渠務署
Drainage Services Department

SAN TIN STORMWATER PUMPING STATION AND SAN TIN POLDER
新田雨水泵房及新田蓄洪池

FOREWORD 前言

This publication takes readers on a visual journey through San Tin Stormwater Pumping Station and Polder, which provide a representative example of the flood mitigation efforts undertaken by Drainage Services Department.

The San Tin Village Flood Protection Scheme has been implemented to protect seven low-lying villages in San Tin, Yuen Long, since 1999 against the risk of flood damage during heavy rainfalls.

Through a collection of photographs, the ensuing pages will introduce readers to the project's main features, including San Tin Polder, a storage pond built to hold stormwater temporarily, and a stormwater pumping station that automatically conveys the water to a drainage facility outside the village area.

A pilot trial of floating photovoltaic (FPV) system has been implemented at the polder along with other photovoltaic (PV) systems at the stormwater pumping station to generate renewable energy. DSD has also created an ecological floating island to provide a resting place for birds and enrich the ecological environment.

Please enjoy this book, with breathtaking snapshots of the polder taken, and share it with your friends. Hopefully, you will be motivated to take a trip and explore both the functional and aesthetic sides of our village flood protection scheme in San Tin.

本書帶領讀者進入一段視覺旅程，走進新田雨水泵房及蓄洪池，為渠務署在防洪工作的代表性示例。

新田鄉村防洪計劃自1999年完成，旨在保護元朗新田的七條低窪村落免受暴雨期間的水浸損害風險。

後續篇幅將透過照片集帶領讀者瞭解項目的主要特點，包括新田蓄洪池及雨水泵房，前者建造用作臨時儲存雨水，後者則會自動將水排放至村落範圍外的排水設施。

渠務署已在蓄洪池推展浮式太陽能發電系統的先導計劃及在雨水泵房安裝其他太陽能發電系統以產生可再生能源，並設置生態浮島提供鳥類棲息地及豐富生態環境。

敬請閱讀本書，瀏覽蓄洪池的動人照片並與友人分享。希望本書能令讀者想往新田行一趟，從功能與美學角度去探索我們的新田鄉村防洪計劃。

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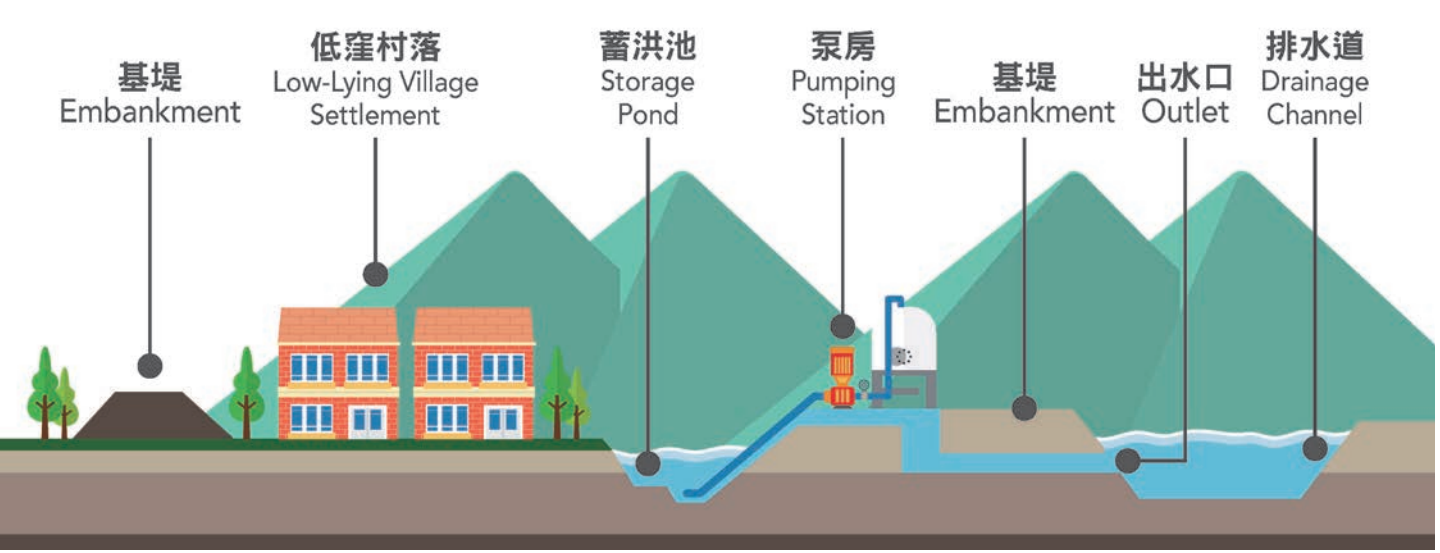
Introduction of Village Flood Protection Scheme
鄉村防洪計劃介紹

Illustration of Village Flood Protection Scheme
鄉村防洪計劃概念圖



The scheme is developed by Drainage Services Department (DSD) to protect rural settlements located in the low-lying areas from the risk of flooding caused by rainstorms. Due to reasons of natural topography, stormwater in these villages could not be effectively drained by gravity to the primary drainage networks. They were susceptible to flooding even after the construction of major drainage channels. Following implementation of the schemes, the flooding problem has been significantly mitigated.

Each of these schemes involves construction of an embankment surrounding the villages for flood protection and pumping of stormwater from within the bunded area to external drainage channels. Stormwater from the villages is channelled to a pond for temporary storage. Whenever the water level in the ponds reaches a pre-set threshold, stormwater in the pond is pumped to an adjacent stream course or nullah outside the embankment.

Over the decades, the Village Flood Protection Schemes have been supported by major infrastructure works including expansion and improvement of existing drainage systems and river training works for effective stormwater discharge.

Through DSD's consistent efforts to improve the Village Flood Protection Scheme, most flooding blackspots have been eliminated to safeguard at-risk rural residents from the impact of flooding events. The department is currently maintaining 27 village flood protection schemes to provide adequate and effective flood protection for 38 low-lying villages since commissioning.

In more recent years, DSD has gone to great lengths to upgrade ongoing drainage improvement measures to further sustainable development. Where possible, the revitalised water bodies are harnessed for the generation of clean energy and enhanced to provide a natural habitat for wildlife.

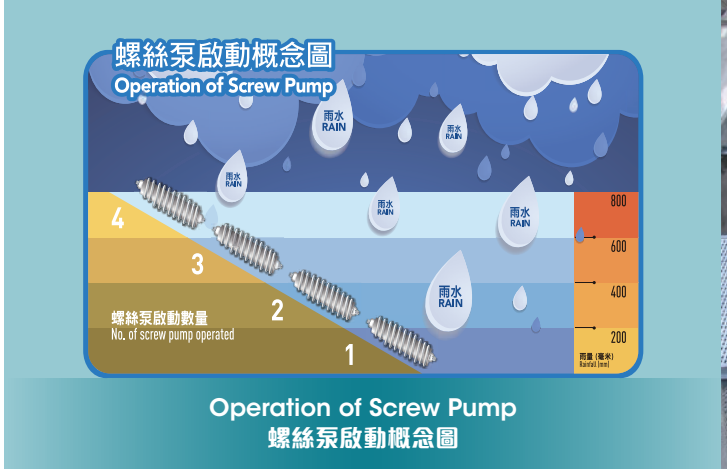
渠務署制定的鄉村防洪計劃，以保護低窪地區的鄉郊村落免遭暴雨所致水浸風險為目的。由於天然地勢的緣故，在該等村落內雨水無法自然有效地順流排入主排水網絡，即使已建有大型排水道，仍然易遭水浸。在實施該等計劃後，水浸問題已得到極大緩解。

每項鄉村防洪計劃均涉及於村落四周建造防洪堤，並將雨水從堤內抽取到外部排水渠道。村內雨水被引流至蓄洪池作臨時儲存。當池內水位達到預設高度時，池內雨水會被抽到堤外的臨近溪流或水道排放。

數十年來，鄉村防洪計劃得到其他主要基礎設施工程的配合，包括擴大及改良現有排水系統以及河流治理工程，藉此提升雨水排放的效能。

渠務署在改進鄉村防洪計劃方面持續努力，令面臨水浸風險的鄉村居民受到保護。渠務署目前有27個運作中鄉村防洪計劃，為38條低窪村落提供充分及有效的防洪保障。

近年，為推動可持續發展，渠務署不遺餘力地提升改良排水設施。在可行的情況下，渠務署推動活化水體的同時會加入生產潔淨能源，改善水體環境，為自然生態提供天然棲息地。



Operation of Screw Pump
螺絲泵啟動概念圖


Screw Pump
螺絲泵


Kiu Tau Wai Village Flood Protection Scheme
橋頭圍鄉村防洪計劃


Pok Wai Village Flood Protection Scheme
墈圍鄉村防洪計劃


Chuk Yuen Village Flood Protection Scheme
竹園鄉村防洪計劃

San Tin Village Flood Protection Scheme
新田鄉村防洪計劃

San Tin Flood Protection Scheme was completed in 1999 to reduce the flood risk of seven low-lying villages.
新田鄉村防洪計劃於1999年完成，保障七條低窪村落免受水浸損害風險。

San Tin Village Flood Protection Scheme was completed in 1999 to provide effective protection against flooding for seven low-lying villages in San Tin, Yuen Long, including Tsing Lung Tsuen, Fan Tin Tsuen, On Lung Tsuen, San Lung Tsuen, Tung Chun Wai, Wing Pin Tsuen and Yan Shau Wai.

As with other similar village flood protection schemes implemented by DSD, the one in San Tin includes an embankment, a storage pond and a stormwater pumping station. The embankment surrounding the villages is built to keep floods out, while drainage systems have been put in place to collect and channel stormwater to a pond for temporary storage.

Whenever its water level reaches a pre-determined threshold, the station will automatically start pumping water from the pond to an adjacent channel outside the embankment.

新田鄉村防洪計劃於1999年完成，對元朗新田的七條低窪村落，包括青龍村、蕃田村、安龍村、新龍村、東鎮圍、永平村及仁壽圍提供有效防洪保障。

如同渠務署實施的其他類似計劃，新田鄉村防洪計劃包括建造防洪堤、蓄洪池及雨水泵房。防洪堤建於鄉村四周以阻截洪水流入，而排水系統則收集雨水並輸送至蓄洪池臨時儲存。

當水位上升到預設高度時，泵房會開始自動從蓄洪池抽水到防洪堤外鄰近的排水道。

Features of the San Tin Stormwater Pumping Station, San Tin Polder and its surrounding
新田雨水泵房、新田蓄洪池及其周邊的特點

Covering about 16,000 square metres, the stormwater storage pond in San Tin is the largest among the schemes.

Since San Tin flood storage pond is close to Mai Po Nature Reserve. DSD has built an ecological floating island of about 100 square metres in the flood storage pond in order to beautify the village environment and achieve ecological integration. The floating island abounds with plants that bloom in different seasons to provide a natural habitat for migratory birds.

A pilot FPV system has been installed in the Polder, alongside an ecological floating island to provide a resting place for birds, with its floodwater storage functions retained and its environmental and ecological values enhanced.

新田雨水蓄洪池面積約16,000平方米，是全部鄉村防洪計劃中最大的。

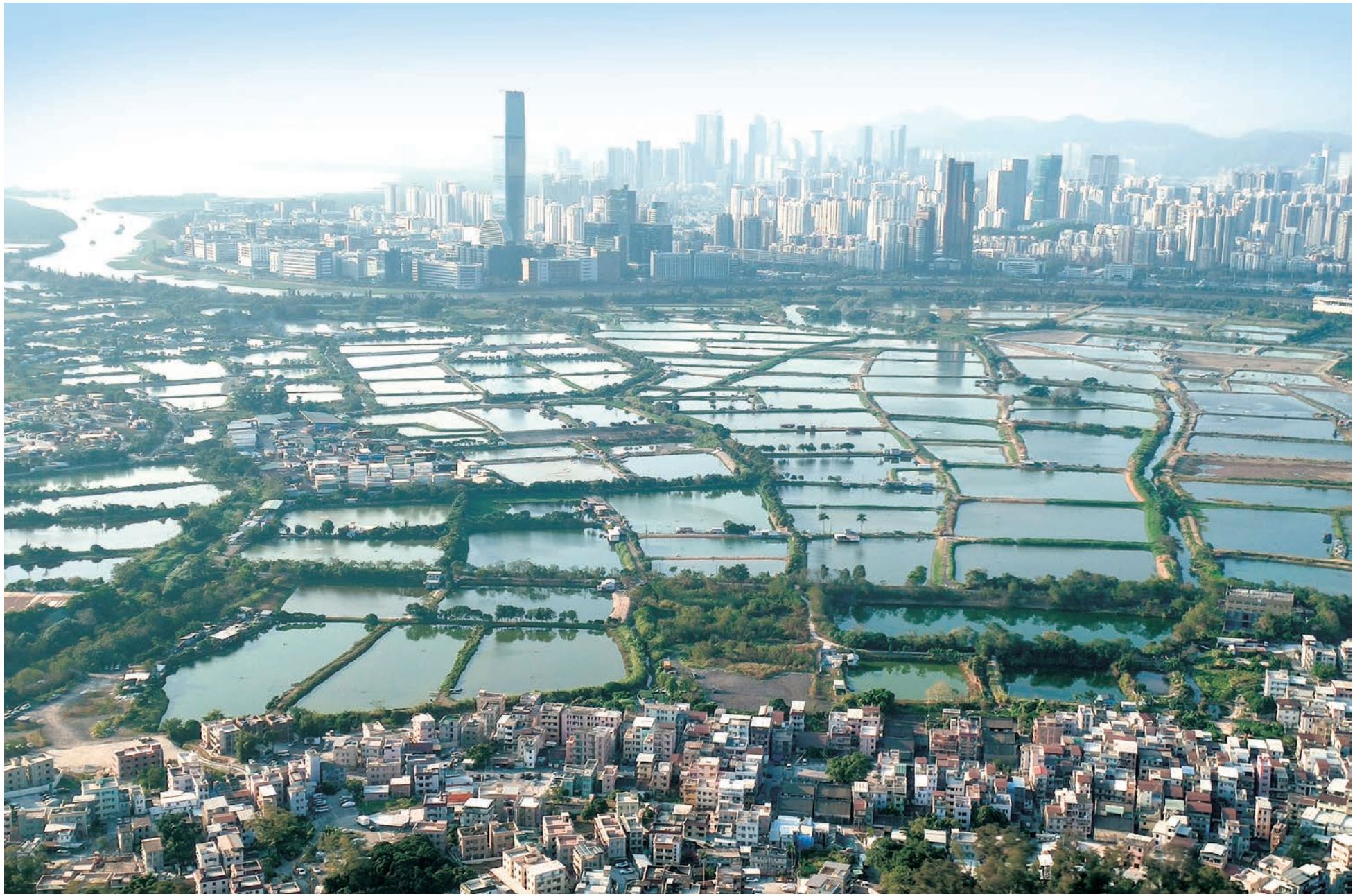
由於新田蓄洪池臨近米埔自然保護區，進一步美化鄉村環境及達致生態融合，渠務署已於蓄洪池內建成一個約100平方米的生態浮島，島上遍佈隨季節綻放的植物，為候鳥提供天然棲息地。

蓄洪池現設有浮式太陽能發電系統，連同一個為鳥類提供棲息地的生態浮島，令蓄洪池發揮蓄洪功能的同時，亦提升其對環境及生態的價值。

Aerial View of San Tin Stormwater Pumping Station and Polder
新田雨水泵房及蓄洪池鳥瞰景

San Tin Stormwater Pumping Station External View
新田雨水泵房外觀

San Tin Stormwater Pumping Station Internal View
新田雨水泵房內觀

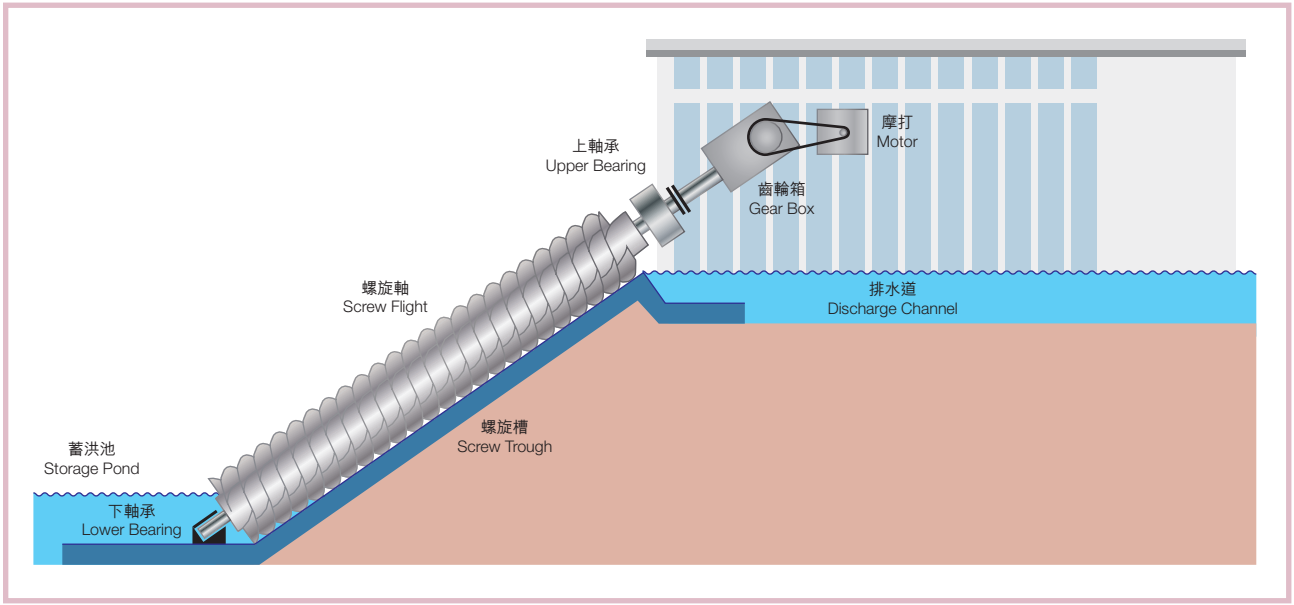


San Tin Flood Protection Scheme is adjacent to Mai Po Nature Reserve
新田鄉村防洪計劃毗鄰米埔自然保護區

For sustainable development, floating photovoltaic system and ecological floating island are installed in San Tin Polder in 2022.
為可持續發展，新田蓄洪池在2022年安裝浮式太陽能發電系統和生態浮島。

Aerial view of San Tin Polder with a floating photovoltaic (FPV) system and an ecological floating island
配備浮式太陽能發電系統及生態浮島的新田蓄洪池鳥瞰圖

San Tin Stormwater Pumping Station
新田雨水泵房



System setup at San Tin Stormwater Pumping Station to pump stormwater from the village areas
新田雨水泵房的系統配置，旨在由村落範圍抽出雨水

The pumping station is equipped with four duty water pumps and one on standby. Each of them is capable of pumping 2 cubic metres of stormwater per second. The total pumping capacity is about 8 cubic metres per second, capable of filling an entire standard swimming pool with water in 4 minutes.

All the pumps used at the pumping station are Archimedas screw pumps, designed to allow passage of large debris with a self-regulating pump capacity.

Operating without onsite staff supervision, all operating and alarm signals are remotely monitored at regional control room. The water pumps at the station will automatically turn on and pump the rainwater to drainage channels outside the embankment, when the storage pond's water rises to a preset level. A small staff team operates and maintains the San Tin stormwater pumping station and other similar facilities under DSD's management.

泵房配有四台主水泵及一台後備水泵，每台水泵每秒可以抽走2立方米的雨水，總泵水量約為每秒8立方米，足以在4分鐘內注滿一個標準游泳池。

泵房的水泵全部採用阿基米德式螺旋泵，其設計可以讓較大型的雜物通過並具有自行調節泵水量的能力。

一組小型職員團隊同時運作及維修新田雨水泵房及渠務署轄下的其他類似設施。當蓄洪池內的水位上升到預設高度時，泵房的水泵會自動開啟並將雨水抽至防洪堤外的排水道，泵房的運作訊號和警報將由分區控制室作遠程監控，運作時無需職員現場監察。

Bird's eye view of the San Tin Stormwater Pumping Station adjoined to the polder
鳥瞰毗鄰蓄洪池的新田雨水泵站

Floating Photovoltaic System and Other Photovoltaic Systems
浮式太陽能發電系統及其他太陽能發電系統

Pilot Floating Photovoltaic System

DSD has installed a FPV system at San Tin Polder, alongside with other PV systems at San Tin Stormwater Pumping Station, to generate as much as 47,000 kilowatt-hours (kWh) of electricity, which is equivalent to about fourteen 3-member households' annual electricity consumption, thus help reducing 32 tonnes carbon dioxide emission per year, supplying renewable energy to San Tin Stormwater Pumping Station for internal consumption.

In order to utilize the open space at the pumping station to develop renewable energy, a flexible PV system of 108 PV panels and a steppable PV system of 94 PV panels, with installed generation capacities of 9 kW and 2kW respectively, have been installed. There are also two solar trees erected in the pumping station, each consisting of 12 flexible PV panels.

To minimise the impacts of glare to the residents and ecological environment nearby, low reflective PV panels are used in the PV system design.

Flexible PV System

Introduction

For effective use of available space in San Tin Stormwater Pumping Station, a flexible PV system has been installed on the covers of the screw pump channels. The flexible PV system comprises 108 PV panels, with an installed generation capacity of 9kW.

柔韌式太陽能光伏板

簡介

為有效使用現有空間，渠務署在新田雨水泵房螺絲泵槽上蓋安裝了108塊柔韌式太陽能板，其發電裝機容量約為9千瓦。

A flexible PV system installed on the covers of the screw pump channels
於泵房螺絲泵槽上蓋安裝的柔韌式太陽能板

浮式太陽能發電系統先導計劃

渠務署已於新田蓄洪池安裝浮式太陽能發電系統及在新田雨水泵房內安裝其他太陽能發電系統，發電量可達4萬7千度電，相等於約14個三人家庭一年的用電量，每年可減少32公噸二氧化碳排放，供應可再生能源給新田雨水泵房的電力裝置使用。

為了更有效地利用新田雨水泵房廠房空間發展可再生能源，渠務署亦安裝了包括108塊太陽能板的柔韌式太陽能發電系統及包括94塊太陽能板的可踏式太陽能發電系統，發電裝機容量分別為9千瓦及2千瓦。泵房內另設兩棵太陽能樹，每棵樹由12塊柔韌式太陽能板組成。

在設計方面，系統採用了低反光物料的太陽能板，以盡量避免產生眩光影響附近居民及生態環境。

A steppable PV system installed on maintenance platform
於泵房內維修平台安裝的可踏式太陽能板

A solar tree installed within the pumping station to produce renewable power from solar energy
在泵房範圍內安裝一棵太陽能樹，利用太陽能產生可再生能源

Ecological Floating Island
生態浮島

Lush and tranquil setting of San Tin polder
新田蓄洪池環境恬靜，綠意盎然

Ecological floating island at the polder, with flowering plants to attract butterflies, birds and other wildlife
蓄洪池上的生態浮島種植了開花植物，吸引蝴蝶、雀鳥及其他野生動物

FPV system is installed alongside the floating island to enrich the pond's sustainable environment
浮島旁邊已安裝浮式太陽能發電系統，旨在促進池內的可持續發展環境

Serene setting of San Tin Polder against a hilly backdrop
新田蓄洪池背靠山丘，環境靜謐

DSD has built an ecological floating island on San Tin Polder to serve as a resting place for birds, which not only enriches its ecological environment but also enhances biodiversity.

Covering an area of about 100 square metres, the island is about 0.5 metres thick and composed primarily of polyster fiber layer, plant fiber layer and EVA fiber layer. Flowering plants, including Plumbago auriculata, Vitex rotundifolia, are grown to provide nectar for attracting butterflies and dragonflies. More than 200 species of birds observed in San Tin area, such as little grebes, spotted dove, black-winged stilts, egrets, Chinese pond herons, kingfishers, barn swallows and crested myna can have an ideal habitat on the island.

A viewing point with seats is made available at San Tin Tsuen Road for visitors to rest and admire the beauty of the pond.

渠務署已在新田蓄洪池內建成一個生態浮島作為鳥類棲息地，不僅豐富生態環境亦提高生物多樣性。

浮島面積約100平方米，厚約0.5米，主要由聚酯纖維層、植物纖維層及EVA纖維層組成，種植藍雪花及白背蔓荊等開花植物，提供蜜源吸引蝴蝶和蜻蜓。小鸊鷉、斑鳩、高蹺鴴、白鷺、池鷺、翠鳥、家燕及八哥等新田地區觀察到的多種雀鳥亦可在島上找到理想的棲息地。

新田村路設有座椅的觀景台可供遊人休憩及觀賞蓄洪池的美景。

San Tin Stormwater Pumping Station Open Day 2022
新田雨水泵房開放日2022

San Tin Flood Prevention Information Corner
新田防洪資訊閣

Officially opened in December 2004, San Tin Flood Prevention Information Corner is located in San Tin Stormwater Pumping Station on San Tin Tsuen Road.

The facility provides educational resources — including short videos, photos, display panels, physical models, computer animations and games combined with scheduled guided tours for students and community groups to learn about the flooding history, causes of flooding and flood prevention strategies in Hong Kong.

San Tin Flood Prevention Information Corner
新田防洪資訊閣

San Tin Flood Prevention Information Corner
新田防洪資訊閣

The guided tours will also introduce the river revitalisation works implemented by DSD for the public to gain a deeper understanding of how the elements of environment beautification, biodiversity and provision of public leisure space are incorporated into the department's flood prevention projects.

Interested parties are required to apply in advance. Application forms can be downloaded from DSD's official website. Applicants may also apply for the tours via the Web-Form from the website. Once approved, applicants will be notified by email.

新田防洪資訊閣於2004年12月正式啟用，位於新田村路新田雨水泵房。

該設施提供教育資源，包括短片、照片、展板、實體模型、電腦動畫及遊戲，並為學校及社區團體提供預約導賞服務，讓公眾了解香港水浸歷史、水浸成因及防洪策略。

導賞團亦會介紹渠務署的河道活化工作，加深公眾了解渠務署如何將美化環境、生物多樣性及提供公眾休憩空間等元素融入防洪項目中。

有興趣團體須預約申請。申請表格可於渠務署官方網站下載，申請人亦可透過網站的網上預約系統作出申請。一經批准，將通過電郵通知申請人。

Application for Visiting
DSD Facilities
申請參觀渠務署設施

San Tin Flood Protection Scheme
新田鄉村防洪計劃

前往方法 Transportation

起點 Starting Point

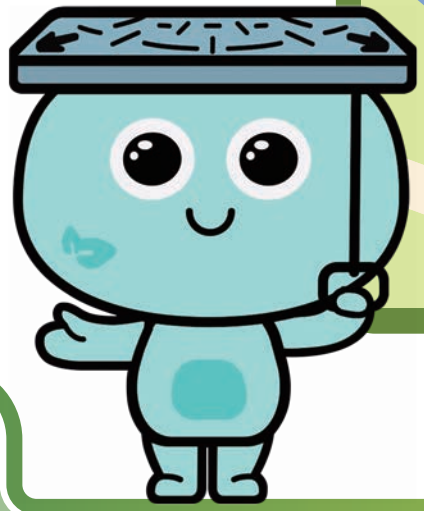
落馬洲公共交通轉車站
Lok Ma Chau (San Tin)
Public Transport Interchange

公共交通 / 路徑 Transportation

巴士 Bus : 76K, 276B, 976
小巴 Minibus : 78

- 步行約13分鐘前往新田雨水泵房
- Walk about 13 minutes to reach the San Tin Stormwater Pumping Station

上述交通路線僅供參考，實際所需時間受步速、公共交通路線更新/ 臨時改道安排、天氣及實際路面情況影響而有所不同。
The above transportation traffic routes are for reference only. Actual time required may vary depending to the pace, update/ temporary traffic arrangement of the public route, weather and actual traffic conditions.



Bus route & wayfinding
巴士路線及導向圖