

The background of the entire page is a photograph of a modern urban drainage system. It shows a wide, concrete-lined channel filled with clear, blue water. The channel is flanked by high, grey concrete walls. On the right side, there is a decorative wall with a pattern of red flowers. In the background, a multi-story building is visible through a hazy atmosphere. The sky is a light blue gradient, and the overall scene is bright and clean.

Drainage Services Department in Brief 2017-18



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1. Our Vision, Mission and Values

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





2. Organization

2.1 Organization Chart

DSD HEADQUARTERS

**Director of Drainage
Services**

**Deputy Director of
Drainage Services**

**Assistant
Director /
Projects and
Development**

**Assistant
Director /
Operations and
Maintenance**

**Assistant
Director /
Electrical and
Mechanical**

**Assistant
Director /
Sewage
Services**

Projects and Development Branch

Sewerage
Projects
Division

Drainage
Projects
Division

Consultants
Management
Division

Project
Management
Division

Operations and Maintenance Branch

Hong Kong
and Islands
Division

Mainland
South
Division

Mainland
North
Division

Land
Drainage
Division

Electrical and Mechanical Branch

Sewage
Treatment
Division 1

Sewage
Treatment
Division 2

Electrical and
Mechanical
Projects
Division

Sewage Services Branch

Harbour Area
Treatment
Scheme Division

Customer Services
and Asset
Management
Section

Operation
Section

Sewage
Revenue
Section



2.2 Staff Establishment

| | |
|---|---------------|
| Directorate | 18 |
| Professional | 306 |
| Engineer | 238 |
| Electrical & Mechanical Engineer | 45 |
| Electronics Engineer | 2 |
| Shift Charge Engineer | 2 |
| Quantity Surveyor | 1 |
| Land Surveyor | 2 |
| Landscape Architect | 2 |
| Environmental Protection Officer | 2 |
| Chemist | 12 |
| Technical & Site Supervisory | 888 |
| General & Common Grades | 533 |
| Model Scale I | 194 |
| Total | 1,939* |

* There is one staff seconded to other department



3. Financial Data

3.1 Operating Expenditure

(in \$M)

| <u>Recurrent Expenditure</u> | <u>2015-16</u> | <u>2016-17</u> | <u>2017-18</u> |
|------------------------------|----------------|----------------|----------------|
| Personal Emoluments | 882.3 | 917.2 | 916.9 |
| Personnel Related Expenses | 26.8 | 32.9 | 39.0 |
| Departmental Expenses | 1,461.0 | 1,614.0 | 1,653.8 |
| Total | 2,370.1 | 2,564.1 | 2,609.7 |

3.2 Sewage Services Operating Cost Recovery Rate ⁽¹⁾

| | 2015-16 | 2016-17 | 2017-18 ⁽³⁾ |
|---|----------------|----------------|-------------------------------|
| Revenue of Sewage Charge and Trade Effluent Surcharge (\$M) | 1,268.5 | 1,392.9 | 1,545.8 |
| Expenditure of Sewage Charge and Trade Effluent Surcharge (\$M) ⁽²⁾ | 2,101.4 | 2,295.7 | 2,482.6 |
| Operating Cost Recovery Rate (%) | 60.4 | 60.7 | 62.3 |

Notes:

1. "Miscellaneous Services" are excluded from the revenues and expenditures in this table
2. Depreciation is not recovered through the Sewage Charge and Trade Effluent Surcharge at present
3. The 2017-18 figures are projected figures



3.3 Sewage Charge

Number of Accounts

(in thousand, as at Dec of each year)

| | <u>2015</u> | <u>2016</u> | <u>2017</u> |
|---|-------------|-------------|-------------|
| Sewage Charge Account | 2,684 | 2,724 | 2,760 |
| Trade Effluent Surcharge (TES) Account | 25 | 27 | 28 |

27 Categories of TES trade

- Yarn sizing
- Bleaching and dyeing of knitted fabric
- Knit outerwear
- Spinning cotton
- Medicines
- Basic industrial chemicals
- Pulp, paper and paperboard
- Breweries and manufacture of malt liquor
- Cocoa, chocolate and sugar confectionery
- Bakery products
- Vegetable oil, peanut oil, peppermint oil and aniseed oil
- Canning and preserving fruit and vegetables
- Slaughtering, preparing and preserving meat
- Restaurants
- Washing new garments, excluding laundries
- Bleaching and dyeing of woven fabric
- Wearing apparel other than knit outerwear
- Soap and cleaning preparations, perfumes, cosmetics
- Paints, varnishes and lacquers
- Tanneries and leather finishing
- Soft drinks and carbonated waters industries
- Distilling, rectifying and blending spirits
- Vermicelli, noodles, and similar farinaceous products
- Grain mill products
- Canning, preserving and processing of fish and crustaceans
- Dairy products
- Soy and other sauces



Sewage Charge

| Effective Period | Sewage Charge (\$/m ³ of water supplied) |
|-----------------------|--|
| 1.4.1995 – 31.3.2008 | 1.20 |
| 1.4.2008 – 31.3.2009 | 1.31 |
| 1.4.2009 – 31.3.2010 | 1.43 |
| 1.4.2010 – 31.3.2011 | 1.57 |
| 1.4.2011 – 31.3.2012 | 1.71 |
| 1.4.2012 – 31.3.2013 | 1.87 |
| 1.4.2013 – 31.3.2014 | 2.05 |
| 1.4.2014 – 31.3.2015 | 2.24 |
| 1.4.2015 – 31.3.2016 | 2.44 |
| 1.4.2016 – 31.3.2017 | 2.67 |
| From 1.4.2017 onwards | 2.92 |

3.4 Capital Works Projects

| Projects in hand | Sewage Treatment | | Flood Prevention | | Total | |
|------------------------------|---------------------|---------------|---------------------|---------------|-------|---------------|
| | No. | Cost (\$B) | No. | Cost (\$B) | No. | Cost (\$B) |
| Cat. A ⁽¹⁾ | 20 | 11.44 | 1 | 1.60 | 21 | 13.04 |
| Cat. B ⁽²⁾ | 46 | 61.73 | 18 | 23.36 | 64 | 85.09 |
| Total | 66 | 73.17 | 19 | 24.96 | 85 | 98.13 |

Notes:

1. All Cat. A projects with works/consultancies in progress are given in Money-of-the-Day price
2. All Cat. B projects are given in Sept 2017 price level





4. Work Overview

4.1 Sewage Treatment

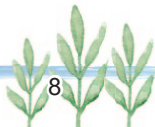
Services for sewage treatment include operation and maintenance of sewage treatment facilities, upgrading the existing sewerage infrastructure and building new facilities.

Sewerage Master Plan Studies

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



Kowloon City No.1 Sewage Pumping Station



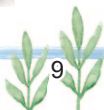


Harbour Area Treatment Scheme

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, and thus enhancing the sustainable development of Hong Kong.



Stonecutters Island Sewage Treatment Works



Harbour Area Treatment Scheme Stage 1

Project Scope:

- Construction of Stonecutters Island Sewage Treatment Works (SCISTW) at a footprint of about 10 hectares and a design treatment capacity of 1.7 million m³ per day
- Construction of 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 of 7 Preliminary Treatment Works (PTW) in Tsing Yi, Kwai Chung, To Kwa Wan, Kwun Tong, Tseung Kwan O, Shau Kei Wan and Chai Wan

Commissioning Date: December 2001

Project Cost: About \$8.2 B

Information of Sewage Conveyance Tunnel

| Tunnel Drive | Length (km) | Diameter (m) | Level (mPD) |
|------------------------------------|-------------|----------------------|--------------|
| Chai Wan to Shau Kei Wan | 2.3 | 1.20 | -121 to -126 |
| Shau Kei Wan to Kwun Tong | 2.6 | 1.35 | -76 to -121 |
| Tseung Kwan O to Kwun Tong | 5.3 | 1.35 (twin pipes) | -76 to -87 |
| Kwun Tong to To Kwa Wan | 3.4 | 2.82 | -136 to -143 |
| To Kwan Wan to Stonecutters Island | 5.6 | 3.54 | -125 to -136 |
| Kwai Chung to Tsing Yi | 0.8 | 2.21 | -132 to -134 |
| Tsing Yi to Stonecutters Island | 3.6 | 2.36 | -125 to -132 |



Harbour Area Treatment Scheme Stage 2A

Project Scope:

- Enhancing the design treatment capacity of SCISTW to 2.45 million m³ per day and the addition of disinfection facilities
- Construction of about 21 km long deep tunnel to convey the sewage from the northern and south-western parts of Hong Kong Island to SCISTW for CEPT
- Upgrading 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 \$17.5 B

Information of Sewage Conveyance Tunnel

| Tunnel Drive | Length (km) | Size | Level (mPD) |
|------------------------------------|-------------|--|--------------|
| North Point to Stonecutters Island | 12 | <ul style="list-style-type: none">• 7.5-km-long Twin oval tunnels of cross-sectional area 1.7 to 5.6 m² each• 4.5-km-long Single circular tunnel of cross-sectional area 7.1 m² | -139 to -163 |
| Aberdeen to Sai Ying Pun | 7.5 | Twin oval tunnels of cross-sectional area 1.5 to 2.1 m ² each | -73 to -123 |
| Ap Lei Chau to Aberdeen | 1.3 | Twin circular tunnels of cross-sectional area 0.28 m ² each | +2 to -99 |



Harbour Area Treatment Scheme Stage 2B

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.

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Construction of Additional Sewage Rising Main and Rehabilitation of the Existing Sewage Rising Main between Tung Chung and Siu Ho Wan

Project Scope:

- Construction of an additional sewage rising main of about 6.5 km with diameter of 1,200 mm from the Tung Chung Sewage Pumping Station to the Siu Ho Wan Sewage Treatment Works
- Construction of the associated connection works for the additional sewage rising main
- Rehabilitation of the existing sewage rising main
- Ancillary works including ground investigation and monitoring works

Commencement Date: August 2016

Anticipated Completion Date: 2025

Project Cost: About \$1.36 B





Upgrading of San Wai Sewage Treatment works

Project Scope:

- The plant is to be expanded and upgraded to chemically enhanced primary treatment with disinfection to improve the effluent quality
- Uplifting the treatment capacity to 200,000 m³ per day
- Design and construction of other ancillary facilities such as administration building, maintenance workshop, laboratories, odour treatment facilities and sludge treatment facilities
- Provision of architectural and landscaping works
- Provision of an alternative permanent access route in the west of existing San Wai Sewage Treatment Plant

Project Progress:

The Design, Build and Operate Contract commenced in May 2016, targeting for completion of construction in 2020. The Contractor is responsible for design and construction of the San Wai Sewage Treatment Works, and operation of the facilities for 15 years after commissioning.

Project Cost: About \$3.14 B



Illustration of the completed San Wai Sewage Treatment Works



Shek Wu Hui Effluent Polishing Plant

Project Scope:

- Uplifting the treatment capacity of existing Shek Wu Hui Sewage Treatment Works to 190,000 m³ per day
- Upgrading the treatment level from existing secondary to tertiary
- Improving environmental performance of the existing plant, including odour control and landscaping works

Project Progress:

The Advance Works commenced in mid-2015 and are anticipated to be completed in 2019. The Main Works will be implemented in stages. Detailed design is in progress.

Advance Works, Investigation and Design cost:

About \$500 M

Information of Existing Shek Wu Hui Sewage Treatment Works

Footprint: About 9.4 hectares

Design Treatment Capacity: 93,000 m³/day



Preliminary design layout of Shek Wu Hui Effluent Polishing Plant



Enhancement Works for Kwun Tong Sewage Pumping Station

Project Scope:

- The plant is to be enhanced with the provision of a balancing facility with a capacity of 16,000 m³ and its associated facilities
- Provision of a plant house with ventilation system and landscaped deck at the roof of plant house
- Provision of deodorisation facilities and ancillary works

Project Progress:

The works adopting NEC ECC Option C commenced in Dec 2017 and target for completion in 2022.

Project Cost: About \$493 M



Illustration of the completed Kwun Tong Sewage Pumping Station



Expansion of Sha Tau Kok Sewage Treatment Works, Phase 1

Project Scope:

- Reconstruction of the existing Sha Tau Kok Sewage Treatment Works to increase its capacity to 5,000 m³ per day
- Construction of approximately 1.7 km of submarine outfall with diameter 450 mm
- Decommissioning of existing sewage pumping station and associated rising mains

Project Progress:

The works adopting NEC ECC Option C is scheduled for commencement in late 2018 and target for completion in 2025.

Project Cost: About \$2.04 B



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



Yuen Long Effluent Polishing Plant

Project Scope:

- Uplifting the treatment capacity of existing Yuen Long Sewage Treatment Works to 150,000 m³ per day
- Upgrading the treatment level from existing secondary to tertiary to protect Deep Bay
- Improving environmental performance of the existing plant, including odour control and landscaping works

Project Progress:

The project is now under design stage, with environmental impact assessment, geotechnical investigation and detailed design in progress.

Investigation and Design cost:

About \$98 M

Information of Existing Yuen Long Sewage Treatment Works

Footprint: About 8 hectares

Design Treatment Capacity: 70,000 m³/day



Yuen Long Sewage Treatment Works





Relocation of Sha Tin Sewage Treatment Works to Caverns

Project Scope:

Relocating Sha Tin Sewage Treatment Works (STSTW) to the caverns to be constructed in Nui Po Shan at the other side of Shing Mun River so as to vacate the existing site for beneficial uses.

Project Progress:

Ground investigation works and design are on-going. We are seeking funding approval from the Legislative Council for the site preparation and access tunnel works under the Stage 1 which is scheduled for commencement in 2019.

Investigation and Design cost: About \$640 M

Information of Existing STSTW

Footprint: About 28 hectares

Design Treatment Capacity: 340,000 m³/day



Sha Tin Sewage Treatment Works and Nui Po Shan





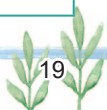
4.2 Flood Prevention

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

Drainage Master Plan Studies (DMP) and DMP Review Studies

DSD has completed 8 Drainage Master Plan (DMP) Studies and 3 Drainage Studies. Since 2008, DSD has commenced a series of DMP Review Studies, which are summarized as follows:

| Review Study Area | | Status |
|-------------------|------------------------------------|--|
| 1 | Yuen Long | Completed in 2011 |
| 2 | North District | |
| 3 | Happy Valley | |
| 4 | West Kowloon | Completed in 2015 |
| 5 | East Kowloon | |
| 6 | Tai Po | Substantially completed in 2017 |
| 7 | Sha Tin and Sai Kung | |
| 8 | Northern Hong Kong Island | In progress, anticipated to complete in 2018 |
| 9 | Lantau and Outlying Islands | In progress, anticipated to complete in 2019 |
| 10 | Repulse Bay and Tai Tam | |
| 11 | Tuen Mun, Tsuen Wan and Kwai Tsing | In progress, anticipated to complete in 2020 |
| 12 | Tseung Kwan O | Under planning |
| 13 | South Hong Kong Island | |





Elimination of Flooding Blackspots

Since 1995, DSD has eliminated 125 flooding blackspots. There remain 6 flooding blackspots in Hong Kong. The drainage improvement works for 2 of them have been completed and their effectiveness is being monitored. Subject to satisfactory performance, these 2 flooding blackspots will be eliminated in due course. For the remaining 4 flooding blackspots, the first-stage improvement works have been completed while the next stage improvement works are under planning and design.

Flooding Blackspots removed in early 2018

- Tung Tsz Road, Tai Po

Information of the 6 Remaining Flooding Blackspots

| Location | Situation |
|--|---|
| <ul style="list-style-type: none">• Ting Kok Road – Shuen Wan Chim Uk to Wong Yue Tan, Tai Po• Morrison Hill Road J/O Lap Tak Lane, Wan Chai | Improvement works have been completed and the effectiveness is under monitoring |
| <ul style="list-style-type: none">• Lam Tsuen Valley Basin, Tai Po• Shek Wu Wai, San Tin, Yuen Long• Chatham Road South between Granville Road and Austin Avenue, Yau Tsim Mong• Pok Fu Lam Village, Southern | First-stage improvement works have been completed. Works for the next stage are under planning and design |





Flood Prevention Works

Our flood prevention works are summarized as follows:

| | Completed | Under planning / design / construction |
|----------------------------------|----------------|---|
| River Training | About 107 km | About 13 km |
| Drainage Improvement | About 94 km | About 22 km |
| Drainage Tunnel | About 21 km | N/A |
| Stormwater Storage Scheme | 4 | 8 |
| Total Project Cost | About \$28.0 B | About \$25.0 B |



Completed Tai Po River



Drainage Tunnels

| | Kai Tak Transfer Scheme | Hong Kong West Drainage Tunnel | Lai Chi Kok Drainage Tunnel | Tsuen Wan Drainage Tunnel |
|---------------------------|-------------------------|--|---|---|
| Project Cost | About \$380 M | About \$3.38 B | About \$1.67 B | About \$1.49 B |
| Commissioning Date | Dec 2004 | Aug 2012 | Oct 2012 | Mar 2013 |
| Length | 1.5 km | 10.5 km | 3.7 km | 5.1 km |
| Diameter | 4.4 m | 6.25 m to 7.25 m | 4.9 m | 6.5 m |
| Other Features | — | <ul style="list-style-type: none"> • 34 intake structures • Outfall at Cyberport | <ul style="list-style-type: none"> • 6 intake structures • 1 stilling basin • Outfall at Stonecutters Island | <ul style="list-style-type: none"> • 3 intake structures • Outfall at Yau Kom Tau |

West Kowloon Drainage Improvement - Inter-reservoirs Transfer Scheme

Project Scope:

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

Project Progress:

Construction works are scheduled to commence in the first quarter of 2019 for completion in 2022.

Project Cost: About \$1.22 B



Location of Intake Structure of Inter-reservoirs Transfer Scheme



Stormwater Storage Schemes

| | Tai Hang Tung Stormwater Storage Scheme | Sheung Wan Stormwater Storage Scheme | Happy Valley Underground Stormwater Storage Scheme | On Sau Road Stormwater Storage Scheme |
|--------------------------------|---|--------------------------------------|--|---------------------------------------|
| Project Cost | About \$290 M | About \$200 M | About \$1.07 B | About \$60 M |
| Commissioning Date | 2004 | 2009 | Mar 2017 | Feb 2018 |
| Capacity | 100,000 m ³ | 9,380 m ³ | 60,000 m ³ | 18,000 m ³ |
| Design Pumping Capacity | 1.9 m ³ /s | 6.0 m ³ /s | 1.5 m ³ /s | - |
| Plan Area | 17,680 m ² | 1,580 m ² | 24,000 m ² | 4,700 m ² |
| Average Internal Depth | 7.5 m | 5.9 m | 3 m | 4.6 m |
| Other Features | 240 m long overflow weir in total | — | 15 nos. of 3 m long movable overflow weir | — |



Happy Valley Underground Stormwater Storage Tank



Improvement Works of Kai Tak River

| | Upstream Section | Midstream Section |
|--------------------------|--|--|
| Project Scope | <ul style="list-style-type: none"> Reconstruction and rehabilitation of a section of Kai Tak River of about 600 m long from Po Kong Village Road to Tung Kwong Road Construction of a box culvert of about 400 m long alongside the Kai Tak River from Wong Tai Sin Police Station to Tung Tai Lane Landscaping works | <ul style="list-style-type: none"> Reconstruction and rehabilitation of a section of Kai Tak River of about 500 m long from Tung Kwong Road to Prince Edward Road East Landscaping works |
| Commencement Date | October 2011 | December 2013 |
| Completion Date | Mid-2018 | November 2017 |
| Project Cost | About \$1.6 B | About \$1.2 B |

Notes: The construction and upgrading of the downstream section of Kai Tak River, being undertaken by CEDD, commenced in 2013 and is anticipated to be completed in 2018 at a project cost of about \$2.5 B



Revitalised Kai Tak River



Village Flood Protection Schemes

27 nos. of Village Flood Protection Schemes in operation

| District | Village | District | Village |
|---------------------|-----------------------|----------------------|------------------------------------|
| Yuen Long | Kau Hui (Nam Pin Wai) | Kam Tin | Sha Po Tsuen |
| | Ma Tin Tsuen | Ngau Tam Mei | Po Wai |
| | Shui Pin Wai | | Chuk Yuen Tsuen and Ha San Wai |
| | Wang Chau Village | San Tin | Chau Tau |
| | Shui Pin Tsuen | | Mai Po Lo Wai and Mai Po San Tsuen |
| | Tai Kiu | | San Tin |
| Tin Shui Wai | Lo Uk Tsuen | Sheung Shui | Sheung Shui Tsuen |
| | Sik Kong Tsuen | | Tai Tau Leng and Tsung Pak Long |
| | Sik Kong Wai | Sha Tin | Tsang Tai Uk |
| | Kiu Tau Wai | | Fo Tan |
| | Ha Mei San Tsuen | Tai Po | Shui Wai |
| | Sheung Cheung Wai | Tuen Mun | Tsing Chung Koon |
| | Fung Shui Lane | Lantau Island | Tai O Wing On Street |
| | | | Tai O Tai Ping Street |

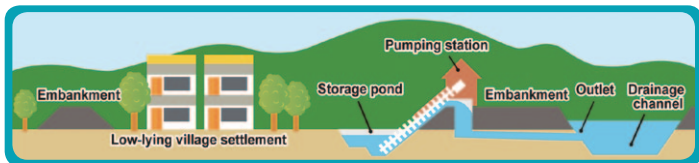


Illustration of Village Flood Protection Scheme





Shenzhen River Regulation Project

| | Stage I to Stage III | Stage IV |
|------------------------|---|---|
| Project Scope | Straightening the Lok Ma Chau bend and the Liu Pok bend, widening and deepening the remaining sections from Liu Pok bend to the estuary and the section upstream of the Liu Pok bend to the confluence with Ping Yuen River (about 13.5km in total) | Improving the section of Shenzhen River between Ping Yuen River and Pak Fu Shan (about 4.5 km) and constructing a flood retention lake of 80,000 m ³ |
| Completion Date | 1997 to 2006 | 2017 |
| Project Cost | About \$1.8 B | About \$1.0 B |



Aerial view of Shenzhen River Regulation Project Stage IV
Flood Retention Lake





Revitalization of Tsui Ping River

Project Scope:

- Revitalising the existing 1 km long nullah alongside King Yip Street, King Yip Lane and Tsui Ping Road into Tsui Ping River with environmental, ecological and landscape upgrading
- Beautifying the adjoining walkways, enhancing connectivity and walkability by means of provision of walkways and landscaped decks beside the river to match with the project theme

Project Progress:

Detailed design commenced in December 2017. The second stage PE exercise is conducted in mid-2018.



Illustration of the completed Tsui Ping River



Revitalising Water Bodies

The way forward

- Revitalising Water Bodies to Achieve Sustainable Development
 - Promoting water-friendly culture and activities
 - Creating green habitats
 - Providing more urban open space
 - Mitigating heat island effect
 - Coping with climate change
 - Making reference to the concept of “Sponge City” – following the nature with flexibility



Illustration of the concept of "Sponge City"



5. Key Statistics and Data

Rainfall Record in Hong Kong

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

| | | |
|-------------------------------|----------|-------------|
| Highest Hourly Rainfall | 145.5mm | 7 Jun 2008 |
| Highest Daily Total Rainfall | 534.1mm | 19 Jul 1926 |
| Highest Annual Total Rainfall | 3343.0mm | Year 1997 |
| Mean Annual Total Rainfall | 2398.5mm | 1981-2010 |

Drainage System under DSD

Sewerage System

- Sewers 1,770 km
- Sewage tunnels ⁽¹⁾ 63 km

Stormwater Drainage System

- Stormwater drains 2,388 km
- Engineered channels 363 km
- Drainage tunnels ⁽²⁾ 21 km

(The above figures are as at December 2017) 4,605 km

Notes:

1. Including sewage conveyance tunnels of HATS Stage 1 and 2A, North West New Territories Sewage Tunnel, Tolo Harbour Effluent Sewage Tunnel and Tseung Kwan O Sewage Tunnel
2. Including Hong Kong West Drainage Tunnel, Lai Chi Kok Drainage Tunnel, Tsuen Wan Drainage Tunnel and Kai Tak Transfer Scheme





Facilities

| | |
|--|-------|
| Sewage Treatment Works | 67 |
| Preliminary Treatment Works | 18 |
| Primary Treatment Works | 2 |
| Chemically Enhanced Primary Treatment (CEPT) Works | 4 |
| Secondary Treatment Works | 42 |
| Tertiary Treatment Works | 1 |
| | <hr/> |
| Sewage Pumping Stations | 247 |
| Stormwater Pumping Stations | 36 |
| | <hr/> |
| Total no of facilities | 350 |



Sheung Wan Stormwater Pumping Station





Volume of Sewage Treated

(in million m³)

| | <u>2015-16</u> | <u>2016-17</u> | <u>2017-18</u> |
|--------------------------|----------------|----------------|----------------|
| By Preliminary Treatment | 138 | 45 | 58 |
| By Primary Treatment | 5 | 5 | 5 |
| By CEPT | 690 | 779 | 757 |
| By Secondary Treatment | 174 | 186 | 187 |
| Total | <u>1,007</u> | <u>1,015</u> | <u>1,007</u> |

Notes:

1. Sewerage network in Hong Kong is currently serving about 93.5% of the population (based on the number of domestic water bill accounts with sewage charges levied)
2. The volume of sewage treated by tertiary treatment in 2017/18 is about 0.17 million m³
3. Daily quantity of sewage sludge generated in 2017/18 is about 1,043 tonnes



Ngong Ping Sewage 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 |
| San Wai Preliminary Treatment Works | 164,000 |
| Primary Treatment Works | |
| Cheung Chau Sewage Treatment Works | 4,000 |
| Tai O Imhoff Tank | 1,200 |
| CEPT Works | |
| Stonecutters Island Sewage Treatment Works | 2,450,000 |
| Pillar Point Sewage Treatment Works | 241,000 |
| 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 | 93,000 |
| Yuen Long Sewage Treatment Plant | 70,000 |
| Stanley Sewage Treatment Works | 11,600 |
| Sai Kung Treatment Works | 8,000 |
| Tertiary Treatment Work | |
| Ngong Ping Sewage Treatment Works | 1,100 |

* The sewage treated by this PTW is further conveyed to SCISTW for CEPT



Design Pumping Capacity of Major Pumping Stations

| Major Sewage / Stormwater Pumping Stations | Design Pumping 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 |
| Chuk Yuen Stormwater Pumping Station | 8.0 |

Application of Renewable Energy

| Renewable Energy Systems | Generating Capacity (kW) ⁽¹⁾ | | |
|---|---|----------------------|---------------|
| | 2015-16 | 2016-17 | 2017-18 |
| Combined Heat and Power Generators and Micro-turbines | 3,650 | 3,900 | 3,900 |
| Solar Systems | 369 | 1,323 ⁽²⁾ | 1,392 |
| Dual Fuel Engines | 4,400 | 4,400 | 4,400 |
| Biogas Boilers | 3,793 | 3,793 | 3,793 |
| Total | 12,212 | 13,416 | 13,485 |

Notes:

1. The generating capacities of the biogas boilers refer to their thermal generating capacities, the generating capacities of other systems all refer to their electricity generating capacities
2. The solar farm at the Siu Ho Wan Sewage Treatment Works fully came into operation in December 2016, hence significantly increased the generation capacity in 2016-17



Solar farm at Siu Ho Wan Sewage Treatment Works

Scale:

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

Environmental Benefits:

- Annual electricity generation of the solar farm can be as much as 1,100,000 kilowatt-hours, supplying to facilities inside the treatment works via the internal power distribution network
- Annual reduction of carbon dioxide emission can reach about 770 tonnes

Commissioning date: December 2016

Construction cost: About \$27 M



Solar farm at Siu Ho Wan Sewage Treatment Works



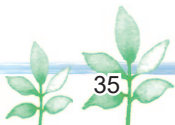
6. Public Education

Students or relevant organizations are welcome to visit our sewage treatment and flood prevention facilities through prior application. Please visit the following website for more information:

http://www.dsd.gov.hk/EN/Education/Visit_to_DSD_Facilities/index.html



Lai Chi Kok Drainage Tunnel Equipment Enclosure





7. Contact Us

Drainage Hotline:

2300 1110

Sewage Services Charges Enquiries:

2834 9432

General Enquiries:

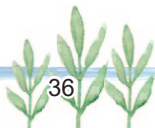
2877 0660

Website:

<http://www.dsd.gov.hk>

E-mail:

enquiry@dsd.gov.hk





渠務署

Drainage Services Department

**Drainage Services Department
in Brief
2017 -18**

