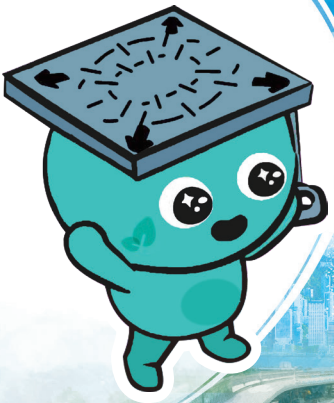
渠務署
Drainage Services Department



# 2023-2024
# Drainage Services Department in brief

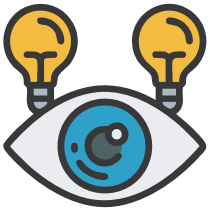
*Resilient flood protection to a better future*

# CONTENTS









## Vision

To provide world-class wastewater and stormwater drainage services enabling the sustainable development of Hong Kong

## Mission

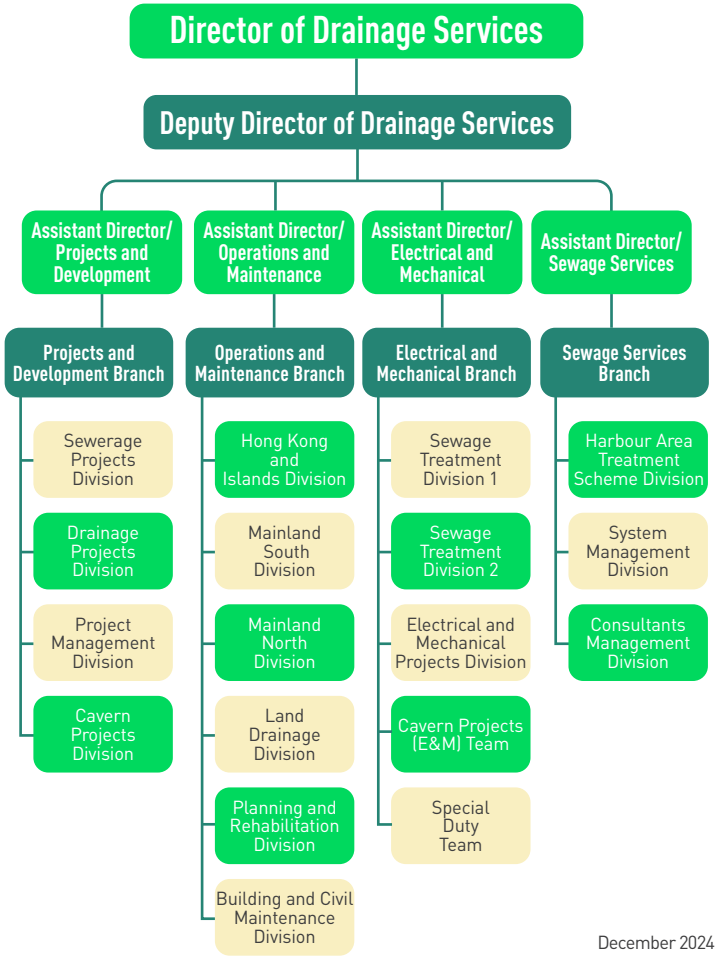
- Improving drainage services in a cost-effective and environmentally responsible manner
- Enhancing a caring, harmonious, safe and healthy work environment that fosters staff development and a mindset for change
- Strengthening relationships with community, industry and worldwide counterparts

## Values

- Customer Satisfaction
- Quality
- Commitment
- Teamwork

# ORGANISATION

## Organisation Chart




December 2024



# ORGANISATION

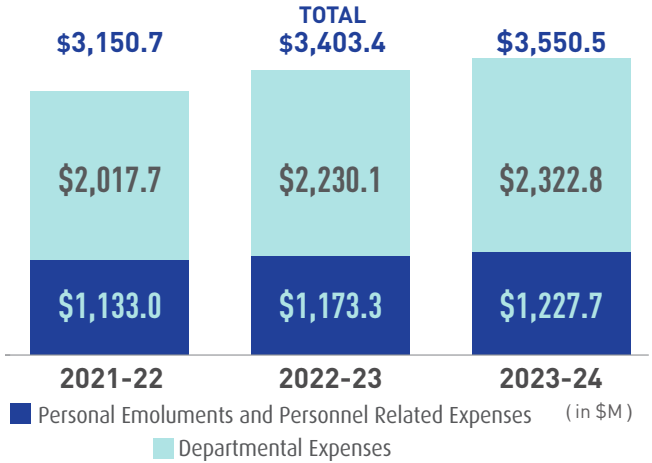
## Staff Establishment

| | |
|---|---|
| **Directorate** | **19** |
| **Professional** | **375** |
| Engineer | 288 |
| Geotechnical Engineer | 2 |
| Electrical & Mechanical Engineer | 56 |
| Electronics Engineer | 3 |
| Building Services Engineer | 1 |
| Architect | 1 |
| Shift Charge Engineer | 2 |
| Quantity Surveyor | 1 |
| Land Surveyor | 2 |
| Landscape Architect | 3 |
| Environmental Protection Officer | 3 |
| Forestry Officer | 1 |
| Chemist | 12 |
| **Technical & Site Supervisory** | **980** |
| **General & Common Grades** | **543** |
| **Model Scale I** | **135** |

**Total 2 052**

# FINANCIAL DATA

## Operating Expenditure




## Sewage Services Operating Cost Recovery Rate

| | 2021-22 | 2022-23 | 2023-24 [1] |
|---|---|---|---|
| Revenue of Sewage Charge and Trade Effluent Surcharge ($M) | 1,032.5 [2] | 1,051.2 [2] | 1,252.5 [2] |
| Expenditure (excluding depreciation) of Sewage Charge and Trade Effluent Surcharge ($M) | 2,684.1 | 2,903.8 | 3,087.0 |
| Operating Cost Recovery Rate (%) | 38.5 [3] | 36.2 [3] | 40.6 [3] |

1. The 2023-24 figures are provisional and subject to endorsement by the Sewage Services Accounts Committee
2. The figures represent the net amounts of revenue after deduction of concessions on the Sewage Charge and the Trade Effluent Surcharge
3. The figures have reflected concessions on the Sewage Charge and Trade Effluent Surcharge in 2021-22, 2022-23 and 2023-24. The Operating Cost Recovery Rates without calculation of the concessions in 2021-22, 2022-23 and 2023-24 are 58.4%, 55.3% and 50.3% respectively



FINANCIAL DATA

## Sewage Services Charges

The sewage services charges are composed of Sewage Charge and Trade Effluent Surcharge. There are currently 27 trades required to pay the Trade Effluent Surcharge. Since 1 April 2017, the unit rate of Sewage Charge per cubic metre of water supplied remains at $2.92.

| Number of Accounts (in thousand, as at December 31 of each year) | 2021 | 2022 | 2023 |
|---|---|---|---|
| Sewage Charge Account | 2 916 | 2 959 | 2 999 |
| Trade Effluent Surcharge (TES) Account | 33 | 34 | 35 |

## Project Estimates for Capital Works Projects

| Projects in hand | Sewage Treatment | | Flood Prevention | | Total | |
|---|---|---|---|---|---|---|
| | No. | Cost ($B) | No. | Cost ($B) | No. | Cost ($B) |
| Under Construction [4] | 34 | 56.4 | 9 | 9.4 | 43 | 65.8 |
| Under planning or design [5] | 47 | 70.6 | 22 | 26.1 | 69 | 96.7 |
| Total | 81 | 127.0 | 31 | 35.5 | 112 | 162.5 |

4. Money-of-the-day prices
5. September 2023 prices

# WORK OVERVIEW

## Sewage Treatment

Services for sewage treatment include operation and maintenance of sewage treatment facilities, upgrading the existing facilities and building new facilities.

Sha Tin Seweage Treatment Works

### Sewerage Master Plan Studies

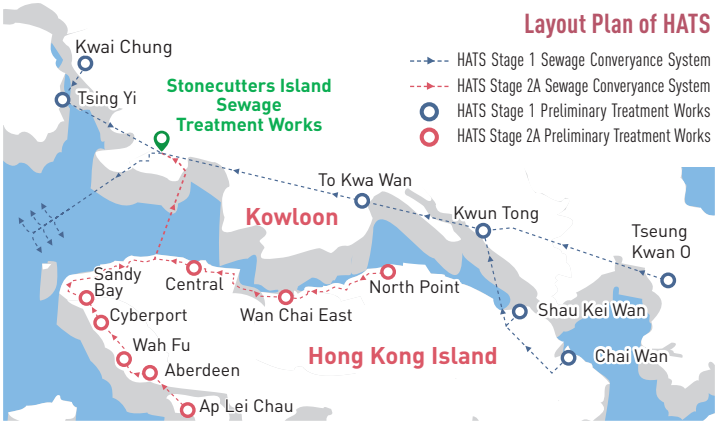
The regional sewerage infrastructures are mainly proposed under the 16 "Sewerage Master Plans (SMPs)" and the subsequent 8 "SMP Reviews".

### Improvement of Village Sewerage

As at March 2024, we have laid public sewerage for about 280 villages. At present, the works for around 50 villages are underway.

### Harbour Area Treatment Scheme

Harbour Area Treatment Scheme (HATS) is one of the most important infrastructure programme undertaken by the Government to improve the water quality of Victoria Harbour. We will keep reviewing the performance of the HATS system and assessing the operational condition of different system components for enhancing the sustainable development of Hong Kong.




### Harbour Area Treatment Scheme Stage 1

**Project Scope:**

- Constructing Stonecutters Island Sewage Treatment Works (SCISTW) at a footprint of about 10 hectares and a design treatment capacity of 1.7 million $m^3$ per day
- Constructing about 23-km-long deep tunnel to convey the sewage from Kowloon and the north-eastern part of Hong Kong Island to SCISTW for chemically enhanced primary treatment (CEPT)
- Upgrading a total of 7 existing Preliminary Treatment Works (PTWs) in Tsing Yi, Kwai Chung, To Kwa Wan, Kwun Tong, Tseung Kwan O, Shau Kei Wan and Chai Wan and constructing Northwest Kowloon Sewage Pumping Station

**Commissioning Date:** December 2001

**Project Cost:** About $8.2B

Stonecutters Island Sewage Treatment Works

## Harbour Area Treatment Scheme Stage 2A

**Project Scope:**

- Enhancing the design treatment capacity of SCISTW to 2.45 million $m^3$ per day and constructing additional chemical disinfection facilities
- Constructing about 21-km-long deep sewage tunnel to convey the sewage from the northern and south-western parts of Hong Kong Island to SCISTW for CEPT
- Upgrading a total of 8 existing PTWs in North Point, Wan Chai East, Central, Sandy Bay, Cyberport, Wah Fu, Aberdeen and Ap Lei Chau

**Commissioning Date:** December 2015

**Project Cost:** About $17.5B

## Harbour Area Treatment Scheme Stage 2B

The project scope of HATS Stage 2B involves construction of biological sewage treatment facilities on Stonecutters Island for all HATS flow. It is kept under review taking into account the water quality situation and the latest technological development in biological treatment.



The landscaped deck built atop the roof of Kwun Tong Sewage Pumping Station

## Enhancement Works for Kwun Tong Sewage Pumping Station

**Project Scope:**

- Constructing a new balancing facility with a capacity of 16 000$m^3$ and its associated facilities
- Constructing a plant house with a public landscaped deck at the roof
- Providing deodourisation facilities and ancillary works

**Commissioning Date:** August 2023

**Project Cost:** About $1B


Sha Tin Sewage Treatment Works and Future Cavern Sewage Treatment Works

## Relocation of Sha Tin Sewage Treatment Works to Caverns

**Project Scope:**

Relocating the secondary sewage treatment works at Sha Tin to caverns inside Nui Po Shan with design sewage treatment capacity 340 000m$^3$ per day. The existing site will then be vacated and developed for other beneficial uses to meet the public's needs.

**Project Progress:**

Stage 1 Works including site preparation and access tunnel construction commenced in February 2019 and completed in April 2022. Stage 2 Works including main caverns construction and upstream sewerage works commenced in July 2021. Stage 3 Works including ancillary buildings, cavern ventilation system and associated works commenced in August 2023. The design for the remaining works, including mainly installation of sewage treatment facilities inside caverns and decommission and demolition of the existing Sha Tin Sewage Treatment Works, is in progress. The whole project is expected to be completed by 2031.

**Project Cost of Stage 1 Works:** About $2.08B
**Project Cost of Stage 2 Works:** About $14.08B
**Project Cost of Stage 3 Works:** About $3.12B



Illustration of the Completed Yuen Long Effluent Polishing Plant

## Yuen Long Effluent Polishing Plant

**Project Scope:**

- Increasing the treatment capacity of existing Yuen Long Sewage Treatment Works from 70 000m$^3$ to 150 000m$^3$ per day
- Upgrading the sewage treatment level from existing secondary to tertiary to enhance the water quality in Shan Pui River and Deep Bay
- Improving environmental performance of the existing plant, including odour control and landscaping works

**Project Progress:**

The upgrading works will be implemented in 2 stages. The construction of Stage 1 Works commenced in November 2020 for completion in 2027.

**Project Cost of Stage 1 Works:** About $6.9B

Illustration of the Completed Shek Wu Hui Effluent Polishing Plant

## Shek Wu Hui Effluent Polishing Plant

**Project Scope:**

- Reconstructing the existing Shek Wu Hui Sewage Treatment Works to increase the treatment capacity from 105 000m$^3$ to 190 000m$^3$ per day in phases
- Upgrading the sewage treatment level from existing secondary to tertiary in order to enhance the water quality in Ng Tung River
- Improving environmental performance of the existing plant, including odour control and landscaping works

**Project Progress:**

The Advance Works commenced in Q2 2015 and completed in Q4 2019. The Main Works are implemented in three phases with Phase 1 commenced in Q3 2019 for completion of the final phase by 2034.

**Project Cost:**

- About $500M (for Advance Works, Investigation and Design)
- About $13.2B (for Main Works)



Illustration of the Completed Phase 1 Sha Tau Kok Sewage Treatment Works

## Expansion of Sha Tau Kok Sewage Treatment Works, Phase 1

**Project Scope:**

- Reconstructing the existing secondary sewage treatment works at Sha Tau Kok to increase its capacity to 5 000m$^3$ per day
- Constructing approximately 1.7km of new submarine outfall with diameter 450mm
- Replacement of existing sewage pumping station and rising mains by new gravity sewers

**Project Progress:**

The works commenced in November 2018 and targeted to complete in 2025

**Project Cost:** About $2.04B

Illustration of the Completed Cheung Chau Sewage Treatment Works

## Upgrading of Cheung Chau Sewage Treatment and Disposal Facilities

**Project Scope:**

- Upgrading of the existing Cheung Chau Sewage Treatment Works to increase its treatment capacity to 9 800$m^3$ per day and to upgrade its treatment standard to secondary level to improve the effluent quality
- Upgrading of the existing Pak She Sewage Pumping Station
- Ancillary works including deodourisation facilities, rainwater harvesting system, architectural and landscaping works

**Project Progress:**

The works commenced in November 2020 and targeted to complete in 2026

**Project Cost:** About $2.61B



# WORK OVERVIEW

## Flood Prevention

Stormwater drainage services include implementation of flood prevention works, operation and maintenance of stormwater drains and associated facilities.

### Drainage Master Plan (DMP) 2.0

Since 2008, the DSD has commenced a series of DMP 2.0 Studies, which are summarised as follows:

## Rainfall Record in Hong Kong

According to the Climatological Information Services in the website of Hong Kong Observatory:

| | | |
|---|---|---|
| **Highest Hourly Rainfall** | 158.1mm | 7 September 2023 |
| **Highest Daily Total Rainfall** | 534.1mm | 19 July 1926 |
| **Highest Annual Total Rainfall** | 3,343.0mm | 1997 |
| **Mean Annual Total Rainfall** | 2,431.2mm | 1991-2020 |

## Elimination of Flooding Blackspots

Since 1995, the DSD has eliminated 127 flooding blackspots. There are currently 4 flooding blackspots in Hong Kong.

| | |
|---|---|
| **Pok Fu Lam Village, Southern** | First-stage improvement works have been completed. Further improvement works commenced in August 2020 for completion in September 2024. |
| **Chatham Road South (Granville Road to Austin Avenue), Tsim Sha Tsui** | First-stage improvement works have been completed. Further drainage works commenced in August 2022 for completion in 2027. |
| **Lam Tsuen Valley Basin, Tai Po** | First-stage improvement works have been completed. Part of the further drainage works will commence in August 2024. Remaining works are under planning and design. |
| **Shek Wu Wai, San Tin, Yuen Long** | First-stage improvement works have been completed. Works for the next stage are under planning and design. |

## Coastal Low-lying or Windy Residential Areas

In order to comprehensively review the impacts of storm surges and waves on coastal low-lying or windy locations under extreme weather and climate change, the Government completed the Study of Coastal Hazards under Climate Change and Extreme Weather and Formulation of Improvement Measures - Feasibility Study.

It identified 26 coastal low-lying or windy residential areas with higher risks for formulation of the necessary improvement works and management measures to safeguard public safety. These 26 areas have covered the 7 Storm Surge Spots and 3 Overtopping Wave Spots previously identified by the Government. The DSD will continue to work closely with the relevant departments to implement the improvement works and management measures.


Location Plan of 26 Coastal Low-lying or Windy Residential Areas with Higher Risks

## Stormwater Storage Schemes


Happy Valley Underground Stormwater Storage Scheme

| | Tai Hang Tung Stormwater Storage Scheme | Sheung Wan Stormwater Storage Scheme | Happy Valley Underground Stormwater Storage Scheme | On Sau Road Stormwater Storage Tank | Anderson Road Quarry Stormwater Storage Tank |
|---|---|---|---|---|---|
| Project Cost | About $290M | About $200M | About $1.07B | About $60M | About $420M |
| Commissioning Date | 2004 | 2009 | 2017 | 2018 | 2024 |
| Capacity | 100 000m$^3$ | 9 380m$^3$ | 60 000m$^3$ | 18 000m$^3$ | 60 000m$^3$ |
| Design Pumping Capacity | 1.9 m$^3$/s | 6.0 m$^3$/s | 1.5 m$^3$/s | By Gravity | By Gravity |
| Plan Area | 17 680m$^2$ | 1 580m$^2$ | 24 000m$^2$ | 4 700m$^2$ | 10 800m$^2$ |
| Average Internal Depth | 7.5m | 5.9m | 3m | 4.6m | 11.3m |
| Other Features | 240m long overflow weir in total | 2 bypass penstocks | 15 nos. of 3m long movable overflow weir | 3 nos. of 5m long overflow weir | 3 nos. of outlet pipe and 1 no. of overflow pipe |



## Drainage Tunnels

Lai Chi Kok Drainage Tunnel

| | Kai Tak Transfer Scheme | Hong Kong West Drainage Tunnel | Lai Chi Kok Drainage Tunnel | Tsuen Wan Drainage Tunnel |
|---|---|---|---|---|
| Project Cost | About $380M | About $3.38B | About $1.67B | About $1.49B |
| Commissioning Date | 2004 | 2012 | 2012 | 2013 |
| Length | 1.5km | 10.5km | 3.7km | 5.1km |
| Diameter | 4.4m | 6.25m to 7.25m | 4.9m | 6.5m |
| Other Features | Transferring stormwater flow from the decked nullah at Waterloo Road to Kai Tak River | 34 intake structures | 6 intake structures | 3 intake structures |
| | | | 1 stilling basin | |
| | | Outfall at Cyberport | Outfall at coastal area near Stonecutters Island | Outfall at Yau Kom Tau |

## Village Flood Protection Schemes

27 Village Flood Protection Schemes in operation

| District | Village |
|---|---|
| Yuen Long | Kau Hui (Nam Pin Wai) |
| | Ma Tin Tsuen |
| | Shui Pin Wai |
| | Wang Chau Village |
| | Shui Pin Tsuen |
| | Tai Kiu |
| Tin Shui Wai | Lo Uk Tsuen |
| | Sik Kong Tsuen |
| | Sik Kong Wai |
| | Kiu Tau Wai |
| | Ha Mei San Tsuen |
| | Sheung Cheung Wai |
| | Fung Shui Lane |

| District | Village |
|---|---|
| Kam Tin | Sha Po Tsuen |
| Ngau Tam Mei | Pok Wai |
| | Chuk Yuen Tsuen and Ha San Wai |
| San Tin | Chau Tau |
| | Mai Po Lo Wai and Mai Po San Tsuen |
| | San Tin |
| Sheung Shui | Sheung Shui Tsuen |
| | Tai Tau Leng and Tsung Pak Long |
| Sha Tin | Tsang Tai Uk |
| | Fo Tan |
| Tai Po | Shui Wai |
| Tuen Mun | Tsing Chung Koon |
| Lantau Island | Tai O Wing On Street |
| | Tai O Tai Ping Street |

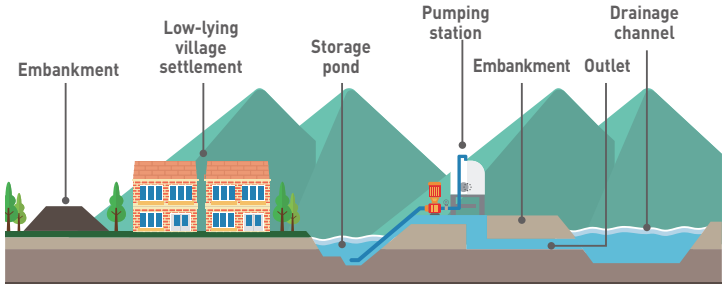
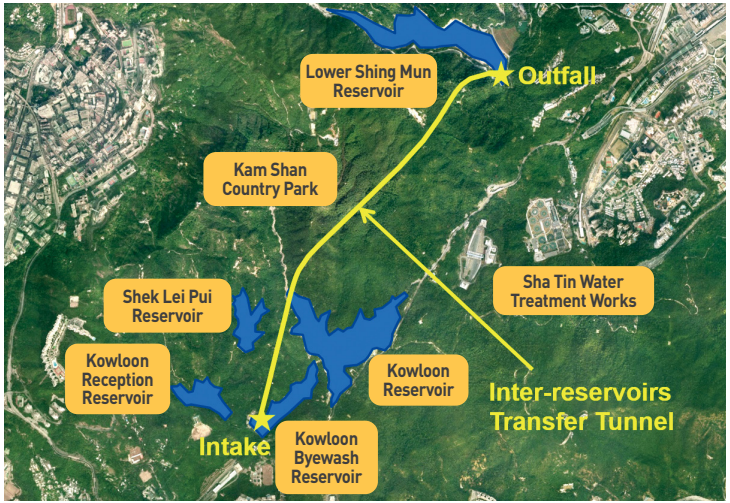
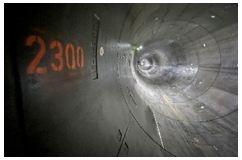



Illustration of Village Flood Prevention Scheme




Inter-reservoirs Transfer Scheme

Kowloon Byewash Reservoir Intake




Water Tunnel

Lower Shing Mun Reservoir Outfall

## West Kowloon Drainage Improvement - Inter-reservoirs Transfer Scheme

**Project Scope:**

Constructing a water tunnel of about 2.8km in length and 3m in diameter from Kowloon Byewash Reservoir to the Lower Shing Mun Reservoir with a view to achieving dual purposes in flood protection and water conservation.

**Commissioning Date:** October 2022

**Project Cost:** About $1.22B

Illustration of in-situ reprovisioned garden after completion of the stormwater storage tank

## Drainage Improvement Works in Tsim Sha Tsui

**Project Scope:**

- Constructing an underground storage tank of about 20 300m$^3$ in volume and pumping station with 8m$^3$/s at Urban Council Centenary Garden (UCCG)
- Construction of approximate 700m of stormwater drains of diameters ranging from 600mm to 1 800mm at Chatham Road South, Granville Road, Granville Square and Cameron Road
- Ancillary works including reinstatement of the UCCG and associated facilities

**Project Progress:**
The works commenced in August 2022 for completion in 2027

**Project Cost:** About $950M



Illustration of in-situ reprovisioned playground after completion of the stormwater storage tank

## Drainage Improvement Works in Kwun Tong – Phase 1 Sau Nga Road Stormwater Storage Scheme

**Project Scope:**

Constructing an underground stormwater storage tank of about 64 000 m$^3$ in volume. During heavy rainfall, the rainwater upstream would be intercepted to the storage tank for temporary storage, and then be discharged downstream after the flood peak, thereby reducing the risk of flooding in the adjacent areas.

**Project Progress:**
The works commenced in September 2022 for completion in 2028

**Project Cost:** About $940M

Illustration of Sha Tau Kok Stormwater Pumping Station

## Drainage Improvement Works at North District – Phase 1

**Project Scope:**

- Construction of an underground stormwater storage tank of approximately 10 000m$^3$ at Kong Ha and Sha Tau Kok Town
- Construction of stormwater drains and drainage channels with a total length of about 4km at Kong Ha, Sha Tau Kok Town, Shek Kiu Tau, Hang Tau, Kai Fong Garden and Kwu Tung Road
- Construction of flood walls with a total length of about 1.9km at Sha Tau Kok Town, Shek Kiu Tau, Kai Fong Garden and Tin Ping Shan Tsuen

**Project Progress:**
The works commenced in August 2023 for completion in 2028

**Project Cost:** About $950M




Illustration of the Barrage Scheme

## Yuen Long Barrage and Nullah Improvement Schemes

**Project Scope:**

- Construction of an automatic flood barrier of about 60m long and 6m high, a stormwater pumping station, a master control centre and the associated electrical and mechanical facilities in the Yuen Long Nullah
- Constructing of a dry weather flow (DWF) interception system, including a pumping station with designed capacity of about 18 000m$^3$ per day, box culverts with DWF interceptors of about 3.6km
- Revitalisation of a section of the Yuen Long Nullah of about 2km between the Shap Pat Heung Road and the location of the proposed barrage

**Project Progress:**
The works commenced in May 2023 for completion in 2030

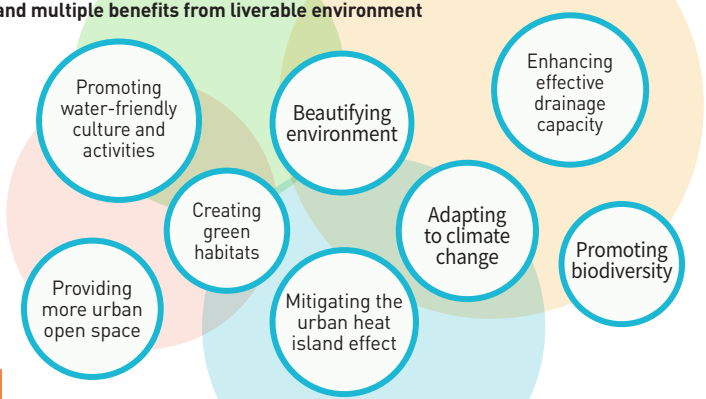
**Project Cost:**
- About $3.78B (Yuen Long Barrage Scheme)
- About $860M (Improvement of Yuen Long Town Nullah (town centre section))

# WORK OVERVIEW

## River Revitalisation

Kai Tak River after revitalisation

**Aim to promote river revitalisation projects so the public can enjoy river facilities and multiple benefits from liverable environment**




Jordan Valley Channel after revitalisation

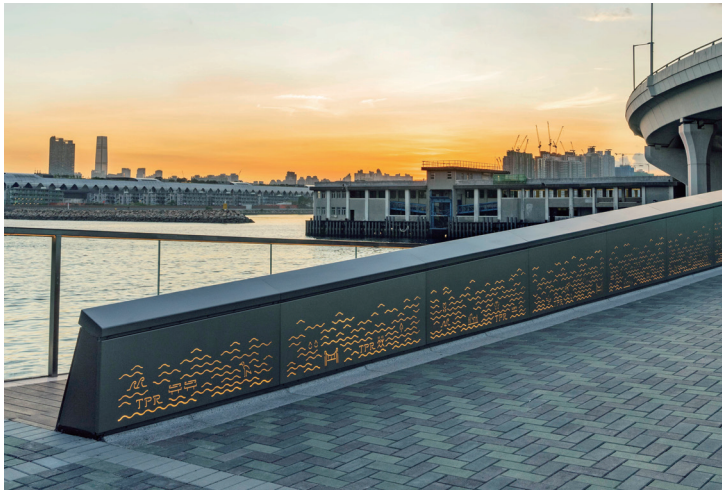
### Jordan Valley Channel

**Project Scope:**

- Landscaping works at the downstream section of the Jordon Valley Channel and its adjoining areas
- Construction of a viewing platform above the channel to provide the public resting area for viewing the beautified channel so as to improving connectivity between the revitalised channel and its surroundings by engaging water-friendly experience
- Greening at the upstream section of the channel with the provision of shoals and fish ladders for enhancing biodiversity

**Commissioning Date:** April 2022

**Project Cost:** About $30M



Tsui Ping Seaside

## Revitalization of Tsui Ping River

**Project Scope:**

- Revitalising the existing 1km long King Yip Street Nullah alongside King Yip Street, King Yip Lane and Tsui Ping Road
- Installing a smart water gate that can adjust itself with tides at the downstream near Hung To Road to regulate the water level
- Providing riverside water-friendly features such as engineered wetland, landscaped decks and a floating pontoon
- Beautifying the adjoining walkways, enhancing connectivity and walkability by means of provision of walkways and landscaped decks beside the river to create public leisure spaces centred on the river

**Project Progress:**

The works commenced in July 2020. The commission of Tsui Ping Seaside was advanced to August 2023, while the remaining works are scheduled for completion in 2024.

**Project Cost:** About $1.34B

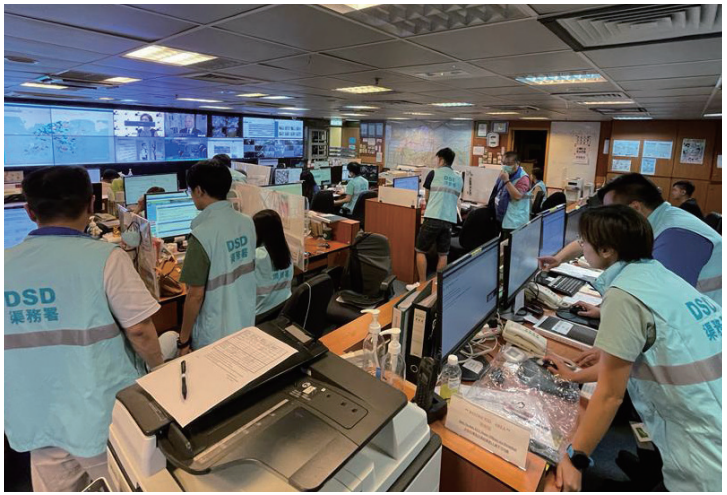




### Operations and Maintenance

Apart from conducting regular inspections and repairs of stormwater drains and sewers, the DSD promptly cleans up the pipes as necessary to keep them clear. During the period of 2023-24, the DSD cleared 173km of stormwater drains and 237km of sewers over the territory. Our Drainage Hotline received about 39 000 cases and followed up over 99% within 24 hours after receipt of the case. Over 99% of the public were satisfied with our services.

Whenever a flooding report is received, whether it involves public or private channels, the DSD usually attends the scene as soon as possible for clearing the blockage and take appropriate flood relieving measures in order to reduce the impact of flooding on the public. During severe weather, the DSD would activate an Emergency Control Centre to co-ordinate and respond to unexpected incidents.




Emergency Control Centre

## Rehabilitation and Replacement of Stormwater Drains and Sewers

### Rehabilitation of Underground Stormwater Drains and Sewers (Stage 1 & 2)

**Project Scope:**

- Conducting condition survey for about 168km underground stormwater drains and 75km underground sewers over the territory
- Rehabilitating about 22km underground stormwater drains and 13km underground sewers over the territory

**Project Progress:**
Stage 1 commenced in January 2019 and completed in December 2022. Stage 2 works commenced in September 2020 for completion in 2025.

**Project Cost:**

- About $520M (for Stage 1 works)
- About $820M (for Stage 2 works)

Rehabilitation Works Using Spirally-wound Liner Method

### Rehabilitation of Underground Stormwater Drains (Stage 3)

**Project Scope:**

Rehabilitating about 19km underground stormwater drains in Central & Western, Wan Chai, Eastern, Southern, Islands, Tuen Mun, Yuen Long, North, Tai Po, Sha Tin, Kwun Tong and Sai Kung Districts

**Project Progress:**
Stage 3 works commenced in June 2021 for completion in 2025

**Project Cost:** About $700M

### Rehabilitation of Underground Sewers (Stage 4)

**Project Scope:**

Rehabilitating about 5km underground sewers in Central & Western, Wan Chai, Eastern, Southern, Islands, Tuen Mun, Yuen Long, North, Tai Po, Sha Tin, Kwun Tong and Sai Kung Districts

**Project Progress:**
Stage 4 works commenced in September 2023 for completion in 2027

**Project Cost:** About $300M





With a view to gradually reducing the reliance on fossil fuels, the DSD is committed to promoting the efficient use of renewable energy and the relevant technological research. Through deepening the implementation of renewable energy projects and energy saving measures, the DSD aims to continue enhancing the department's energy performance.

| Renewable Energy Systems | Generation Capacity (kW) [6] | | |
|---|---|---|---|
| | 2021-22 | 2022-23 | 2023-24 |
| Biogas Combined Heat and Power Generators, Micro-turbine Generators, Boilers and Dual Fuel Engines[7] | 11 404 | 11 404 | 10 682 |
| Photovoltaic (PV) Systems | 1 860 | 2 213 | 2 827 |
| Hydro-turbine Generators | 95 | 95 | 95 |
| TOTAL | 13 359 | 13 712 | 13 604 |

6. The generating capacities of the boilers refer to their thermal generating capacities, while the generating capacities of other systems refer to their electricity generation capacities

7. In 2022-23, two old dual fuel engines were decommissioned

| | 2021-22 | 2022-23 | 2023-24 |
|---|---|---|---|
| Total Generated Renewable Energy | 29 | 27.5 | 22.3 |

8. 1 unit of electricity equals to 1 kilowatt-hour

(in million units of electricity[8])

## Generation of Renewable Energy from Biogas at Tai Po Sewage Treatment Works

**Background:**

The biogas produced in the course of sewage sludge treatment is a renewable energy source. It is converted to electricity and heat by biogas-fuelled combined heat and power (CHP) generators for in-house use in the sewage treatment works. For instance, there are three biogas-fuelled CHP generators at the Tai Po Sewage Treatment Works, with an installed generation capacity of approximately 630 kilowatts each.

**Environmental Benefit:**

- Renewable energy generated by the three CHP units, which is supplied to facilities inside the sewage treatment works, can be as much as 7.2 million units of electricity annually
- Annual reduction of carbon dioxide emission can reach about 5 040 tonnes

Solar Farm at Siu Ho Wan Sewage Treatment Works

## Solar Farm at Siu Ho Wan Sewage Treatment Works

**Background:**

The solar farm, comprising over 4 200 photovoltaic panels, has an installed generation capacity of 1 100 kilowatts

**Environmental Benefit:**

- Electricity generated by the solar farm, which is supplied to facilities inside the treatment works via the internal power distribution network, can be as much as 1.1 million units of electricity annually
- Annual reduction of carbon dioxide emission can reach about 770 tonnes

**Commissioning Date:** 2016

**Project Cost:** About $27 M





## Drainage System under DSD

### Sewerage System

| | |
|---|---|
| Sewers | 1 925 km |
| Sewage tunnels | 80.5 km |

### Stormwater Drainage System

| | |
|---|---|
| Stormwater drains | 2 415 km |
| Engineered channels | 377 km |
| Drainage tunnels | 21 km |
| Total | 4 818.5 km |

### Plants

| | | |
|---|---|---|
| Sewage Treatment Works | | 70 |
| Preliminary Treatment Works | 17 | |
| Primary Treatment Works | 2 | |
| Chemically Enhanced Primary Treatment (CEPT) Works | 5 | |
| Secondary Treatment Works | 45 | |
| Tertiary Treatment Works | 1 | |
| Sewage Pumping Stations | | 269 |
| Stormwater Pumping Stations | | 36 |
| Total | | 375 |

| Volume of Sewage Treated | 2021-22 | 2022-23 | 2023-24 |
|---|---|---|---|
| Preliminary Treatment | 0.24 | 0.18 | 0.18 |
| Primary Treatment | 4.44 | 3.81 | 3.72 |
| Chemically Enhanced Primary Treatment | 833.91 | 819.65 | 831.65 |
| Secondary Treatment | 197.65 | 196.70 | 197.31 |
| Tertiary Treatment | 0.14 | 0.22 | 0.24 |
| Total (in million $m^3$) | 1 036.38 | 1 020.56 | 1 033.10 |

- Sewerage in Hong Kong is currently serving over 93% of the population (based on the number of domestic water bill accounts with sewage charges levied)
- Daily quantity of sewage sludge generated in 2023-24 is about 1 104.87 tonnes

## Design Capacity of Major Pumping Stations

| Major Sewage / Stormwater Pumping Stations | Design Capacity ($m^3/s$) |
|---|---|
| **Sewage Pumping Stations** | |
| Stonecutters Island Main Pumping Station | 63.3 |
| Cheung Sha Wan Sewage Pumping Station* | 14.7 |
| **Stormwater Pumping Stations** | |
| San Tin Stormwater Pumping Station | 8.0 |
| Yuen Long Chuk Yuen Stormwater Pumping Station | 8.0 |

* The sewage received by this pumping station is conveyed to North West Kowloon Preliminary Treatment Works

## Design Treatment Capacity of Major Sewage Treatment Works

| Major Sewage Treatment Works | Design Treatment Capacity ($m^3$/day) |
|---|---|
| **Preliminary Treatment Works** | |
| North West Kowloon Preliminary Treatment Works* | 450 800 |
| Kwun Tong Preliminary Treatment Works* | 333 000 |
| **Primary Treatment Works** | |
| Cheung Chau Sewage Treatment Works | 4 000 |
| Tai O Imhoff Tank | 1 200 |
| **Chemically Enhanced Primary Treatment Works** | |
| Stonecutters Island Sewage Treatment Works | 2 450 000 |
| Pillar Point Sewage Treatment Works | 241 000 |
| San Wai Sewage Treatment Works | 200 000 |
| Siu Ho Wan Sewage Treatment Works | 180 000 |
| Sham Tseng Sewage Treatment Works | 16 800 |
| **Secondary Treatment Works** | |
| Sha Tin Sewage Treatment Works | 340 000 |
| Tai Po Sewage Treatment Works | 120 000 |
| Shek Wu Hui Sewage Treatment Works | 105 000 |
| Yuen Long Sewage Treatment Works | 35 000 |
| Stanley Sewage Treatment Works | 11 600 |
| Sai Kung Sewage Treatment Works | 8 000 |
| **Tertiary Treatment Works** | |
| Ngong Ping Sewage Treatment Works | 1 100 |

*The sewage treated by this preliminary treatment works is further conveyed to Stonecutters Island Sewage Treatment Works for chemically enhanced primary treatment

# PUBLIC EDUCATION

## Visit to DSD Facilities

Schools or organisations are welcome to schedule visits to our sewage treatment facilities and flood prevention facilities through prior application.

Please visit our website for more information:

## DSD Outreach Educational Programme

We will visit schools and introduce our work through presentations, videos and Question-and-Answer session.

Please visit our website for more information:

## DSD Facilities Self-Guided Tour

We provide special visiting routes of designated facilities to tourists and local residents to explore wonderful features of Hong Kong's flood control and sewage treatment.

Please visit our website for more information:

## DSD Facilities Online Tour

Through 360-degree virtual tour and high-definition photo albums, the public can explore facilities of the DSD anytime and anywhere.

Please visit our website for more information:



# CONTACT US

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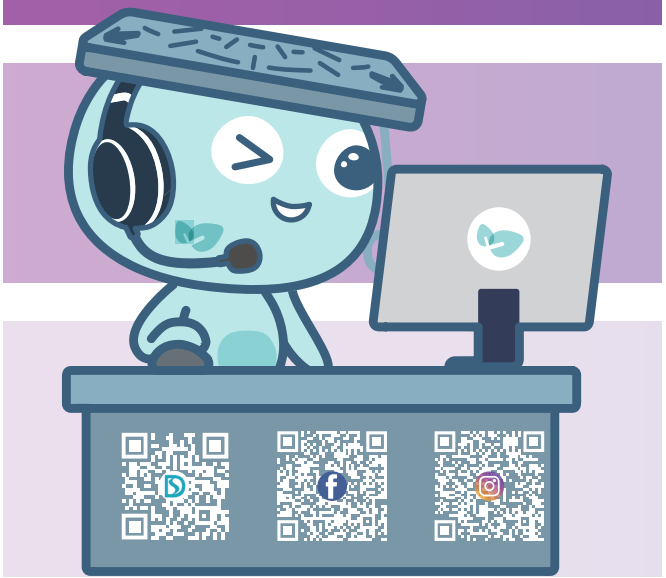

# 2023-2024
# Drainage Services Department in brief

Electronic Version