Water Resources in Hong Kong

Index

Foreword

The notion of water sustainability underpins the key messages that we want to convey to the readers through the Water Resources Information Portal. In order to help spotlight the significance of achieving water sustainability goals in our city, we would need to refer to, briefly, two inter-connected conceptual-cum-policy frameworks that are perched, respectively, at the global and the national levels.

The essence of the global agenda on water sustainability has been crystallized in Sustainable Development Goal #6 (SDG #6). Asides from highlighting the centrality of ensuring access to clean water and sanitation for all, the multiple sub-goals of SDG #6 remind us that managing the world's water resources in a sustainable manner will yield substantial cross-sectoral benefits. Conserving water at the city and the country scale, through policy measures and behavioural changes, could help protect global biodiversity as well as mitigate greenhouse gases emissions' impact on the global climate system.

The country's national agenda on water sustainability, on the other hand, has been articulated in the 14th Five-Year Plan for Water Security, promulgated in 2021 by the National Development and Reform Commission (NDRC). One of the NDRC Plan's guiding principles accords a higher degree of preference to demand management measures (i.e., water conservation) than the conventional supply augmentation approach. The NDRC Plan also, for instance, prioritizes, for municipal water managers' attention, the reduction of water losses emanating from the water supply networks under their charge. Moreover, in line with the spirit and the letter of the national goal of building an ecological civilization, the Plan accentuates the importance of incorporating the safeguarding of freshwater biodiversity into sustainable water resources management practices at the national, provincial and municipal scale.

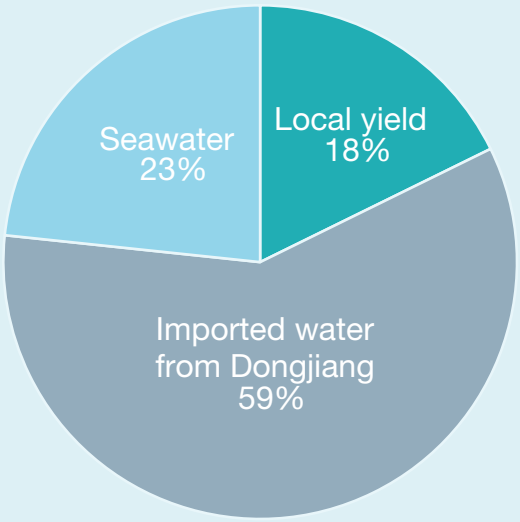
Translating the aforementioned goals of the global and national agendas on water sustainability into impactful local actions is a challenging task. The difficulty stems from a relatively low degree of water literacy detected among the general public. Water literacy goes beyond people's knowledge of water issues; it also entails their attitudes toward water conservation ethics and their ability to appreciate and enact meaningful changes in their own water usage behaviour. Early empirical evidence, however, suggests that the mastery of water literacy amongst our community's diverse social groups is wanting. Against this backdrop, the Water Resources Information Portal has thus been created by the Centre for Water Technology and Policy to help nurture a water-literate community in our city.

Our efforts in assembling the Information Portal are guided by one fundamental belief: Embracing a river basin-oriented perspective is essential for us to comprehend the challenges in, and opportunities for, managing water resources sustainably in the 21st century. Through imparting individuals with essential water knowledge and encouraging them to consider water resources management matters from a river basin angle, we aim at broadening our community's collective understanding and sharpening their vision for managing water resources in a sustainable manner. This approach, fully aligned with the global and national water sustainability agendas, aspires to foster an active participation of Hong Kong people from all walks of life in the global water stewardship project.

1. Local water resources

According to the 2021/22 Annual Report of the Water Supplies Department, 18% of Hong Kong's total water supply came from local rainfall, 23% were seawater used for flushing, and 59% were water imported from Dongjiang.

Hong Kong's water supply portfolio

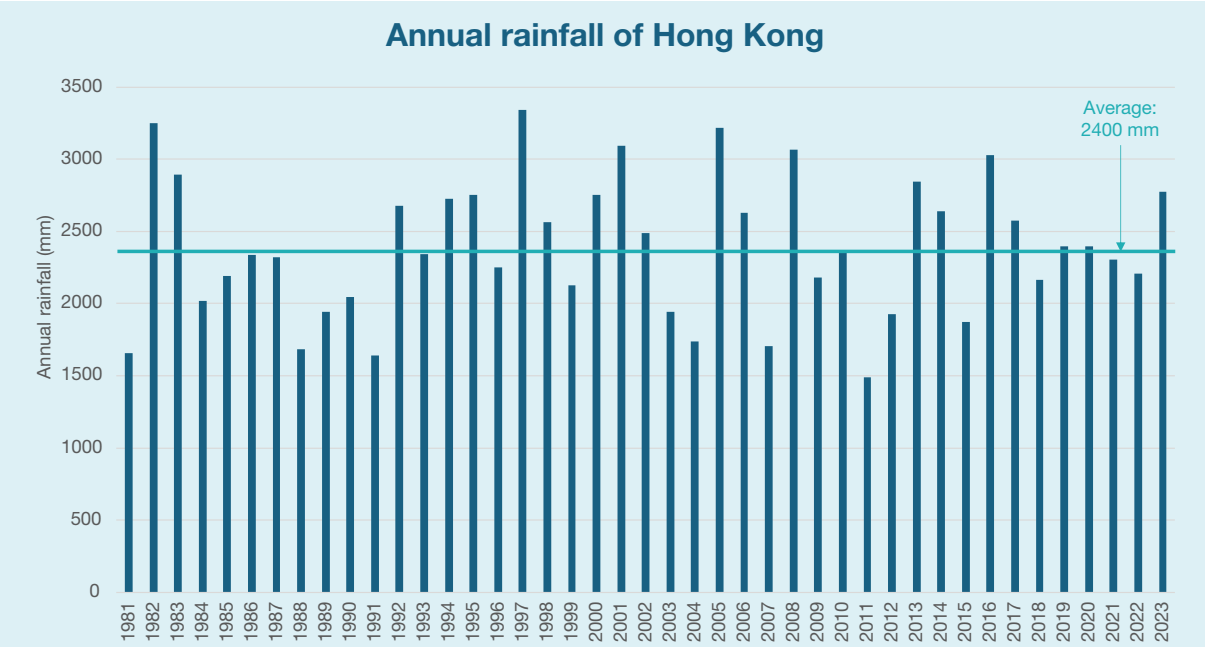


Source: Water Supplies Department, 2023

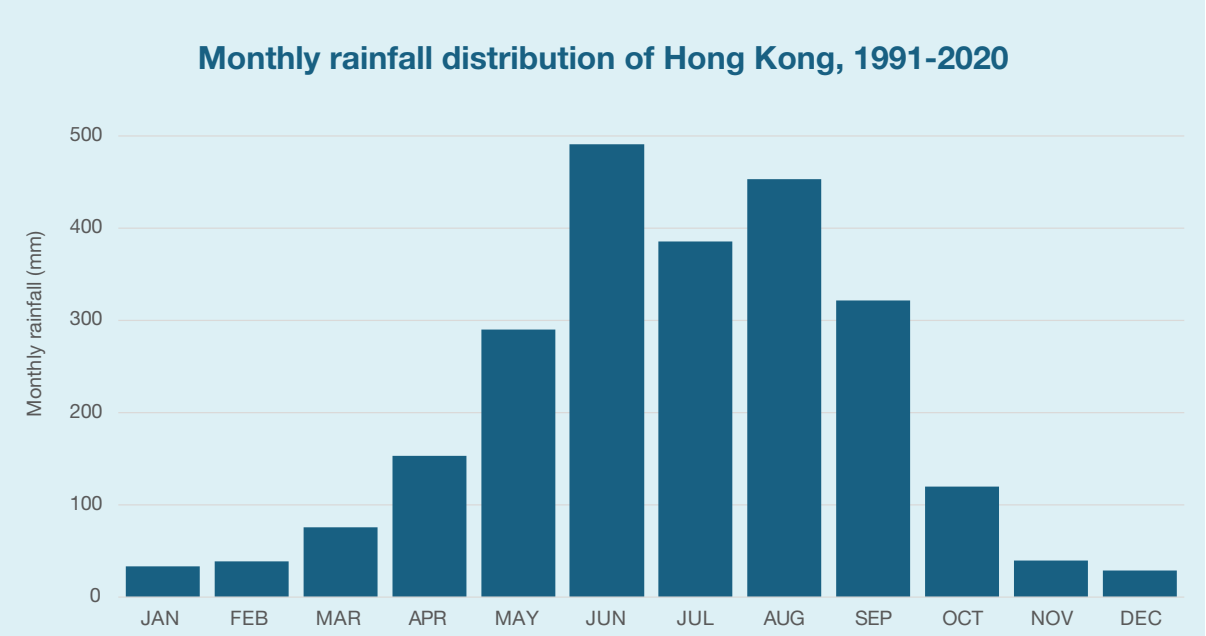
Rainfall in Hong Kong

1.1 What is the average annual rainfall in Hong Kong?

The average annual rainfall in Hong Kong, for the period of 1981-2023, was 2,400 mm. Of the total annual precipitation, 85% were recorded between April and September each year.



Source: Hong Kong Observatory, 2024



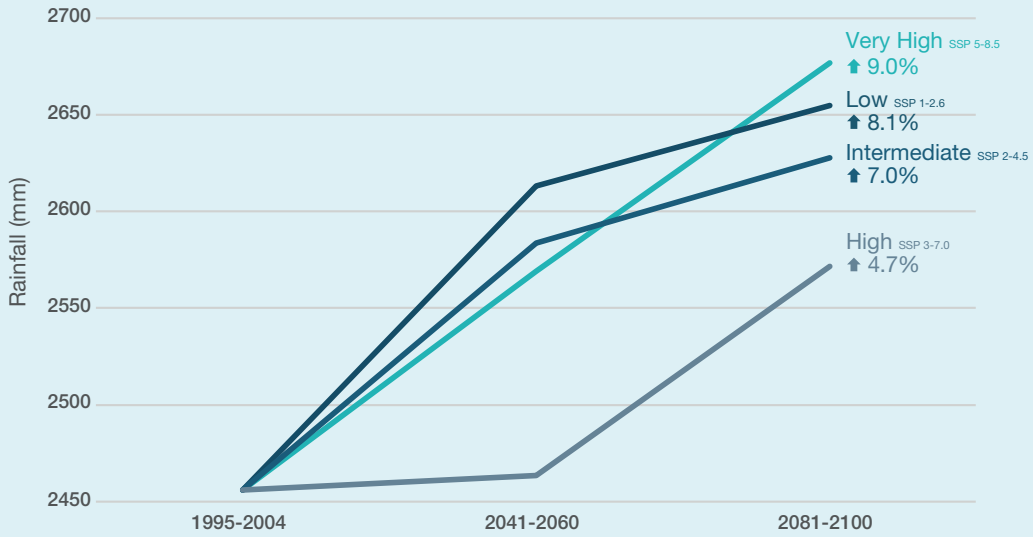
Source: Hong Kong Observatory, 2021

1.2 Will Hong Kong get more rain or less rain in the future?

According to the Hong Kong Observatory, there is a projected increase in rainfall for the period of 2081-2100, compared to the 1995-2004 average annual rainfall figure of 2,456 mm.

Based on an analysis of scenario data provided by the Intergovernmental Panel on Climate Change, calculations suggest a 4.7% increase under the high emission scenario (Shared Socioeconomic Pathways, SSP 3-7.0), and a 9.0% upswing under the very high emission scenario (SSP 5-8.5).

Average annual rainfall projections



Source: Hong Kong Observatory, 2022

1.3 What is local yield?

Local yield refers to rainwater that is captured by water gathering grounds.

Water gathering grounds

1.4 What are water gathering grounds?

Water gathering grounds are land areas that have been set aside to collect rainwater. Rainwater gathered by streams and catchwaters within the water gathering grounds is conveyed to impounding reservoirs for storage.

Water gathering grounds and reservoirs in Hong Kong

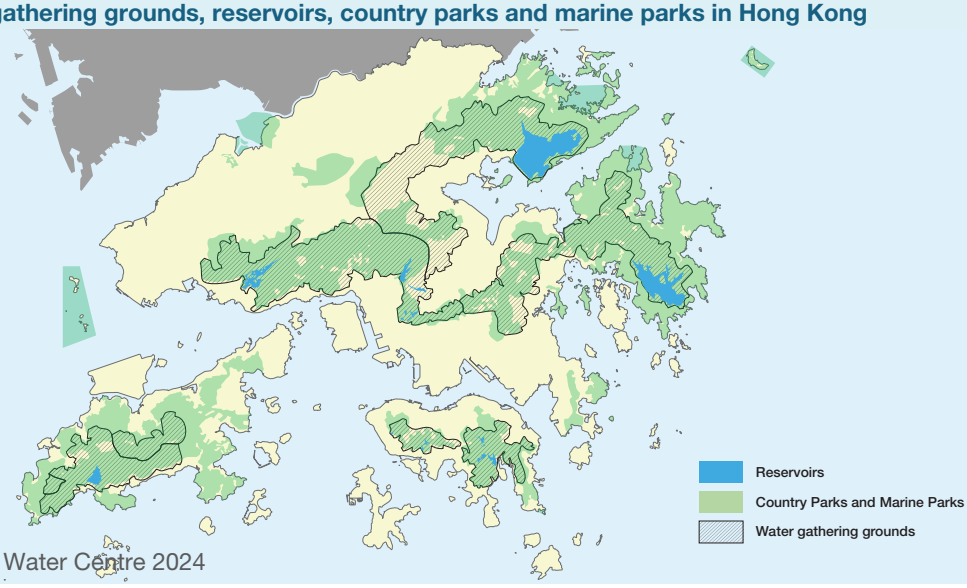
1.5 What proportion of Hong Kong's land areas has been set aside as water gathering grounds?

Water gathering grounds cover approximately one-third of the city's total land area.

1.6 How are the water gathering grounds being protected in Hong Kong?

Most water gathering grounds overlap with Country Parks, which are protected by the Country Parks Ordinance.

Water gathering grounds, reservoirs, country parks and marine parks in Hong Kong

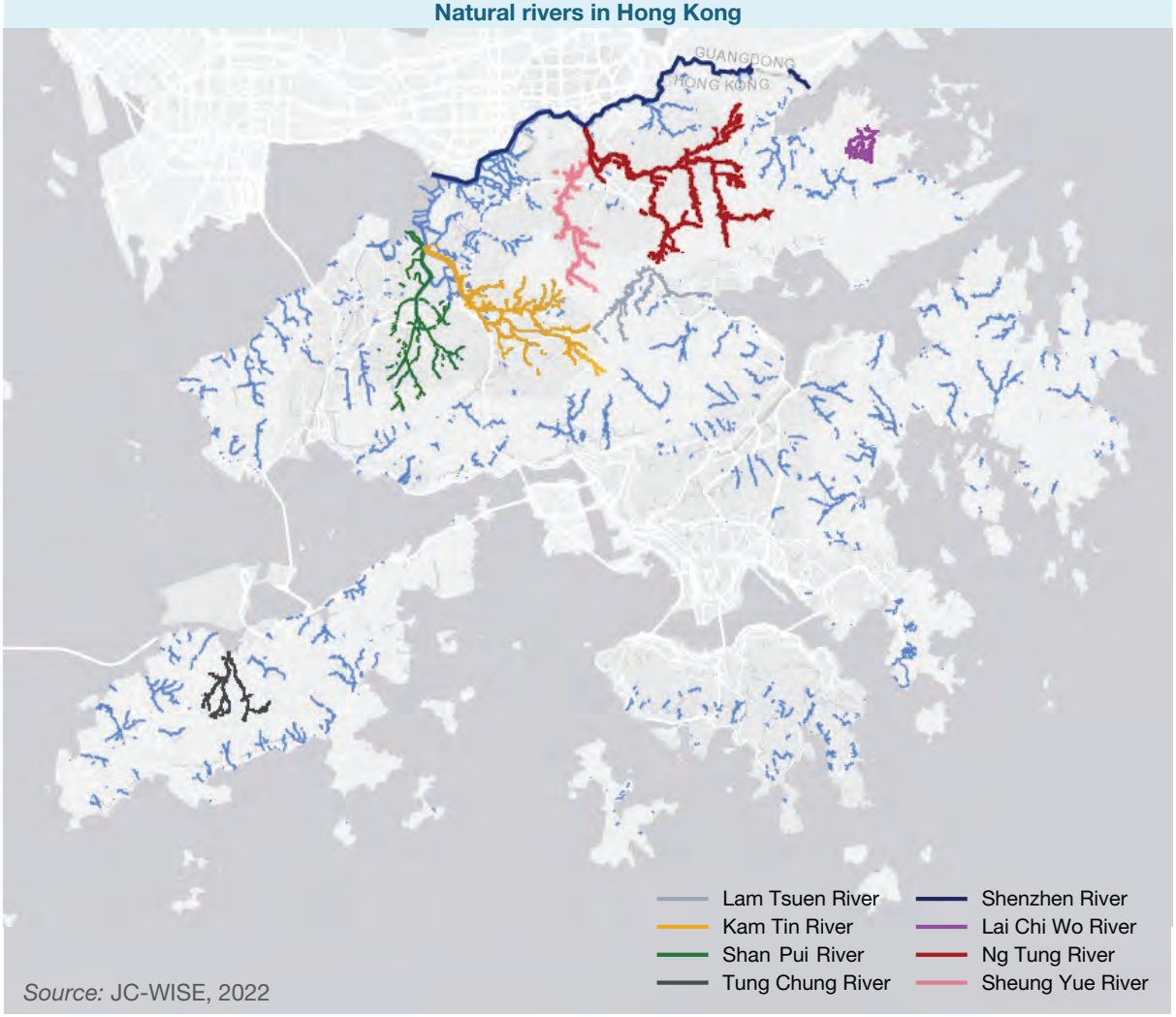


Rivers

1.7 Do we have natural rivers in Hong Kong?

There are over 200 natural rivers and streams in Hong Kong. The majority of them, however, are short and unnamed.

Natural rivers in Hong Kong



Source: JC-WISE, 2022

1.8 Where can we find natural rivers in Hong Kong?

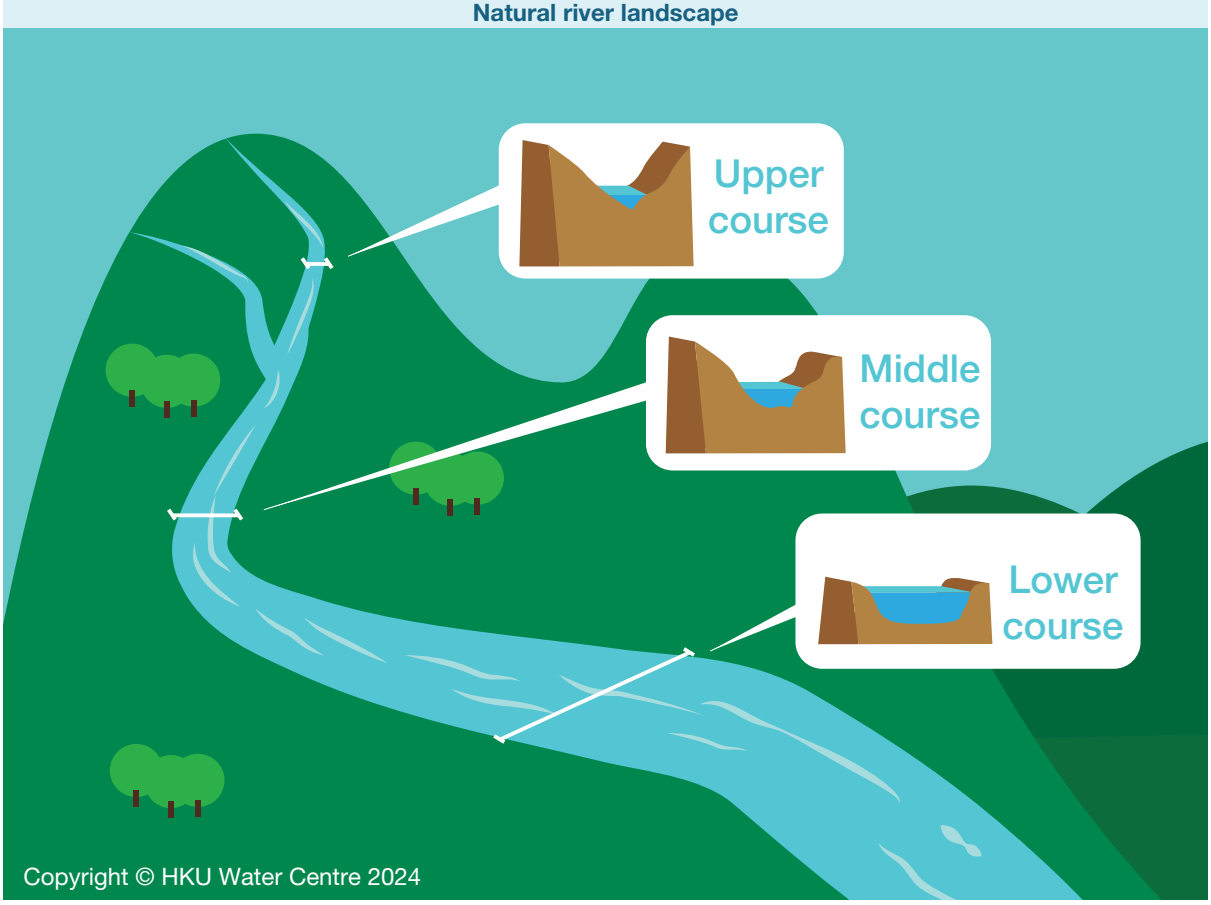
In Hong Kong, most natural rivers are situated within water gathering grounds. The city's steep and rugged topography, together with our warm and humid climate, facilitates weathering and soil erosion, ultimately giving rise to the formation of river channels.

1.9 What is a river landscape?

Rivers alter the configuration of river channels when they flow downstream.

River channels can be demarcated into three sections: the upper course, the middle course, and the lower course. Each section has experienced distinctive fluvial processes, resulting in the formation of unique landforms.

Natural river landscape



1.10 In what ways does flowing water shape river channels?

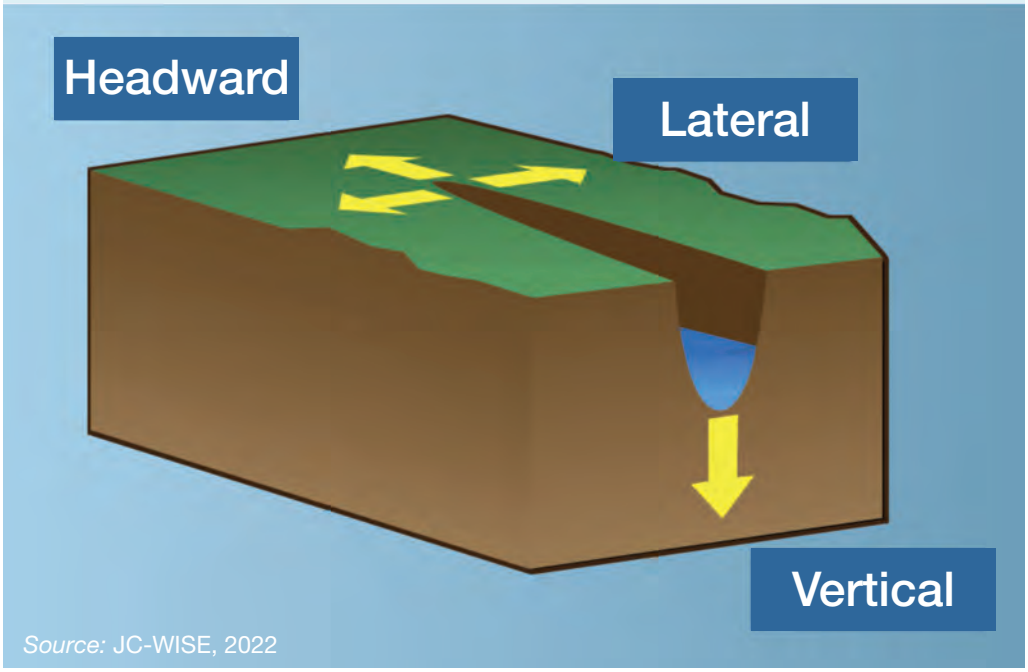
Moving water shapes the land surface by fluvial erosion and creates a network of channels. Fluvial erosion occurs in three directions:

1) Headward erosion: River erodes in an upstream direction, lengthening the river channel.
2) Lateral erosion: River erodes laterally, widening the river channel.
3) Vertical erosion: River erodes downwards, deepening the river channel.

There are four types of fluvial erosion:

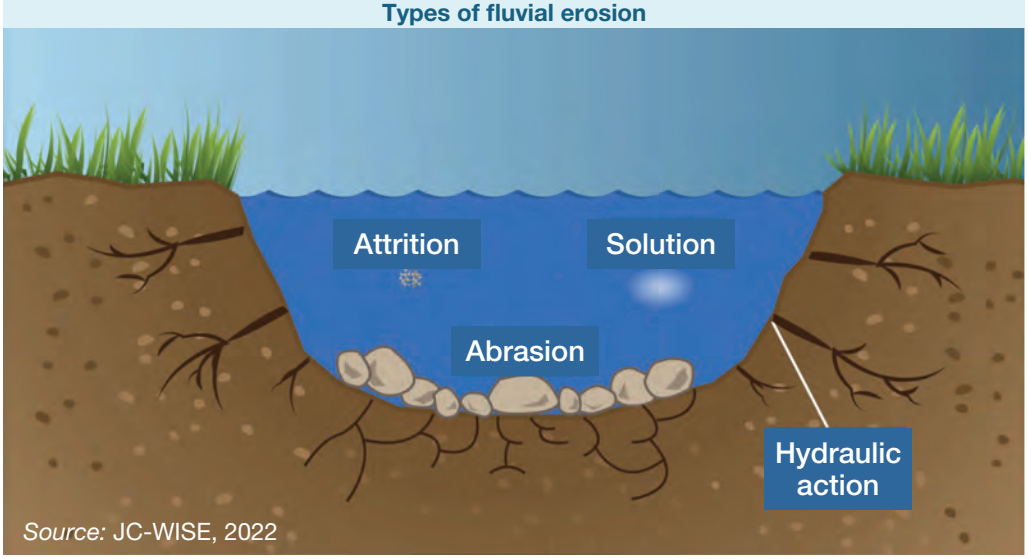
1) Hydraulic action: The shearing force of the water hits the river banks, causing rocks and sediments to crack and break apart.
2) Abrasion: Materials carried by the river wear away river banks and bed.
3) Attrition: Rocks carried by the river collide with each other and are broken into smaller and rounder rock particles.
4) Solution: Soluble parts of rocks and sediments are dissolved in the river.

Directions of fluvial erosion



Source: JC-WISE, 2022

Types of fluvial erosion



Source: JC-WISE, 2022

1.11 What are the key characteristics of the major sections of a river?

The upper course of a river is usually located uphill, featuring a steep gradient and a small river discharge. Major landforms include interlocking spurs, plunge pools, and waterfalls.

The middle course has a gentle gradient and a medium discharge level, with major landforms including meanders.

The lower course is characterised by a very gentle slope and a large discharge, with a major landform being the floodplain.

For more details, please click here.

Characteristics of different parts of a river

Upper course -
Ng Tung Chai Waterfall

Middle course -
Meanders in Kam Tin

Lower course -
Estuary of Shan Pui River and Kam Tin River

1.12 What are the key characteristics of natural rivers in Hong Kong?

In Hong Kong, rivers are typically short and lack a middle course. Most natural rivers in Hong Kong are not "perennial streams" that flow throughout the year. Instead, many are "intermittent streams", flowing only during the wet season, or "ephemeral streams", responding to rainfall.

1.13 Why is it important for us to protect natural rivers?

Rivers and streams play a crucial ecological role and serve as vital habitats for diverse plant and animal life. In Hong Kong, rivers are home to over 190 species of freshwater fish and 20 species of frogs.

Recognising their high ecological value, the Agriculture, Fisheries and Conservation Department has designated 33 natural streams and rivers as Ecologically Important Streams.

Preserving these habitats is essential to maintaining biodiversity health.

For more details, please click here.

Local species with high ecology value

Hong Kong Newt

Beijiang Thick-lipped Barb

Romer's Tree Frog

Hong Kong Clubtail

1.14 Are all the rivers in Hong Kong natural rivers?

No, not all rivers in Hong Kong are natural.

Some natural river channels, originating from or passing through urban areas, have been significantly altered and transformed into concrete-lined drainage ditches.

These extensively modified drainage channels are referred to as urban channels (or urban rivers) and were known as "nullahs" in the past.

Urban channels in Hong Kong

Jordan Valley Channel

Kai Tak River

1.15 How are rivers associated with reservoirs?

The streamflow of some rivers is intercepted by man-made water intake points. The intercepted water is then diverted to reservoirs via catchwaters.

1.16 Which river is the longest in Hong Kong?

Shenzhen River is the longest river in Hong Kong. It is a border river demarcating the boundary between Hong Kong and Shenzhen.

Aerial view of Shenzhen River

1.17 Are there any named rivers in Hong Kong?

Major rivers in Hong Kong include: Kam Tin River, Lam Tsuen River, Ng Tung River, Shan Pui River, Sheung Yue River, Shing Mun River, Tuen Mun River and Tung Chung River.

Major rivers in Hong Kong

Kam Tin River

Lam Tsuen River

Sheung Yue River

Reservoirs

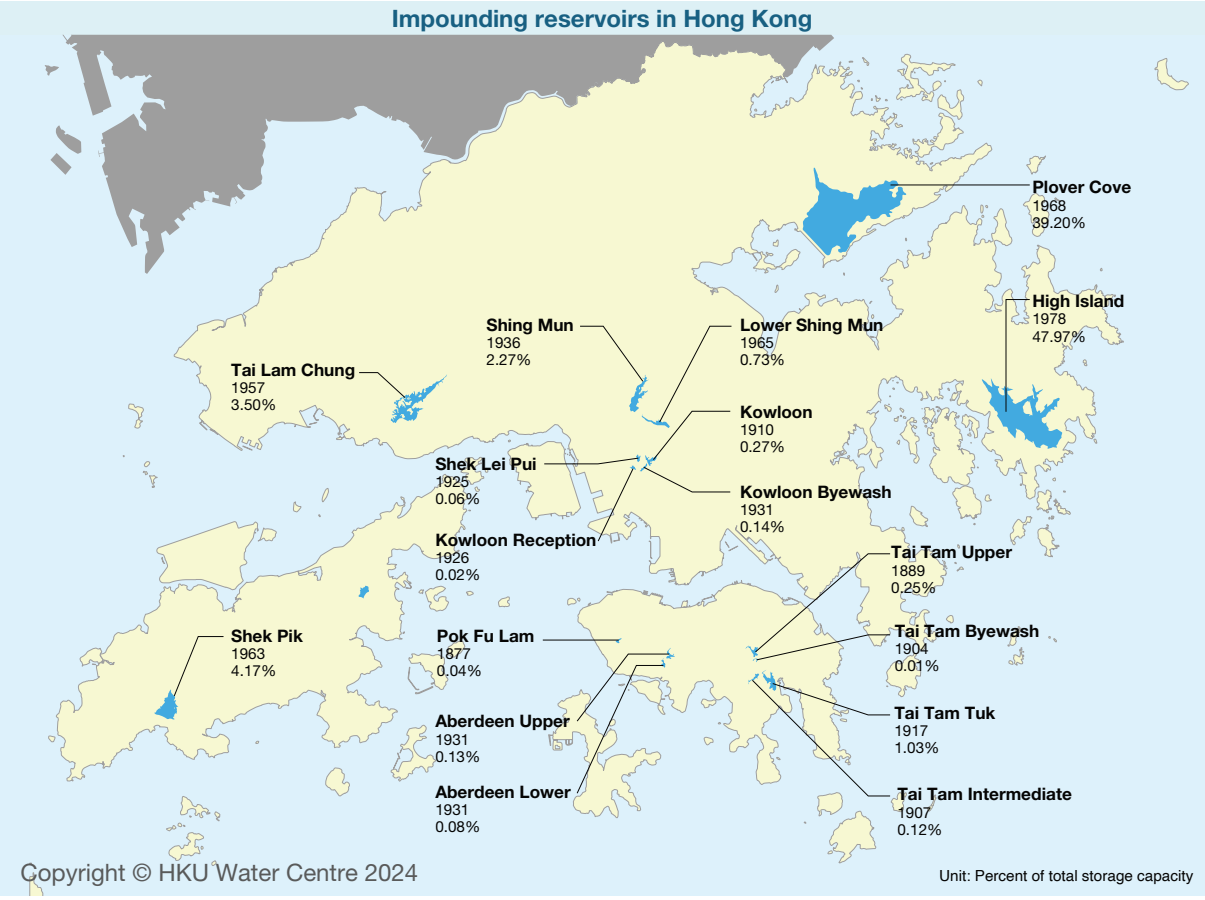
1.18 What major categories of reservoirs do we have in Hong Kong?

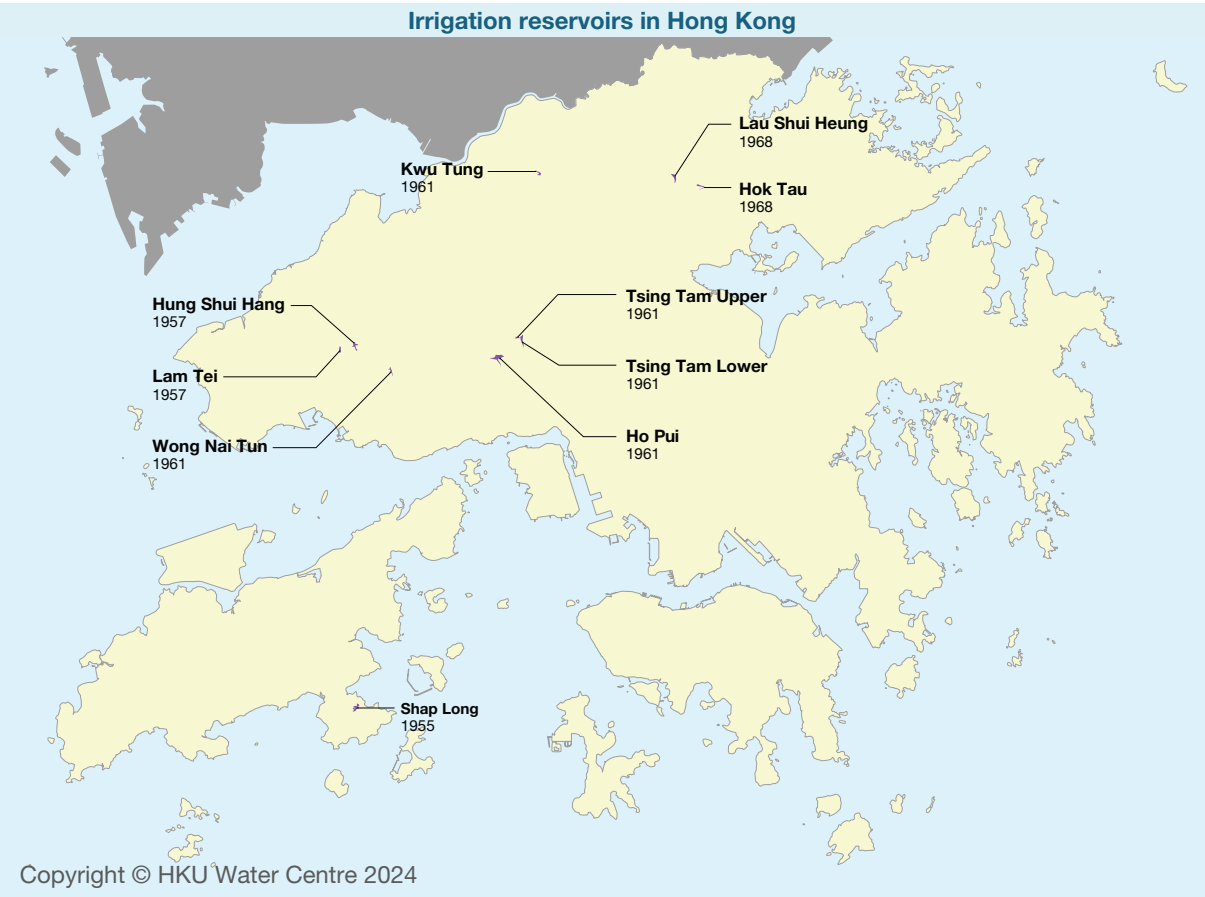
There are two major categories: Impounding reservoirs and irrigation reservoirs.

	Impounding reservoirs	Capacity (mcm)
1	High Island Reservoir	281.124
2	Plover Cove Reservoir	229.729
3	Shek Pik Reservoir	24.461
4	Tai Lam Chung Reservoir	20.490
5	Shing Mun Reservoir	13.279
6	Tai Tam Tuk Reservoir	6.047
7	Lower Shing Mun Reservoir	4.299
8	Kowloon Reservoir	1.578
9	Tai Tam Upper Reservoir	1.490
10	Kowloon Byewash Reservoir	0.800
11	Aberdeen Upper Reservoir	0.773
12	Tai Tam Intermediate Reservoir	0.686
13	Aberdeen Lower Reservoir	0.486
14	Shek Lei Pui Reservoir	0.374
15	Pok Fu Lam Reservoir	0.233
16	Kowloon Reception Reservoir	0.121
17	Tai Tam Byewash Reservoir	0.080

	Irrigation reservoirs
1	Hok Tau Irrigation Reservoir
2	Lau Shui Heung Irrigation Reservoir
3	Tsing Tam Upper Irrigation Reservoir
4	Tsing Tam Lower Irrigation Reservoir
5	Ho Pui Irrigation Reservoir
6	Wong Nai Tun Irrigation Reservoir
7	Hung Shui Hang Irrigation Reservoir
8	Lam Tei Irrigation Reservoir
9	Shap Long Irrigation Reservoir

Water Resources in Hong Kong





1.19 How many impounding reservoirs do we have in Hong Kong?

There are 17 in-use impounding reservoirs. In addition, there are one obsolete impounding reservoir (Wong Nai Chung Reservoir) and nine obsolete irrigation reservoirs.

1.20 What is the main function of Hong Kong's impounding reservoirs?

Impounding reservoirs store rain water collected by water gathering grounds; some of them also store imported freshwater from Dongjiang.

1.21 What is the storage capacity of the impounding reservoirs in Hong Kong?

The overall storage capacity of the 17 impounding reservoirs in Hong Kong is 586.05 million cubic meters (mcm).

High Island Reservoir, the largest, has a storage capacity of 281 mcm, while Tai Tam Byewash Reservoir, the smallest, has a storage capacity of 0.08 mcm.

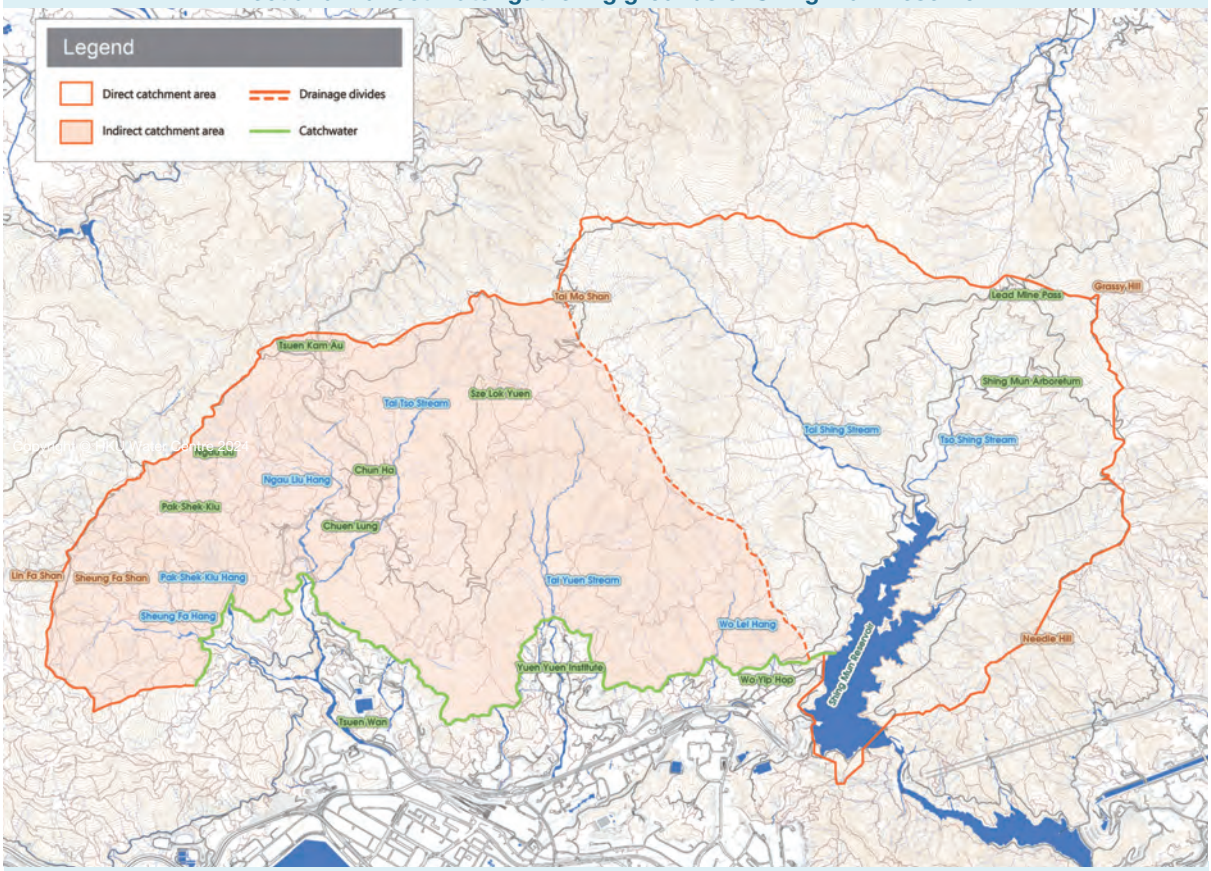
1.22 In what ways could local yield be augmented?

A majority of the reservoirs are located within a natural drainage basin. In addition to collecting rainwater from its natural basin, supplementary catchwaters have been constructed to divert rainwater from adjacent natural basins to the reservoirs, thereby increasing the amount of water entering the reservoirs. The catchment areas lying outside of the reservoir's natural drainage basins are also known as "indirect catchment areas."

For example, a nine-kilometer-long catchwater system was built to connect several basins outside of the catchment of Shing Mun Reservoir. This system connects several adjacent catchments—such as Ha Fa Hang, Sheung Fa Hang, Pak Shek Kiu Hang, Ngau Liu Hang, Tai Tso Stream, and Tai Yuen Stream—to Shing Mun Reservoir.

This supplementary catchwater system facilitates the capture of additional rain water to be stored in Shing Mun Reservoir, beyond the amount captured by its direct catchment area.

Direct and indirect water gathering grounds of Shing Mun Reservoir



Source: Green Power 2020
(The map is reproduced with permission of the Director of Lands © The Government of the Hong Kong SAR. License No. 65/2020).

1.23 Why are irrigation reservoirs no longer in use?

Irrigation reservoirs are no longer operational because the demand for irrigation water has dropped precipitously since the 1970s. A significant decline in agricultural activities and a drastic reduction in the size of farmlands due to urban development have rendered the function of irrigation reservoirs obsolete.

1.24 Do we need to worry when we see a dried-up reservoir bed?

There is no need for concern if the dried-up reservoir bed belongs to reservoirs such as Lower Shing Mun Reservoir, Tai Tam Intermediate Reservoir, and Tai Tam Tuk Reservoir. These reservoirs serve a flood management purpose; they were built to hold excess water that overflows from higher-elevation reservoirs. It is normal for them to have lower water levels or be empty in the drier months.

In addition, irrigation reservoirs, such as Lau Shui Heung Reservoir, were originally designed to supply water for agricultural use, not potable use. Since they do not store water for potable use, there is no need for concern if they record lower water levels or are empty in the drier months.

2. Dongjiang (East River)

Population and economic growth in the post-war period outpaced the capacity of local water gathering grounds to meet Hong Kong's growing water demand. Since 1965, Hong Kong has supplemented its locally captured freshwater by importing water from Dongjiang (East River). In 2021-22, water imported from Dongjiang constituted 59% of Hong Kong's total water supply.

Dongjiang river basin

2.1 Where is Dongjiang?

Dongjiang is the eastern tributary of the Pearl River. It originates in Xunwu county, Jiangxi Province, and flows in a southwesterly direction through Guangdong Province.

2.2 Why did Hong Kong need to import freshwater since the 1960s?

Hong Kong needed to import freshwater since the 1960s because local yield was not sufficient to meet growing water demand.

2.3 From which river has Hong Kong been importing freshwater?

Hong Kong has been importing freshwater from Dongjiang since 1965.

Location and long profile of Dongjiang

2.4 Which cities are located inside the Dongjiang river basin?

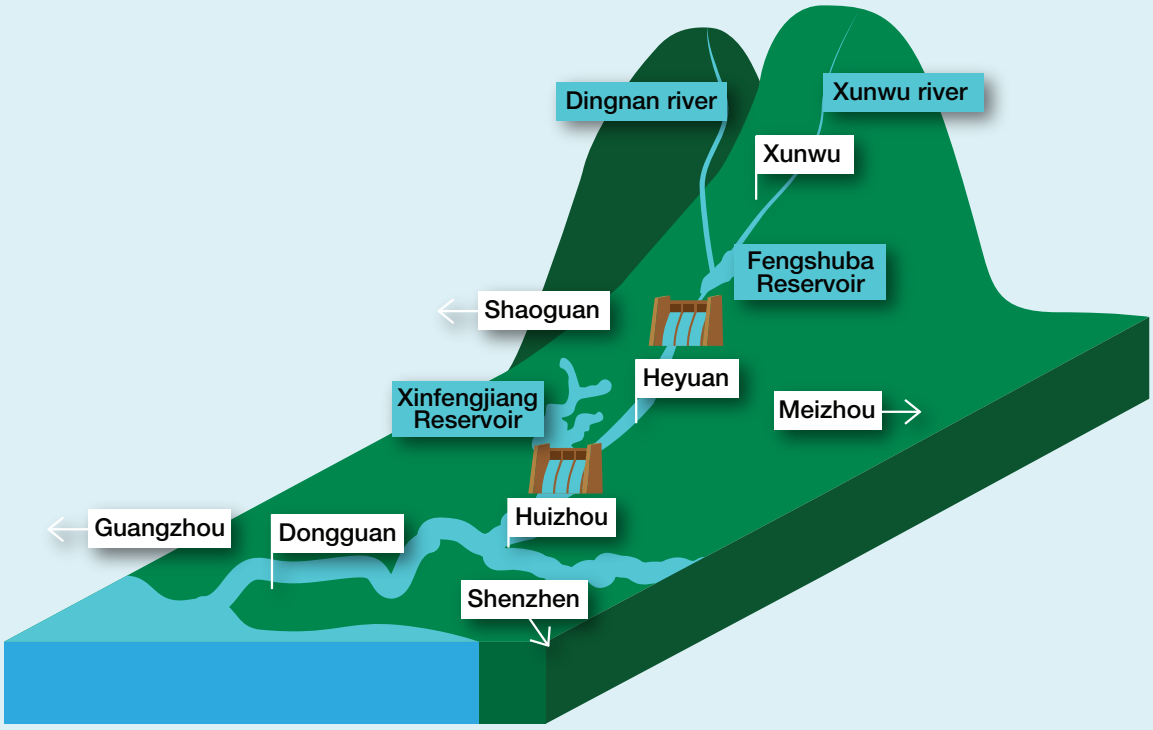
In the upstream zone: Ganzhou in Jiangxi Province, and the northern parts of Heyuan and Meizhou in Guangdong Province.

In the midstream zone: Heyuan, Shaoguan, and the northern and eastern parts of Huizhou in Guangdong Province.

In the downstream zone: Huizhou, Guangzhou, Dongguan and Shenzhen.

While Hong Kong lies outside of the Dongjiang river basin, it draws water from the downstream zone of Dongjiang through an inter-basin transfer scheme.

Cities and major reservoirs of Dongjiang river basin – A schematic illustration



2.5 Which cities take in water from Dongjiang?

One upstream city (Meizhou), three midstream cities (Heyuan, Huizhou, and Shaoguan), three downstream cities (Dongguan, Guangzhou, and Shenzhen), and one city located outside the Dongjiang basin (Hong Kong) draw water from Dongjiang.

Dongjiang provides freshwater supply to more than 40 million people in these eight cities.

Cities in Dongjiang river basin

Source: Wang, 2017

2.6 Is there a high probability of Hong Kong being exposed to the risk of water supply interruption in the drier years?

There is a very low probability that Hong Kong's water supply would be interrupted in the drier years. The water abstraction ratio of Dongjiang is considered acceptable, with a 2021 reported long-term value of 27%.

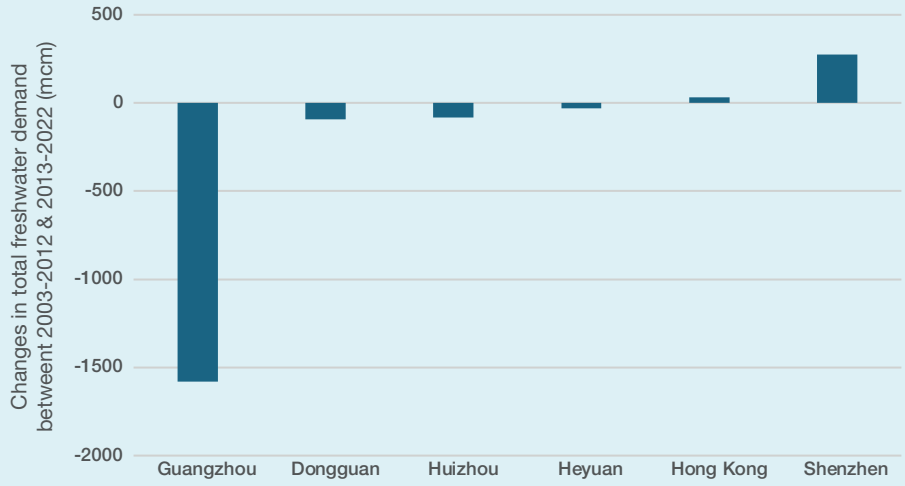
The combined storage capacity of the three largest reservoirs in the Dongjiang river basin is sufficiently abundant to allow Guangdong's water managers to perform one critical task: To control the release of water from these reservoirs, in times of drought, to ensure the river's volumetric flow rate would reach a level that could satisfy downstream cities' water demand.

Despite experiencing drier years, such as in 2021 when the rainfall amount in Dongjiang was 17.1% lowered than that of the previous year, Hong Kong's freshwater supply has remained unaffected.

2.7 Are there any increased levels of competition for freshwater among cities drawing water from the Dongjiang?

No, there are no increasing levels of competition for water among Dongjiang basin cities because the overall demand for freshwater in the basin has already peaked in 2011. The peaking is attributed to a reduction in water demand caused by diminishing agricultural activities in Guangzhou and Heyuan, as well as a drop in industrial activities across most cities in the river basin. The increase in freshwater demand due to population growth has been offset by a reduction in freshwater consumption that results from economic restructuring.

Comparisons of freshwater demand in 2003-2012 and 2013-2022 of cities in the Dongjiang river basin



Source: 廣東省水利廳（2004-2023）

Dongshen Water Supply System

2.8 How is Dongjiang water conveyed to Hong Kong?

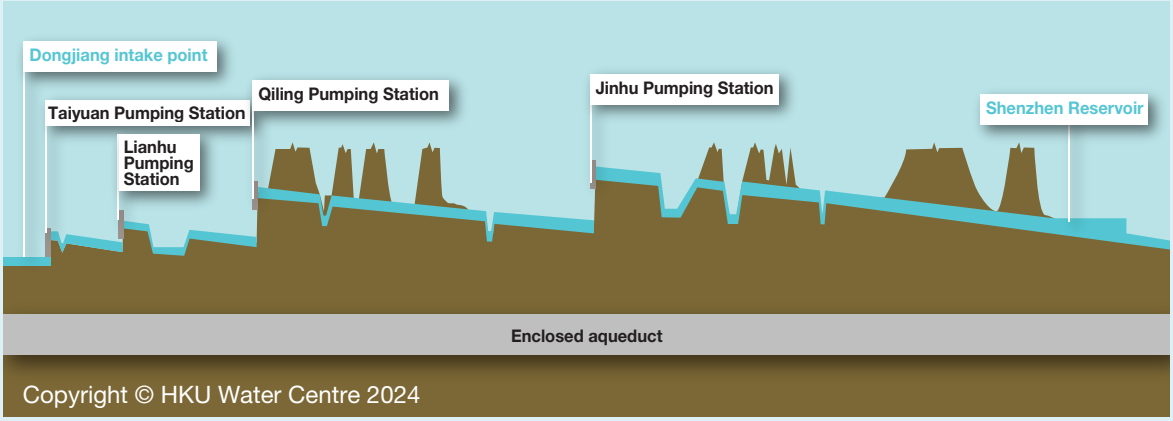
Rainfall collected by water gathering grounds in the Dongjiang river basin converges into the river's main stem and flows along it towards the estuary.

Upon abstraction from a water intake point located in Dongguang, Dongjiang water is pumped uphill through four pumping stations (Taiyuan, Lianhu, Qiling, and Jinhu) to reach Shenzhen Reservoir.

The water is then conveyed by a pipeline to cross the border to reach the Muk Wu Pumping Station in Hong Kong.

Much energy is used to operate the transfer system's pumping stations to enable Dongjiang water to reach Hong Kong.

Dongjiang-Shenzhen water transfer system



Source: Water Supplies Department, 2024 (Modified by authors with permission)

2.9 Where does imported Dongjiang water go to after it is shipped into Hong Kong?

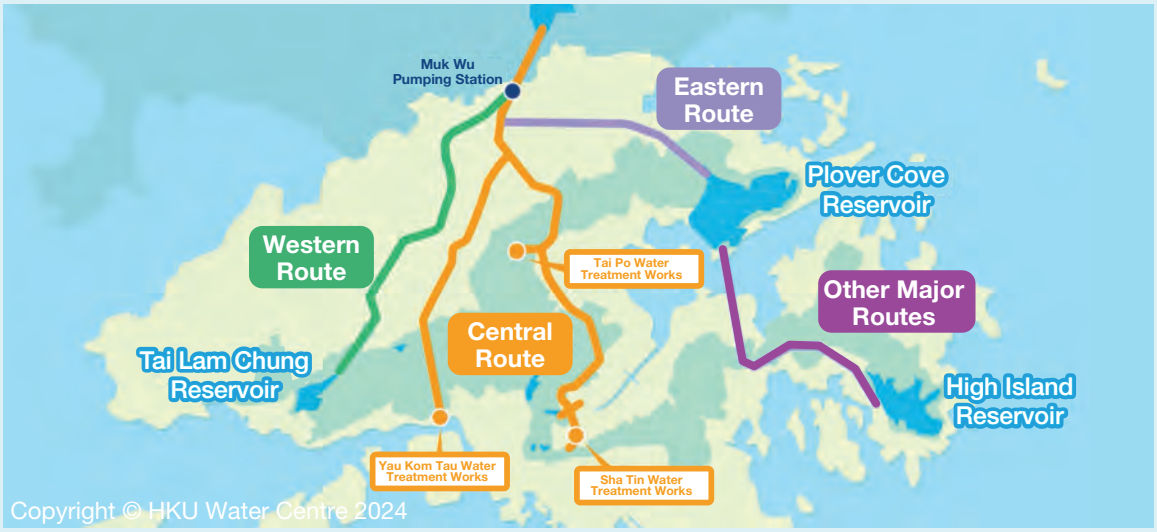
After reaching Muk Wu Pumping Station in Hong Kong, Dongjiang water is conveyed to other reservoirs, or is shipped directly to water treatment works.

On the Eastern Route, Dongjiang water is shipped to Plover Cove Reservoir and High Island Reservoir for storage.

On the Central Route, water is shipped to Yau Kom Tau Water Treatment Works, Tai Po Water Treatment Works and Sha Tin Water Treatment Works for treatment.

On the Western Route, water is either shipped to Ngau Tam Mei Water Treatment Works and Au Tau Water Treatment Works for treatment or conveyed to Tai Lam Chung Reservoir for storage.

Dongjiang water transfer system in Hong Kong



Source: Water Supplies Department, 2024 (Modified by authors with permission)

2.10 Which reservoirs store imported Dongjiang water?

Three reservoirs—High Island Reservoir, Plover Cove Reservoir and Tai Lam Chung Reservoir—receive and store Dongjiang water.

2.11 To what extent should we be concerned about the quality of Dongjiang water?

Since 2003, a dedicated aqueduct has been utilised to convey Dongjiang water to Hong Kong to ensure its quality is kept up to specified standards.

The conveyance of Dongjiang water begins at Taiyuan Pumping Station. The water then flows to Shenzhen Reservoir via a dedicated aqueduct.

Imported water from Dongjiang undergoes treatment at water treatment plants in Hong Kong before it is supplied to users, complying with the city's potable water standards.

Hong Kong Water Supply Agreement

2.12 What is the amount of imported water specified in the Hong Kong water supply agreement?

As per the 2020 Hong Kong Water Supply Agreement with Guangdong Province, the annual guaranteed supply ceiling of water imported from Dongjiang is 820 million cubic meters.

According to the 2008 Dongjiang Water Allocation Plan, Hong Kong has been alloted a maximum of 1,100 million cubic meters of Dongjiang water and can request this amount if needed.

2.13 How much has Hong Kong been paying for Dongjiang water?

In 2021, the annual ceiling water price for 820 million cubic meters of Dongjiang water was $4,856.6 million. On average, the cost of raw Dongjiang water was $5.92 per cubic meter.

Since the actual amount of water imported from Dongjiang in 2021 was 811 million cubic meters (which was lower than the guaranteed ceiling amount), the effective cost of raw Dongjiang water was $5.99 per cubic meter in that year.

2.14 How would the purchased but unused Dongjiang water be handled?

The purchased but unused water will not be imported into Hong Kong from Dongjiang.

2.15 How does the rebate mechanism contained in the Water Supply Agreement work?

Since 2020, a rebate mechanism has been incorporated into the Water Supply Agreement with Guangdong.

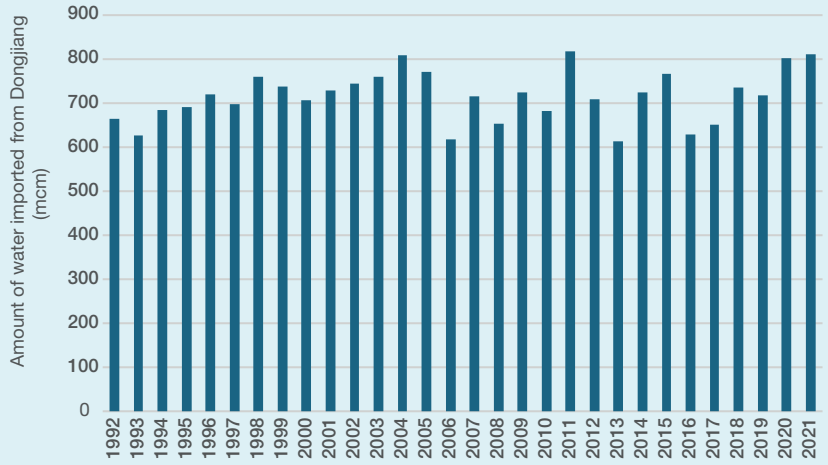
In each year, Hong Kong would make an upfront payment for 820 million cubic meters of water. According to the terms of the rebate mechanism, Hong Kong would receive approximately $0.3 per for each cubic meter of un-claimed water.

For instance, by the end of 2021, only 811 million cubic meters were imported into Hong Kong from Dongjiang, leaving 9 million cubic meters unused. As such, the total rebate amount was equivalent to $2.7 million (calculated as $0.3 x 9,000,000). This amount was deducted from the 2022 payment, reducing the latter from $4,950.51 million to $4,947.81 million, which works out to be a 0.05% discount.

2.16 Have we been using an increasing amount of imported Dongjiang water over time?

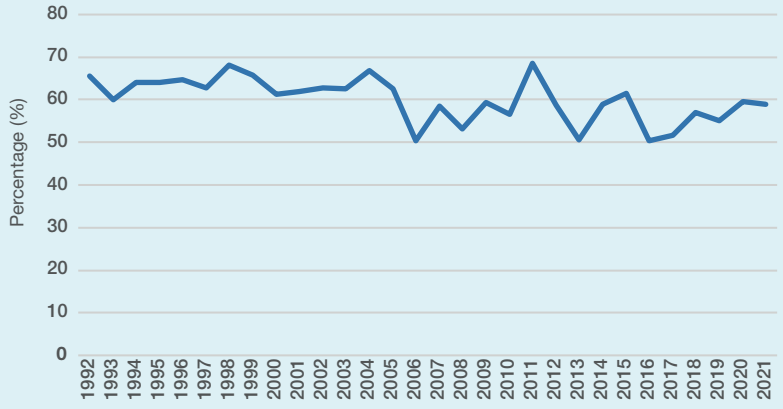
The amount of imported water we have used in the past 30 years has varied year by year, with an overall average annual growth rate of 0.99%.

Amount of water imported annually from Dongjiang



Source: Water Supplies Department, 1999-2023

Dongjiang water as a percentage of Hong Kong's total water supply



Source: Water Supplies Department, 1999-2023

3. Is Hong Kong a water-scarce city?

Hong Kong has enjoyed un-interruppted water supply since 1982. We anticipate the situation will coutinue into the foreseeable future.

Water provision in Hong Kong: Current situation and future considerations

3.1 Is Hong Kong a water-scarce city?

In terms of volumetric availability of tap water supply, Hong Kong is not a water-scarce city. In fact, based on this criterion, Hong Kong is a water-abundant city.

According to the 2008 Dongjiang Water Allocation Plan, in drier years, Hong Kong could import up to 1,100 million cubic meters of water. When this figure is combined with the lower bound figures of local yield, the allocated quantity under the Dongjiang Water Allocation Plan would help ensure Hong Kong has an abundant (i.e., more than sufficient) supply of freshwater.

Moreover, the completion, in January 2024, of a water diversion project that conveys water from the Xijiang (West River) to the Dongjiang river basin has further augmented Hong Kong's overall freshwater supply. This project allows for the diversion of up to 1.7 billion cubic meters of water annually from the Xijiang to meet the water demand of three cities located inside the Dongjiang river basin, such as Guangzhou, Dongguan and Shenzhen. Project proponents say that it includes a provision of emergency supply of water to Hong Kong.

3.2 Is there a chance that Hong Kong would become a water-scarce city as a result of climate change in the future?

The chance is very low.

According to the Hong Kong Observatory, projections based on IPCC data suggest that there is a likelihood of increased rainfall in Hong Kong in the long term (refer to Question 1.2).

Calculations based on multiple climate change scenarios have also projected increased rainfall levels in Southern China.

3.3 When was the last time water was rationed in Hong Kong?

Water rationing was last imposed in Hong Kong in 1981. Since then, municipal water supply has never been interrupted.

Desalination

3.4 What is desalination?

Desalination makes use of the reverse osmosis technology to transform seawater into desalinated freshwater. Reverse osmosis refers to a process of applying pressure to seawater to push it through a semi-permeable membrance. Salt and impurities are removed, yielding freshwater as a product.

3.5 Does Hong Kong have a desalination plant?

The first stage of the Tseung Kwan O Desalination Plant was commissioned in December 2023.

The plant will go into full operational mode to produce freshwater when needed.

3.6 What is the capacity of Tseung Kwan O Desalination Plant in Hong Kong?

The first stage desalination plant can produce up to 50 mcm of fresh water each year.

As per a document presented to the Legislative Council by the Development Bureau, dated 2012, the proposed capacity of the desalination plant was determined to be 50 mcm. This figure was equivalent to 22% (upper bound) and 49% (lower bound) of the annual local yield for the period of 2001-2010.

3.7 How does the cost of desalinated water compared to those of other types of water supplies in Hong Kong?

According to data provided by WSD, the costs of water provision, on a per cubic meter basis at 2023 price level, were as follows:

Rainwater: HK$5
Dongjiang water: HK$11
Reclaimed water for non-potable use: HK$9.8 (March 2012 estimate)
Desalinated seawater: HK$13.5

Rainwater is the cheapest source of water. While the costs of Dongjiang water and reclaimed water are higher than rainwater, they are cheaper than desalinated water.

3.8 Is desalination a necessary option to augment freshwater supply in Hong Kong?

No, desalination is not a necessary option, based on an analysis of Hong Kong's current water supply situation.

First, Hong Kong benefits from an abundant freshwater supply, sourced from the Dongjiang, at lower costs than desalination, even in drier years. In addition, Xijiang has become, since January 2024, a reliable backup source of freshwater for Hong Kong.

Moreover, while we should explore all possible solutions to capture sufficient freshwater to meet the needs of people now and in the future, we should also strive to reduce the adverse impacts of water use on the climate system.

Desalination, as a highly energy-intensive technology, would exacerbate climate change because it would generate much greenhouse gases emissions. The adoption of this technology should therefore be minimised as much as possible.

Hong Kong should, instead, formulate alternative, low cost, low carbon strategies to manage our water resources in a sustainable manner. The proven methods include water loss control, use of reclaimed water and water conservation, which can substantially lower the overall level of total demand for freshwater.

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