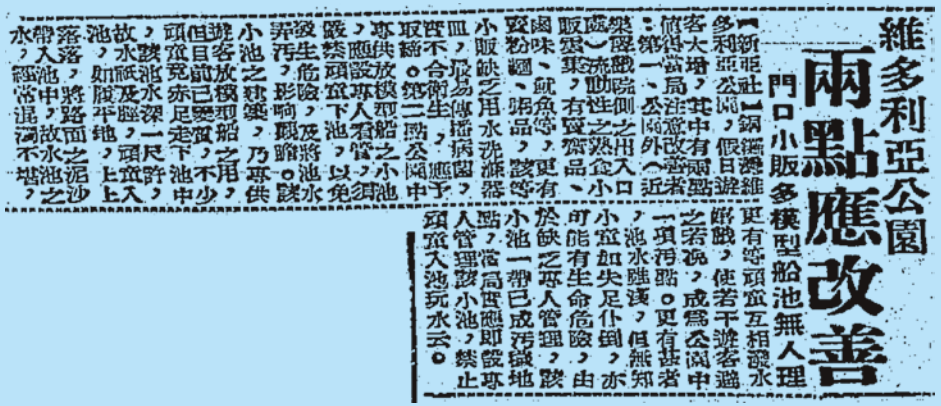
銅鑼灣維多利亞公園

將建模型船池

另興築兒童圖書館及休息所

1960 年 5 月 14 日的《香港工商日報》，有關即將於維多利亞公園興建模型船池的報導。

From the May 14, 1960 issue of *The Kung Sheung Daily News*, a model boat pool will be built in Victoria Park.



維多利亞公園

兩點應改善

門口小販多模型船池無人理

從 1961 年 12 月 27 日的《香港工商日報》可見，模型船池開幕一年後，已經常出現街童入池嬉戲的情況。

From the December 27, 1961 issue of *The Kung Sheung Daily News*, it is reported that one year after the opening of the model boat pool, children were often seen playing inside the pool.

(三)

香港第一個室內全電腦控制的音樂噴泉

3. THE FIRST FULLY COMPUTER-CONTROLLED INDOOR MUSIC FOUNTAIN IN HONG KONG

翻開舊相冊，總有幾張照片攝於噴水池前，有的或在屋苑的公園，有的或在商場，音樂噴泉更是不少香港人的回憶。在八、九十年代，不少大商場為吸引人流，尤其家庭顧客，非常盛行建造音樂噴泉。於 1984 年開幕的沙田新城市廣場就是先行者，落成後深受歡迎，更一度成為沙田地標，以音樂、光影、水花見證無數香港市民成長。

新城市廣場的音樂噴泉，原來是香港首個，也是東南亞最大之室內全電腦控制音樂噴泉，噴泉長達 16 米，設有四百五十個噴咀和一百一十支水下燈。在全電腦操控下，噴泉會跟隨音樂節奏，在紅、黃、藍、綠及透明五色彩燈映照下起舞，做出多達 72 個花樣組合，噴水高達八米，整個表演時長近二十分鐘。表演時間，噴泉旁常有人群駐足翹首。

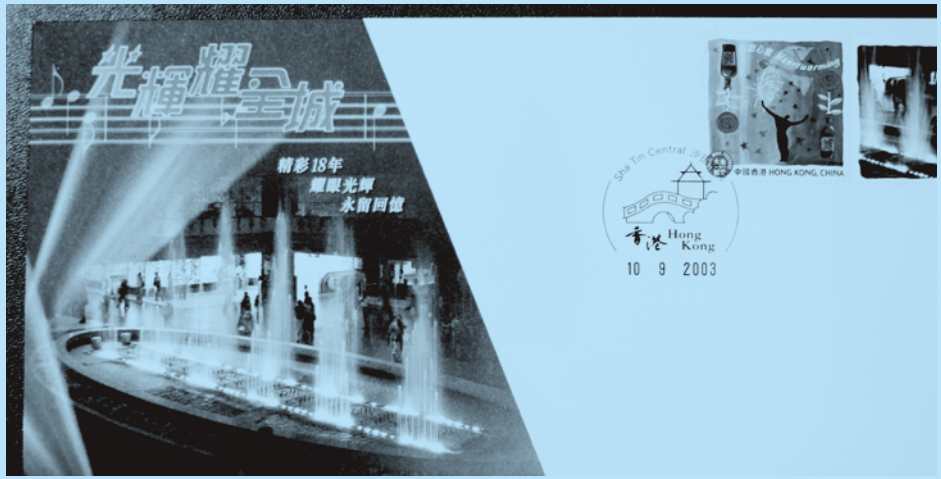
不過噴泉已於 2003 年被拆卸，當年不少市民大表可惜。在其消失前，商場曾推出紀念首日封及套摺，客人消費滿指定金額即可獲得。

When opening an old photo album, very often there are photos taken in front of a fountain, some in the parks of housing estates, some in shopping malls, and the music fountain is a fond memory for many Hong Kong people. In the 1980s and 1990s, music fountains were prevalent in many large shopping malls as a way to attract people, especially family customers. The New Town Plaza in Shatin, opened in 1984, was one of the pioneers. After its completion, it was very popular and once became a Shatin landmark, witnessing the growth of countless Hong Kong people with music, light and water splashes.

The fountain was 16 meters long, with 450 jets and 110 underwater lights. Fully computer-controlled, the water in the fountain dances to the rhythm of the music, illuminated by red, yellow, blue, green and translucent lights, making up to 72 combinations of patterns and jetting up to

eight meters. The entire show lasted nearly 20 minutes. During the performance time, crowds of people often stood around the fountain and watched the show.

However, the fountain was demolished in 2003 and many people expressed their disappointment. Before its disappearance, the mall had issued a commemorative first day cover, which could be obtained by spending a specified amount of money.



新城市廣場在音樂噴泉拆卸前推出的紀念首日封及套摺。
The commemorative first day cover and its case issued by New Town Plaza before the demolition of the musical fountain.

音樂噴泉

（捌仁中學）・吳慧敏・

座落在沙田一廣場的音樂噴泉，早已在報章上看到，但眞正親眼觀看整個表現，則在上星期日。

音樂噴泉是分幾個時間表演的，幸好我們去到是晚上九時，而表演時間是在九時三十分，於是我們便逛了一會公司。在九時二十五分，就揀了一個好位置，預備欣賞二十分鐘長的音樂噴泉。

當表演開始時，所有的燈都關閉了，而噴泉本身簡單的噴水，亦沉寂了，當音樂一響起噴泉區的射燈亮起，水衝高至四樓，跟着泉水就隨着節奏，旋律而擺出美妙的姿勢。不同的音樂，配合着不同的擺動，當音樂是勵志激昂的，泉水就四處噴出高高的水花，有如雄壯的大瀑布一樣。當音樂是輕柔細弱的，泉水就輕輕搖動，好像一個個姑娘在扭腰擺臀一樣，音樂機托着七彩繽紛的燈光，加上最重要的印花式噴水，可以說眞是配合得天依無縫了。

一位中學生筆下的新城市廣場音樂噴泉表演，刊於《華僑日報》1990 年 2 月 5 日。
A secondary school student wrote about the musical fountain performance in New Town Plaza, published in *Wah Kiu Yat Po* on February 5, 1990.

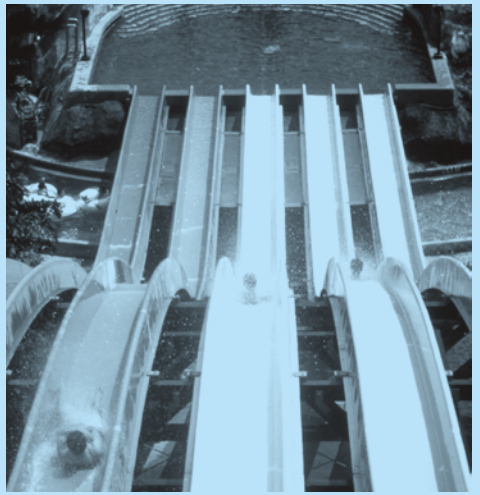
（四）

第一代水上樂園

4. THE FIRST GENERATION OF WATER PARK

香港海洋公園的命運於 2020 年成為城中熱話，一度面臨財政危機的她，最終獲撥款而逃過結業一關。追蹤其起源，海洋公園乃於 1980 年代興建及啟用的水上樂園，當時樂園只會於每年的 5 月至 9 月開放。除了具標誌性的五色巨型滑梯外，亦有造浪池、漂流河及激流河等，讓不少大人小孩在夏天期待不已。第一代水上樂園於 1999 年已關閉及拆卸，相隔 16 年後才再啟動新一代水上樂園的工程。

The fate of Ocean Park in Hong Kong became the talk of the town in 2020, when the park, once in financial crisis, was finally funded and did not have to close. Tracing its history, Ocean Park was built and opened as a water park in the 1980s, when the park was only open from May to September each year. In addition to the iconic five-colour giant slides, there were also wave pools, rafting rivers and rapids that many children and adults alike looked forward to in the summer. The first generation of the Water World was closed and demolished in 1999, and it took 16 years before the new generation of the Water World was launched.



五彩天梯照。
Rainbow Rush.

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Ocean Park
Hong Kong

海洋公園第一代水上樂園。
Ocean Park's first generation of Water World.

***

這些曾連結香港人的「第一水」，大部份經已完成歷史使命。去到 2020 年，政府撥 54 億注資陷於財困的海洋公園，引起市民爭議，有人支持撥款，亦有人質疑連年虧蝕的海洋公園經營不善，與其救亡不如以錢為民紓困；至於立法會 2018 年通過撥款，讓區議會以五千萬興建一個音樂噴泉，亦被市民諷為浪費公帑的「小白象」工程。觀乎民情，市民並未如當年大多數認同這些與水相關的場地和設施。香港人有甚麼需要，又需要怎樣的文娛康樂與運動場地，如何讓公帑用得其所？大概是今天值得再思考的課題。

Most of these major aquatic events that once connected Hong Kong people have completed their historical mission. In 2020, the government allocated $5.4 billion to fund the Ocean Park, which was in financial difficulties, causing controversy among the public. While some people supported the funding, others questioned the poor operation of Ocean Park, which has been losing money for years, and that it would be better to use the money to alleviate poverty rather than saving the company from bankruptcy. As for the funding approved by the Legislative Council in 2018 for the District Council to build a musical fountain with $50 million, it was also mocked by the public as a 'small white elephant' project that wasted public funds. In view of the public opinion nowadays, the majority of people do not agree that these water-related venues and facilities are needed as they did then. What are the needs of Hong Kong people and what kind of cultural, recreational and sports venues do they need, and how can we make the best use of public funds? These are probably the questions that need to be re-examined today.

關於我們

ABOUT US

長春社文化古蹟資源中心（CACHe）於 2005 年成立，一直積極舉辦古蹟保育活動。我們將繼續秉承宗旨，推廣香港歷史文化，建立知識交流平台，鼓勵大眾參與社區文化遺產保育，建立社區身份認同。

Established in 2005, The Conservancy Association Centre for Heritage (CACHe) is committed to organising different heritage conservation activities. Our mission is to promote the history and culture of Hong Kong, to develop a knowledge exchange platform, and to encourage public engagement in the conservation of community cultural heritage and hence enhance the realisation of their social identities.

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