土木工程拓展署

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Environmental Report 2021 環保報告

We Engineer

Hong Kong's Development

卓越工程　建設香港

環保認證
Environmental Certification

✓ 繼續獲得 ISO 14001:2015 認證
Maintained ISO 14001:2015 certification

✓ 環保目標及表現
Environmental Target and Performance

達標率為：
Achievement rate: **100%**

可持續發展的基建
Infrastructure for Sustainable Development

✓ 太陽能電池板每年於基建所生產的電量：
Annual solar electricity harvested from infrastructures:

- 於12個碼頭
  Twelve piers
- 深水埗深旺道行人天橋系統
  Sham Mong Road Footbridge Systems

≈ 42,000 度 units
≈ 3,600 units

✓ 使用回收玻璃物料作填海的數量：
Recycled glass used in reclamation: **≈ 12,900 公噸 Tonnes**

2021年二氧化碳排放量
2021 Carbon Dioxide (CO_2) Generation

✓ 於土木工程拓展署主要建築物（包括總部大樓及工務中央試驗所）的二氧化碳排放量較2020年：

減少 less ≈ 4,100 公噸 Tonnes

CO_2 generation in major CEDD premises including CED Building and Public Works Central Laboratory when comparing with 2020:

其他環保成果
Other Environmental Achievements

✓ 相對2018年基準的總耗電量：
Total electricity consumption when comparing with baseline year 2018: **減少 less 2.4%**

✓ 電動車數目：
Number of electric vehicles: **56**

目錄 Contents

報告範圍
Scope of Report

這份 2021 年的環保報告闡述土木工程拓展署由 2021 年 1 月至 12 月的環保措施成果，並展示我們支持《清新空氣約章》、《減碳約章》、節約能源、環保培訓、可再生能源及環境管理所作出的努力，以符合可持續發展的原則推動各項發展及基建項目。

在 2021 年，本署在總用紙量、環保紙用量、辦公室的總耗電量、美化鞏固的斜坡數目、種植樹木及灌木的數量等均達到定下的目標。在可持續發展的基建設施規劃及設計方面，本署在合適的碼頭及行人天橋上蓋加裝太陽能板以節省能源；在古洞南設立農業園以復修荒廢農地；及在填海工程使用回收玻璃進行填海。本署亦與學術界合作，進行生態海岸研究，以備就香港生態海岸線制訂指引。

This Report summarizes Civil Engineering and Development Department (CEDD)'s environmental achievements in the period from January to December 2021. It also presents our efforts in supporting the Clean Air Charter, Carbon Reduction Charter, energy saving, staff environmental training, renewable energy and environmental management in CEDD projects to promote sustainable development in various development plans and infrastructure works.

In 2021, the objectives and targets of gross paper consumption, recycled paper consumption, office energy consumption, landscaped upgraded slope numbers and tree/shrub planting quantity have been achieved. In planning and design of infrastructures for sustainable development, CEDD installed solar panels on the roofs of suitable piers and footbridges for energy saving purpose, established Agricultural Park in Kwu Tung South for farmland rehabilitation and used recycled glass in reclamation projects. In collaboration with academics for environmental advancement, CEDD conducted site trial of eco-shorelines with a view to preparing guidelines for its application in Hong Kong.

組織結構
Organisation

土木工程拓展署是香港特區政府發展局轄下的工務部門， 主要工作範疇包括土地及基礎建設、港口及海事工程服務、岩土工程服務，以及環境及可持續發展服務。

組織架構方面，除部門總部外，還設有兩個功能分處及五個分區拓展處。兩個功能分處分別是土木工程處及土力工程處。土木工程處負責海陸基建工程、公眾填土管理和制訂並執行綠化總綱圖等工作；而土力工程處的工作包括斜坡安全、修復石礦場、提供岩土諮詢服務等。此外，東、南、西、北四個分區拓展處，則負責其地理位置內的土地開拓、配套基建、工程建設、策略性研究等工作。最後，在 2017 年成立的可持續大嶼辦事處，則負責執行大嶼山及其他離島各發展項目、保育計劃和與工程相關的地區行政工作。

CEDD is a department of the Hong Kong SAR Government under the Development Bureau. Major areas of the services of CEDD cover the provision of land and infrastructure, port and marine services, geotechnical services, and environment and sustainability services.

Besides Headquarters, CEDD has two functional offices and five development offices. As functional offices, Civil Engineering Office is responsible for infrastructure, port works, landfill management and implementation of Greening Master Plan, while Geotechnical Engineering Office's work includes slope safety, quarry maintenance and geotechnical consultations. Meanwhile, the East, South, West and North Development Offices are responsible for the land development and associated works, infrastructure development, strategic studies, etc. in their respective areas. Last but not least, the Sustainable Lantau Office, established in 2017, is responsible for implementing development projects and conservation plans of the Lantau Island and other outlying islands.

組織結構
Organisation

土木工程拓展署 2021 年的編制共有大約 2075 名員工，當中約有三分之二是專業和技術人員，包括土木工程師、土力工程師、測量師、園境師及技術主任等。

In 2021, there were around 2075 staff in CEDD. About two-third of them are professional and technical grade staff, including civil engineers, geotechnical engineers, surveyors, landscape architects and technical officers, etc.

環保政策
Environmental Policy

我們在建造工程的各個階段，均非常注重環境保護，致力履行綜合管理系統政策下所訂定的各項承擔，包括：

- 遵守與保護環境相關的法例及其他規定
- 創建安全、綠化和可持續發展的環境
- 監督顧問及承建商的表現，確保他們遵守本署的環保規定
- 避免環境污染，並致力緩解因工程項目及部門運作而可能對環境構成的影響
- 在可行的情況下，奉行以下原則：資源減省、資源再用和資源循環再造
- 為持續改進表現，定期檢討綜合管理系統的成效及其目標和指標

我們還推行一套環境管理系統，土木工程拓展署的綜合管理系統已成功取得 ISO14001:2015 認證。我們的環保措施和綠化成果，均獲專業團體的認同。

土 木 工 程 拓 展 署
Civil Engineering and Development Department

綜合管理系統政策

為支援我們實現成為拓建香港的機構典範的抱負，土木工程拓展署維持一個符合 ISO 9001 及 ISO 14001 的綜合管理系統。我們將品質及環境因素納入工程項目及部門運作中。我們的承諾包括：

- 力求工程卓越。
- 遵守適用的法例及其他規定。
- 創建安全、綠化及可持續發展的環境。
- 與社會攜手發展基建。
- 監督顧問及承建商的表現，確保他們遵守本署的規定。
- 避免環境污染，並致力緩解因工程項目及部門運作而可能對環境構成的影響。
- 在可行的情況下，奉行以下原則：資源減省、資源再用和資源循環再造。
- 建立關懷及激勵員工的工作環境。

為持續改進表現，我們定期檢討綜合管理系統的成效以及其目標和指標。

IMS Policy

To support our vision of being a leading organisation engineering the development of Hong Kong, the Civil Engineering and Development Department maintains an Integrated Management System complying with the requirements of ISO 9001 and ISO 14001. We incorporate quality and environmental considerations to all aspects of our projects and operations. We are committed to:

- Striving for engineering excellence.
- Complying with applicable legal and other requirements.
- Creating a safe, green and sustainable environment.
- Partnering with the community in infrastructure development.
- Monitoring the performance of our consultants and contractors to ensure their compliance with our requirements.
- Preventing pollution and mitigating potential environmental impacts arising from our projects and operations.
- Observing the principles of reduction of consumption, reuse and recycling of resources wherever practicable.
- Building a caring and motivating working environment for staff.

We achieve continual improvement through regular review of the effectiveness of our Integrated Management System as well as its Objectives and Targets.

土木工程拓展署署長劉俊傑
(Ricky C K LAU)
Director of Civil Engineering and Development
1 April 2019

綜合管理系統政策
IMS Policy

環保政策
Environmental Policy

證書編號：CC 2261

認證鑒定
香港品質保證局

茲證明

土木工程拓展署
香港特別行政區政府

土木工程拓展署總部
香港九龍何文田公主道 101 號土木工程拓展署大樓
(認證地點及範圍列於此證書之附錄)

的環境管理體系符合 ISO 14001：2015 標準要求，覆蓋範圍如下：

土木和岩土工程項目的策劃、設計和建造；海事設施維修；爆炸品管制；
採石、公眾和海洋填料的管理；技術諮詢、岩土工程管制與相關的服務

本局將對有關體系進行持續審核，以確保本證書有效。

香港品質保證局

總裁　　董事

認證委員會

香港品質保證局證書
HKQAA Certificate

We place due emphasis on environmental protection considerations in all stages of our construction projects, which are achieved through the following commitments in our Integrated Management System (IMS) Policy:

- Complying with legal and other requirements relevant to environmental protection
- Creating a safe, green and sustainable environment
- Monitoring the performance of our consultants and contractors to ensure their compliance with our requirements on environmental protection
- Preventing pollution and mitigating potential environmental impacts arising from our projects and operations
- Observing the principles of reduction of consumption, reuse and recycling of resources wherever practicable
- Achieving continual improvement through regular review of the effectiveness of our IMS as well as its Objectives and Targets

We have also implemented an environmental management system and CEDD IMS has been successfully certified to ISO14001:2015. Our environmental measures and greening achievements have been well recognized by professional bodies.

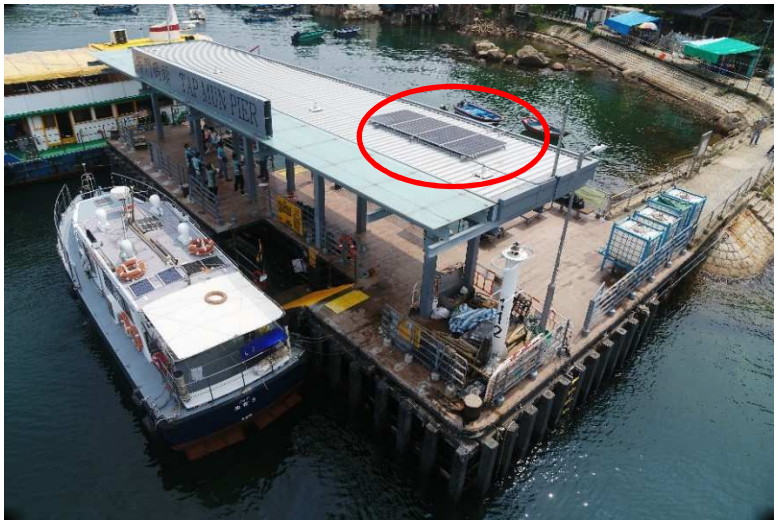
(1) 碼頭上蓋安裝太陽能板

我們在海港工程部所負責維修的碼頭中，挑選了 13 個合適的碼頭安裝太陽能電池板，以發電照明相關碼頭。至 2021 年年底，我們已在 12 個碼頭(包括西貢碼頭、東涌發展公共碼頭、荃灣公眾登岸梯級(西鐵站)、荃灣渡輪碼頭、石壁碼頭、索罟灣公共碼頭、蒲台島碼頭、塔門碼頭、沙頭角公眾碼頭、馬料水渡輪碼頭、屯門公眾登岸設施及橋咀碼頭)完成安裝太陽能電池板，而我們計劃在 2022 年 3 月完成大潭灣碼頭的安裝工程。這些太陽能電池板可產生的總電量約為每年 42,000 度電。

(1) Solar panels on roof of Piers

索罟灣公共碼頭
Sok Kwu Wan Public Pier

可持續發展的基建設施規劃及設計
Planning and Design of Infrastructures for Sustainable Development



塔門碼頭
Tap Mun Public Pier

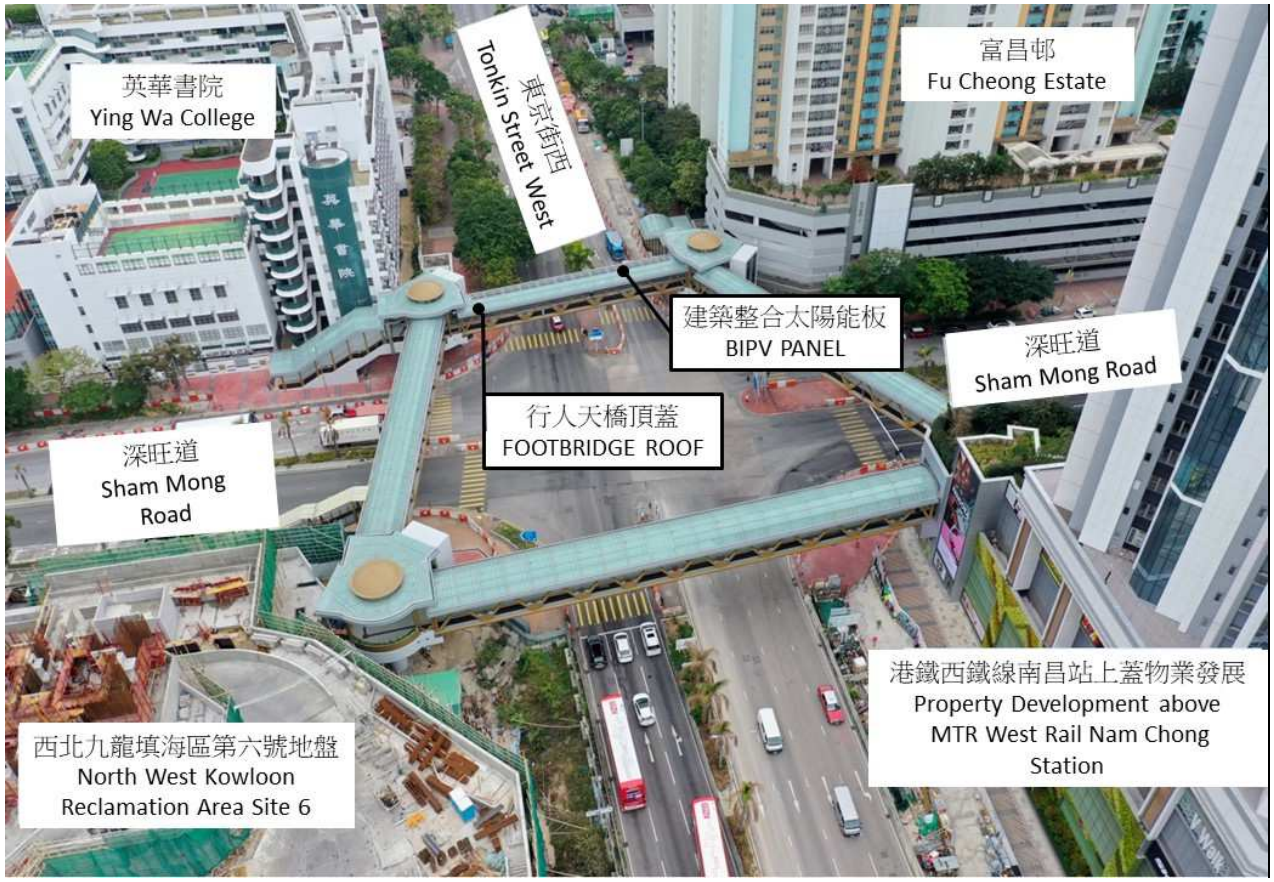
We have selected 13 suitable piers maintained by the Port Works Division to install solar panels for generation of electricity to power lighting facilities. By end 2021, the installation works for solar panels at 12 piers (including Sai Kung Public Pier, Tung Chung Development Pier (Public), Tsuen Wan Public Landing Steps (West Rail), Tsuen Wan Ferry Pier, Shek Pik Pier, Sok Kwu Wan Public Pier, Po Toi Public Pier, Tap Mun Pier, Sha Tau Kok Public Pier, Ma Liu Shui Ferry Pier, Tuen Mun Public Landing Facility and Sharp Island Pier) have been completed. We have scheduled to complete the installation works at Tai Tam Bay Pier in March 2022. The annual amount of electricity generated by the solar energy system is up to around 42,000 units.

沙頭角公眾碼頭
Sha Tau Kok Public Pier

(2) 深旺道行人天橋系統

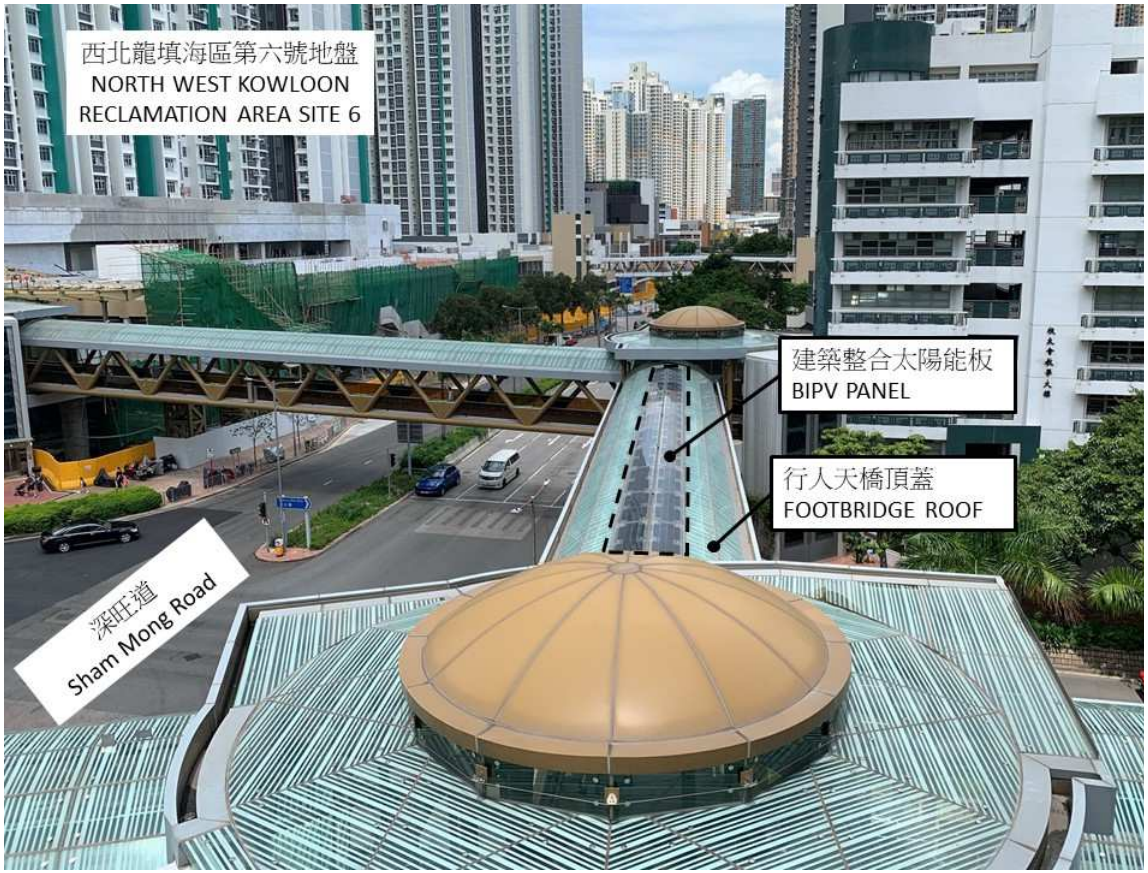
位於深水埗深旺道的行人天橋系統是首個廣泛使用建築整合太陽能（BIPV）板的公共行人天橋項目，以響應政府推廣應用可再生能源技術的使命。在雙層玻璃之間裝設晶態硅電池的 BIPV 板，不但能將太陽輻射轉化為電能，亦能配合天橋的外觀設計。我們已在深旺道和東京街西的一段行人橋跨上安裝 BIPV 板，系統平均每年可產生約 3,600 度電，以供自動扶梯和升降機日常運作之用。未來幾年，我們將會擴展 BIPV 板的使用至其他合適的基建設施，包括興華街西及欽州街西行人天橋系統的所有橋跨上。

(2) Sham Mong Road Footbridge System



已裝設整合太陽能板的深旺道行人天橋系統
Sham Wong Road Footbridge System with Installed BIPV Panel

可持續發展的基建設施規劃及設計
Planning and Design of Infrastructures for Sustainable Development



已裝設整合太陽能板的深旺道行人天橋系統
Sham Wong Road Footbridge System with Installed BIPV Panels

Sham Mong Road Footbridge System in Sham Shui Po is the first public footbridge project widely adopting the wider use of Building Integrated Photovoltaic (BIPV) panels, which echos Government's mission to promote application of renewable energy technologies. Apart from converting radiation of the sunlight into electricity, the BIPV panels with crystalline silicon cells between double glazed glass panels harmonize well with the footbridge appearance. BIPV panels were installed on the footbridge span of the Sham Mong Road and Tonkin Street West footbridge system and its operation provides up to about 3,600 units of electricity annually in average for energy consumption by the escalators and lifts. The use of BIPV panels will be extended to other suitable infrastructures including two footbridge systems at Hing Wah Street West and Yen Chow Street West in coming years.

(3) 在古洞南設立農業園

新界古洞南約 80 公頃的土地已被規劃為發展農業園的用地。發展農業園是新農業政策其中一項主要措施。政府希望透過農業園的設立，協助培育農業科技和管理現代化農場方面的知識以提升生產力，並促進相關知識的傳承。

整個農業園分兩期發展，土木工程拓展署已於 2020 年 10 月開展農業園第一期工程，預計 2022 年至 2023 年分階段完成。至於農業園第二期的工程，漁農自然護理署及土木工程拓展署現正積極進行規劃及設計。農業園內現有常耕農地會盡量保留，繼續作農業用途，而休耕農地則會被復修。園內的農地會因應地形、農務的運作需要及園內的微氣候等，劃分作常規耕種、有機耕種以及現代化耕作的不同模式作農業生產。

(3) Establishment of Agricultural Park in Kwu Tung South

A cluster of about 80 ha of land in Kwu Tung South in the New Territories has been identified as the site for the Agricultural Park (Agri-Park). Development of the Agri-Park is one of the major initiatives under the New Agriculture Policy. Through its establishment, the Government aims to help nurture agro-technology and agro-business management, as well as facilitating knowledge transfer with a view to enhancing productivity.

擬建約 2.1 公里的新道路和行人路
Proposed 2.1km New Road with Footpath

可持續發展的基建設施規劃及設計
Planning and Design of Infrastructures for Sustainable Development

融入周邊環境的網格式牆垣(模擬圖)
Crib Wall copping with the surroundings (Photomotage)

The Agri-Park will be developed in two phases. CEDD commenced the construction works of Agri-Park Phase 1 in October 2020 for completion in phases from 2022 to 2023. The Agriculture, Fisheries and Conservation Department and CEDD are now planning and designing the Agri-Park Phase 2. In the Agri-Park, currently active farmland within the site will be preserved for farming purpose as far as practicable and fallow farmland will be rehabilitated. The farmland within the Agri-Park will be demarcated into different areas for conventional, organic and modern technological farming taking into account the topography, operational requirements of the type of farming operation and micro-climate of the respective areas.

農業園的灌溉系統充分利用附近的水資源。作為一項關鍵的可持續性措施，農業園採用"全面水資源管理模式"提供儲存設施，在雨季儲存剩餘的雨水，以供旱季灌溉之用。

為進一步實現可持續發展，農業園將提供中央堆肥設施，用以回收食物和農業廢物，而農業廢物被分解後可作為耕種或園林綠化的肥料。此外，園內將包括以下可持續性元素:

- 沿園內行人路提供野生動物通道以保持生態連繫；
- 運用可持續的基礎設施設計，減少混凝土材料的使用，例如在新建道路旁邊興建窪地排水渠代替傳統混凝土 U 形排水渠、使用網格式牆垣和石籠護土牆代替混凝土擋土牆; 以及
- 在多用途中心安裝天窗及綠化屋頂；並於此中心及貯物設施提供太陽能電池板。

The irrigation system of the Agri-Park will fully utilize the water resources available in vicinity of the site. As a key sustainability initiative, the Agri-Park has taken a "total water management" approach by provision of storage facilities to store the surplus rain water during wet seasons so as to provide the irrigation water during dry seasons.

新建農田灌溉系統
Newly Constructed On-farm Irrigation System

可持續發展的基建設施規劃及設計
Planning and Design of Infrastructures for Sustainable Development

新建農耕貯物設施
Newly Constructed Storage Unit

To further achieve a sustainable development, central composting facilities will be provided to recycle food and agricultural waste. The farm waste after decomposition will be utilized as fertilizer for cultivation or landscaping application. In addition, the Agri-Park covers the following sustainable elements:

- provision of wildlife corridors along the internal footpaths for maintaining the ecological connectivity;
- design of sustainable infrastructures with minimising the use of concrete, such as construction of swale drainage along new roads instead of traditional concrete u-channel, crib wall and gabion wall instead of mass concrete retaining wall; and
- installation of skylight and green roof in multipurpose center and provision of PV panels at its roof and storage units.

(4) 2021 年獲得的獎項及嘉許

由我們管理的工程合約編號CV/2016/09 – 碼頭維修保養合約(2017-2022)的定期合約承建商"新福港(土木)有限公司"獲得「第二十七屆公德地盤嘉許計劃之公德地盤獎 – 傑出環境管理獎」優異獎。

(4) Awards/ Appreciations received in 2021

Our term contractor, Sun Fook Kong Construction Ltd., of Contract No. CV/2016/09 – Maintenance Contract for Piers (2017-2022) obtained Merit Award under the 27th Considerate Contractors Site Awards – Outstanding Environmental Management and Performance Award.

土木工程拓展署的承建商於第 27 屆公德地盤嘉許計劃中獲得「傑出環境管理獎」優異獎

CEDD's term contractor obtained Merit Award under the "Outstanding Environmental Management and Performance Awards" in 27th Considerate Contractors

可持續發展的基建設施規劃及設計
Planning and Design of Infrastructures for Sustainable Development

多個土木工程拓展署管理的工程項目亦得到環保促進會的獎項。

香港綠色企業大獎 2021 Hong Kong Green Awards

GREEN COUNCIL 環保促進會

Green Management Award (Project Management) 優越環保管理獎(項目管理)

Large Corporation 大型企業

Award 獎項名稱	Company Name 公司名稱
Green Management Award - Project Management (Large Corporation) - Gold 優越環保管理獎 - 項目管理(大型企業) - 金獎	Chun Wo Construction & Engineering Co., Ltd. (Construction of Government Flying Service Kai Tak Division) [Contract No. ED/2018/03] 俊和建築工程有限公司 — 政府飛行服務隊啟德分部建造工程合約 (合約編號: ED/2018/03)
Green Management Award - Project Management (Large Corporation) - Silver 優越環保管理獎 - 項目管理(大型企業) - 銀獎	Build King - Richwell Engineering Joint Venture (Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works) [Contract No. ND/2019/01] 利基 - 顯豐工程聯營 — 古洞北新發展區首階段 - 地盤平整及基礎設施工程 (合約編號: ND/2019/01)
Green Management Award - Project Management (Large Corporation) - Silver 優越環保管理獎 - 項目管理(大型企業) - 銀獎	Chun Wo - STEC - Vasteam Joint Venture (Site Formation & Infrastructure Works for Development of Anderson Road Quarry Site) [Contract No. NE/2016/01] 俊和 - 上隧 - 浩隆聯營 — 安達臣道石礦場用地發展的土地平整及基礎建設工程 (合約編號: NE/2016/01)

A number of CEDD's projects were granted awards by the Green Council.

香港綠色企業大獎 2021 Hong Kong Green Awards

GREEN COUNCIL 環保促進會

Green Management Award (Project Management) 優越環保管理獎(項目管理)

Large Corporation 大型企業

Award 獎項名稱	Company Name 公司名稱
Green Management Award - Project Management (Large Corporation) - Silver 優越環保管理獎 - 項目管理(大型企業) - 銀獎	CW - CMGC JV (Development of Anderson Road Quarry Site - Road Improvement Works and Pedestrian Connectivity Facilities Works Phase 2A) [Contract No. NE/2017/03] 俊和 - 中冶聯營體 — 安達臣道石礦場用地發展 - 道路改善工程及行人連繫設施工程第二期甲 (合約編號: NE/2017/03)
Green Management Award - Project Management (Large Corporation) - Bronze 優越環保管理獎 - 項目管理(大型企業) - 銅獎	Build King Civil Engineering Limited (Cross Bay Link, Tseung Kwan O - Road D9 and Associated Works) [Contract No. NE/2017/08] 利基土木工程有限公司 — 將軍澳跨灣連接路 - D9 路及相關工程 (合約編號: NE/2017/08)
Green Management Award - Project Management (Large Corporation) - Bronze 優越環保管理獎 - 項目管理(大型企業) - 銅獎	Build King Construction Limited (Site Formation and Infrastructure Works for Police Facilities in Kong Nga Po) [Contract No. ND/2018/01] 利基建築有限公司 — 缸瓦甫警察設施土地平整及基礎建設工程 (合約編號: ND/2018/01)

Green Management Award (Project Management) 優越環保管理獎(項目管理)

Large Corporation 大型企業

Award 獎項名稱	Company Name 公司名稱
Green Management Award - Project Management (Large Corporation) - Bronze 優越環保管理獎 - 項目管理(大型企業) - 銅獎	China Road and Bridge Corporation (Fanling North New Development Area, Phase 1: Site Formation and Infrastructure Works) [Contract No. ND/2019/07] 中國路橋工程有限責任公司 — 粉嶺北新發展區第一階段 — 地盤平整及基礎設施工程 (合約編號: ND/2019/07)
Green Management Award - Project Management (Large Corporation) - Bronze 優越環保管理獎 - 項目管理(大型企業) - 銅獎	CRCC - Paul Y. Joint Venture (Fanling North New Development Area, Phase 1: Fanling Bypass Eastern Section (Shung Him Tong to Kau Lung Hang)) [Contract No. ND/2019/05] 中國鐵建十五局 - 保華聯營公司 — 粉嶺北新發展區第一階段 - 粉嶺繞道東段(崇謙堂至九龍坑) (合約編號: ND/2019/05)
Green Management Award - Project Management (Large Corporation) - Merit 優越環保管理獎 - 項目管理(大型企業) - 優異獎	CW - KL JV (Kwu Tung North New Development Area, Phase 1: Roads and Drains between Kwu Tung North New Development Area and Shek Wu Hui) [Contract No. ND/2019/02] 俊和 - 群利聯營體 — 古洞北新發展區首階段 – 古洞北新發展區至石湖墟的道路和渠務工程 (合約編號: ND/2019/02)
Green Management Award - Project Management (Large Corporation) - Merit 優越環保管理獎 - 項目管理(大型企業) - 優異獎	Daewoo - Chun Wo - Kwan Lee JV (Fanling North New Development Area, Phase 1: Fanling Bypass Eastern Section (Shek Wu San Tsuen North to Lung Yeuk Tau)) [Contract No. ND/2019/04] 大宇 - 俊和 - 群利聯營 — 粉嶺北新發展區第一階段 - 粉嶺繞道東段 (石湖新邨北至龍躍頭) (合約編號: ND/2019/04)

Green Management Award (Project Management) 優越環保管理獎(項目管理)

SME 中小企

Award 獎項名稱	Company Name 公司名稱
Green Management Award - Project Management (SME) - Bronze 優越環保管理獎 - 項目管理(中小企) - 銅獎	New Concepts Engineering Development Limited (Fanling North New Development Area, Phase 1: Reprovisioning of North District Temporary Wholesale Market for Agricultural Products) [Contract No. ND/2019/06] 創業工程建設有限公司 — 粉嶺北新發展區第一階段:北區臨時農產品批發市場重置工程 (合約編號: ND/2019/06)

Environmental, Health and Safety Award 超卓環保安全健康獎

Large Corporation 大型企業

Award 獎項名稱	Company Name 公司名稱
Environmental, Health and Safety Award (Large Corporation) - Gold 超卓環保安全健康獎(大型企業) - 金獎	CW - STEC - CMGC JV (Tseung Kwan O - Lam Tin Tunnel - Tseung Kwan O Interchange and Associated Works) [Contract No. NE/2017/01] 俊和 - 上隧 - 中冶聯營 — 將軍澳 - 藍田隧道 - 將軍澳交匯處及相關工程 (合約編號: NE/2017/01)

SME 中小企

Award 獎項名稱	Company Name 公司名稱
Environmental, Health and Safety Award (SME) - Bronze 超卓環保安全健康獎(中小企) - 銅獎	New Concepts Engineering Development Limited (Fanling North New Development Area, Phase 1: Reprovisioning of North District Temporary Wholesale Market for Agricultural Products) [Contract No. ND/2019/06] 創業工程建設有限公司 — 粉嶺北新發展區第一階段:北區臨時農產品批發市場重置工程 (合約編號: ND/2019/06)

可持續建築
Sustainable Construction

環保工程物料

(1) 粒化高爐礦渣粉

粒化高爐礦渣粉是鋼鐵廠冶煉生鐵時產生的廢渣。在高爐鍊鐵過程中，礦渣會在水或蒸氣中淬冷成玻璃狀顆粒，待乾燥後研磨成細粉狀的粒化高爐礦渣粉。粒化高爐礦渣粉可作為水泥替代物生產混凝土。由於粒化高爐礦渣粉是利用煉鐵所產生的廢棄物加工而成，其碳排放值比水泥為低，用其作生產的混凝土有助降低整體的碳排放。

土木工程拓展署在 2021 年揀選了其管理的兩個工程項目（合約編號 ED/2018/04 - T2 主幹路及前南面停機坪發展項目的基礎設施工程；及合約編號 ND/2018/01 - 缸瓦甫警察設施土地平整及基礎建設工程）作為使用粒化高爐礦渣粉混凝土的先導試點。當中缸瓦甫工程因應用粒化高爐礦渣粉取代水泥而減少產生約 10,000 噸二氧化碳。

Green Construction Materials

(1) Ground Granulated Blast-furnace Slag (GGBS)

使用粒化高爐礦渣粉混凝土的臨時排水溝
Temporary Drainage Trench adopted GGBS Concrete

成功減少排放二氧化碳近
10,000 噸

使用粒化高爐礦渣粉混凝土的橋墩
Bridge Pier adopted GGBS Concrete

GGBS is a by-product of iron manufacturing plant. It is originated by quenching molten iron slag from a blast furnace in water or steam to produce a granular product which is then dried and ground into fine powder. GGBS can be used as supplementary cementitious materials for replacement of cement in concrete. Since GGBS is a by-product of iron manufacturing, its carbon emission is lower than cement. The use of GGBS concrete could lower the overall carbon emission.

In 2021, CEDD conducted pilot trials on the use of GGBS concrete in two works projects (Contract No. ED/2018/04 - Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron; and Contract No. ND/2018/01 - Site Formation and Infrastructure Works for Police Facilities in Kong Nga Po). In Kong Nga Po project, there was a reduction of carbon dioxide emission of about 10,000 tonnes due to the use of GGBS for replacement of cement.

Successfully reduce CO_2 emission of about

10,000 tonnes

(2) 使用回收玻璃進行填海工程

截至 2021 年底，東涌新市鎮擴展-填海及前期工程使用了約 12,900 公噸回收玻璃物料作填海之用。

使用回收玻璃物料作填海之用約
12,900 公噸

(2) Use of recycled glass for reclamation

As at end 2021, about 12,900 tonnes of glass cullets were used as reclamation materials in the Tung Chung New Town Extension - Reclamation and Advance works.

Use of recycled glass for reclamation of about
12,900 tonnes

運送回收玻璃至填海工地
Transporting recycled glass to reclamation site

工地的環境緩解措施

(1) 防塵措施

以帆布幅蓋挖掘面
Covering excavated surface by tarpaulin sheet

自動定時灑水系統
Automatic sprinklers with timer

Mitigation Measures in Works Sites

(1) Dust Prevention

定期灑水抑塵
Regular water spraying for dust suppression

運泥車清洗設施
Wheel washing facilities for trucks

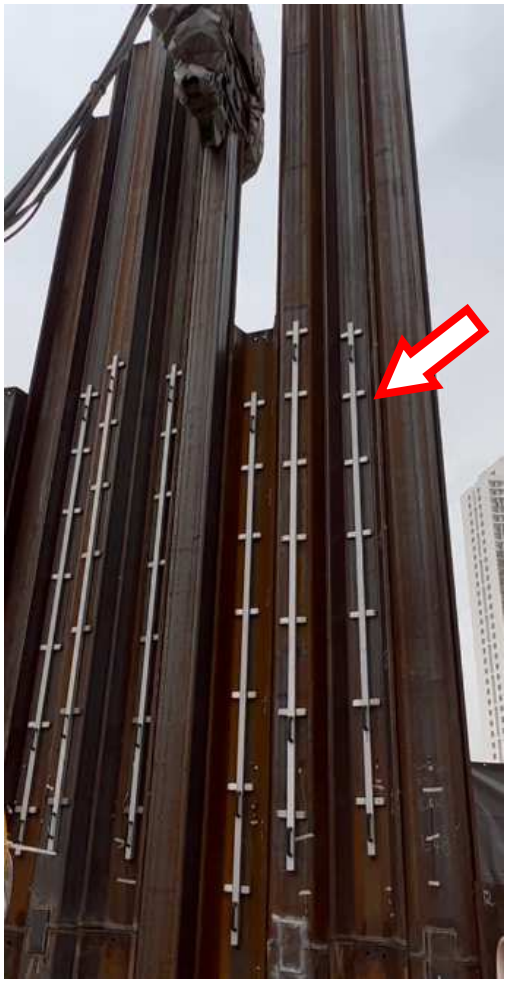
可持續建築
Sustainable Construction

(2) 噪音緩解措施

使用靜音機械
Use of quiet hydraulic breaker

臨時隔音屏障
Temporary Noise Barriers

(2) Noise mitigation



於安裝鋼板樁時
使用吸音裝置
Use of Noise Absorbing Device during Sheetpiling Works

(3) 空氣污染緩解措施

使用超低硫柴油
Use of ultra low sulphur diesel

使用新型工程機械以減少黑煙排放
Use new construction machinery to reduce dark smoke emission

(3) Air Pollution Control

定期檢測空氣質素
Regular monitoring of Air Quality

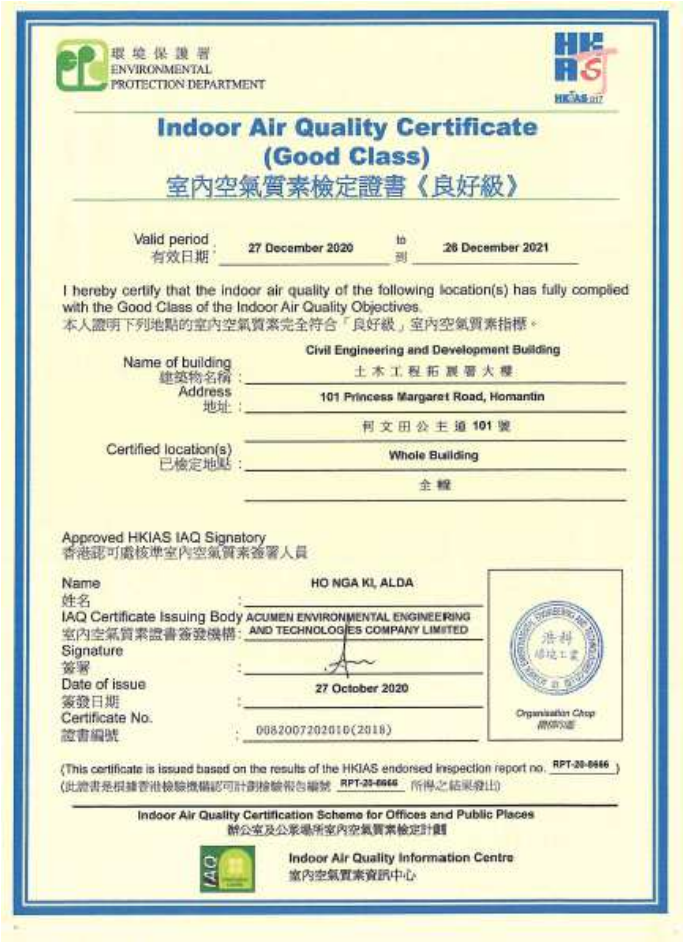
綠色辦公室
Green Offices

清新空氣約章及減碳約章

我們積極履行《清新空氣約章》的承諾。截至 2021 年，土木工程拓展署大樓連續第 19 年獲頒發室內空氣質素良好級檢定證書，連同總部以外的辦事處，本署獲頒合共 2 張「卓越」級及 9 張「良好」級檢定證書。

我們繼續履行《減碳約章》的承諾。在 2020 年 4 月至 2021 年 3 月期間，總部大樓的運作直接產生的二氧化碳為 26.51 公噸，比上一年度多 2.17 公噸。由用水用電的間接排放量則為 2,291.97 公噸，比上一年度少 5.79 公噸。就大樓整體而言，二氧化碳的總排放量比上一年少 3.62 公噸。在同一期間，工務中央試驗所的運作直接產生的二氧化碳為 11.26 公噸，比上一年度少 1.25 公噸。而通過用水用電間接排放的二氧化碳則為 19,216.34 公噸，比上一年度少 4,123.52 公噸。

Clean Air Charter and Carbon Reduction Charter



環境保護署
ENVIRONMENTAL PROTECTION DEPARTMENT

Indoor Air Quality Certificate (Good Class)
室內空氣質素檢定證書《良好級》

Valid period 有效日期: 27 December 2020 to 至 26 December 2021

I hereby certify that the indoor air quality of the following location(s) has fully complied with the Good Class of the Indoor Air Quality Objectives.
本人證明下列地點的室內空氣質素完全符合「良好級」室內空氣質素指標。

Name of building 建築物名稱: Civil Engineering and Development Building 土木工程拓展署大樓
Address 地址: 101 Princess Margaret Road, Homantin 何文田公主道 101 號
Certified location(s) 已檢定地點: Whole Building 全幢

Approved HKIAS IAQ Signatory 香港認可處核準室內空氣質素簽署人員
Name 姓名: HO NGA KI, ALDA
IAQ Certificate Issuing Body 室內空氣質素證書簽發機構: ACUMEN ENVIRONMENTAL ENGINEERING AND TECHNOLOGIES COMPANY LIMITED
Signature 簽署:
Date of issue 簽發日期: 27 October 2020
Certificate No. 證書編號: 008200720210(2018)

Organisation Chop 機構印鑑

(This certificate is issued based on the results of the HKIAS endorsed inspection report no. RPT-20-0666)
(此證書是根據香港檢驗機構認可計劃檢驗報告編號 RPT-20-0666 所得之結果發出)

Indoor Air Quality Certification Scheme for Offices and Public Places
辦公室及公眾場所室內空氣質素檢定計劃

Indoor Air Quality Information Centre
室內空氣質素資訊中心

室內空氣質素檢定證書《良好級》
Indoor Air Quality Certificate (Good Class)

We proactively fulfilled our commitment under the "Clean Air Charter". As at 2021, the Civil Engineering and Development (CED) Building was awarded the "Good Class" Indoor Air Quality Certificate for 19 consecutive years. Together with our outstation offices, we were awarded a total of 2 "Excellent Class" and 9 "Good Class" Indoor Air Quality Certificates.

We continued to fulfill our obligations under the "Carbon Reduction Charter". From April 2020 to March 2021, the amount of carbon dioxide generated directly by the operation of the CED Building was about 26.51 tonnes which was 2.17 tonnes more than the preceding year. However, the amount of indirect emission through water and electricity consumption was about 2,291.97 tonnes, which was 5.79 tonnes less than the preceding year. The total amount of carbon dioxide emitted by the building was 3.62 tonnes less than that of the same period of the preceding year. During the same period, the amount of carbon dioxide generated directly by the operation of the Public Works Central Laboratory was about 11.26 tonnes, which was 1.25 tonnes less than the preceding year. The amount of indirect emission through water and electricity consumption was about 19,216.34 tonnes which was 4,123.52 tonnes less than the preceding year.

綠色辦公室
Green Offices

節省用電

本署的總耗電量由 2018 年的 5,720,420 度減少至 2021 年的 5,582,612 度，減少 2.41%，達至我們這方面的環保目標。本署於 2021 年的耗電量如下：

本署辦公室[1] CEDD Offices[1]	耗電量(千瓦小時) [與2018年比較的增減幅] Electricity (kWh) [% change as compared with 2018]
土木工程拓展署大樓 *CED Building*	3,219,393 [-0.77%][3]
工務中央試驗所大樓 PWCL	1,722,990 [-0.53%][3]
旺角道一號商業中心[2] One Mong Kok Road Commercial Centre[2]	25,220 [不適用/NA]
新都會廣場[2] Metroplaza[2]	115,240 [不適用/NA]
高銀金融國際中心[2] Goldin Financial Global Centre[2]	25,752 [不適用] [NA]

注釋:
1. 只包括已安裝獨立電錶的辦公室。
2. 涉及2019年或以後才開始使用的辦公室，因此與2018年耗電量的比較並不適用。
3. 在2021年員工數目有所上升，不過在本署的節能措施下耗電量大致不變。

Saving in Electricity Consumption

The total electricity consumption of the Department decreased by 2.41%, from 5.720 million kWh in 2018 to 5.582 million kWh in 2021, achieving our environmental target in this respect. The electricity consumption of CEDD in 2021 is as follows:

本署辦公室[1] CEDD Offices[1]	耗電量(千瓦小時) [與2018年比較的增減幅] Electricity (kWh) [% change as compared with 2018]
新文華中心 New Mandarin Plaza	12,371 [-19.29%]
英皇道1063號 1063 King's Road	49,685 [+3.99%][3]
狗虱灣政府爆炸品倉庫 Kau Shat Wan Explosives Depot	373,184 [-7.10%]
九龍政府爆炸品倉庫 Kowloon Explosives Depot	38,777 [-18.01%]

Notes:
1. Only offices with individual electricity metres installed are included.
2. As it involves office that was commissioned in or after 2019, comparison with 2018 is not applicable.
3. The electricity consumption in CEDD was generally unchanged although number of staff increased in 2021.

使用電動汽車

電動車輛不會排放引致路邊空氣污染的廢氣及減少排放溫室氣體，有助改善路邊空氣質素。此外，電動車行走時不會進行內燃運動，因而較以內燃引擎推動的車輛寧靜，有助減少交通噪音的污染。截至 2021 年 12 月，本署有 56 輛（47 輛全電動車及 9 輛混能車）電動汽車。

節省用電措施

在 2021 年，本署推行/計劃推行的節省用電措施如下：

(1) 日常運作 - 本署繼續積極提醒同事採取日常節能措施（如在離開辦公室時關掉電燈及電腦），並進一步安排部分載客升降機於非繁忙辦公時段暫停服務。

(2) 節能方案 - 本署開始提升本署大樓的通風系統，以改善其效能，並繼續與機電工程署保持聯繫，探討各種可行的節能方案。

Use of Electric Vehicles

Electric vehicles (EVs) do not exhaust emission which is one of the major sources of roadside air pollution. They reduce greenhouse gas emissions and thus improves roadside air quality. Moreover, EVs in motion do not involve internal combustion, they are therefore quieter than those driven by internal combustion engine, and help reduce traffic noise pollution. As at December 2021, CEDD has 56 EVs (47 full EVs and 9 hybrid EVs).

Electricity Saving Measures

In 2021, we implemented and planned the following electricity saving measures:

(1) Housekeeping measures - we continued to proactively remind colleagues to adopt daily energy saving measures (e.g. switching off lighting and computers when away from office) and further operated lesser number of passenger lifts during non-peak office hours.

(2) Electricity saving projects - we commenced upgrading the ventilation system of CED Building to enhance its efficiency. We kept liaising with the EMSD to explore feasible energy saving opportunities.

綠色辦公室
Green Offices

環保表現

我們每年訂定環保目標和指標，務求在環保表現方面可持續改善。2021 年的目標和工作成效如下:

Environmental Performances

To achieve continuous improvement in our environmental performance, we have set annual environmental objectives and targets. Below are summaries of our targets and achievements in 2021:

2021 年的環保目標和指標
Environmental Objectives and Targets in 2021

減少總用紙量，較 2003 年少 22.5%
To reduce total paper consumption by 22.5% as compared with that in 2003

以環保紙取代普通紙至總用紙量的 60%
To substitute 60% of normal plain paper with recycled paper

減少本署的總用電量，較 2018 年少 2.4%
To reduce total electricity consumption of the Department by 2.4% as compared with that in 2018

本年度美化 150 幅在「長遠防治山泥傾瀉計劃」下鞏固的斜坡
To landscape 150 upgraded slopes under the Landslip Prevention and Mitigation Programme

本年度種植至少 66 萬棵樹/ 灌木
To plant at least 660 thousand trees/shrubs

2021 年的成績
Achievement in 2021

總用紙量較 2003 年減少 25.0%
Total paper consumption reduced by 25.0% when compared with that in 2003

環保紙佔總用紙量的 63.5%
Recycled paper accounted for 63.5% of total paper consumption

本署的總用電量較 2018 年減少 2.41%
Electricity consumption of the Department reduced by 2.41% when compared with that in 2018

本年度已美化 176 幅在「長遠防治山泥傾瀉計劃」下鞏固的斜坡
176 upgraded slopes under the Landslip Prevention and Mitigation Programme landscaped

本年度已種植 88 萬棵樹/ 灌木
880 thousand trees/shrubs planted

東涌社區聯絡中心

Tung Chung Community Liaison Centre (CLC)

東涌社區聯絡中心是一個嶄新的概念，由透過翻新前身為港珠澳大橋發展的舊有臨時辦公室而成。改建期由 2020 年 12 月至 2021 年 10 月。中心以環保為概念，並融入現代化設計。中心在建築上保留了原有的一樑一柱，因而節約使用約 90 噸鋼材，亦避免產生約 520 噸惰性建築廢物。中心亦應用了可再生能源理念，例如安裝太陽能發電系統，透過將太陽能轉換成電能，有效推動環保。此外，中心部份天台採用了透明設計，引進天然光作照明用途，有效減少室內照明。

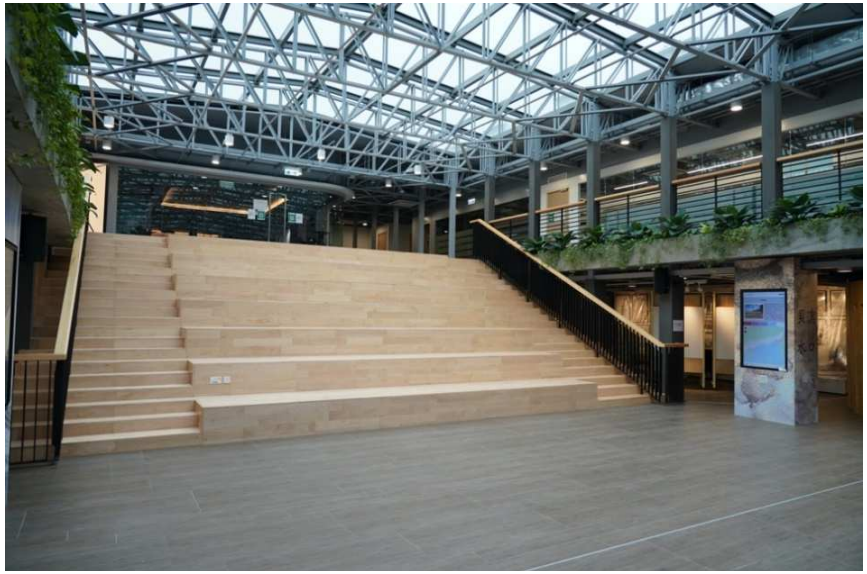
東涌社區聯絡中心辦公室
Office area of CLC

東涌社區聯絡中心辦公室改建工程
Office area of CLC under renovation

綠色辦公室
Green Offices

東涌社區聯絡中心
多用途活動空間改建工程
Atrium at CLC under renovation

The Tung Chung Community Liaison Centre (CLC) is an innovative concept. It was renovated from the former temporary office of the Hong Kong-Zhuhai-Macao Bridge project, with renovation period from December 2020 to October 2021. The building was renovated under an environmentally friendly approach and incorporated a modern design. The original structure was retained, thus saving about 90 tonnes of steel materials and avoiding the generation of about 520 tonnes of inert construction waste. The CLC adopted renewable energy to promote environmental friendliness, such as installing a solar power system for converting solar energy into electrical energy. Besides, the partly transparent ceiling could capture daylight and effectively reduce the use of indoor lighting.



東涌社區聯絡中心
多用途活動空間
Atrium of CLC

生態海岸線研究

土木工程拓展署與香港大學及香港城市大學合作，在西貢、屯門龍鼓灘和馬料水的現有海堤進行生態海岸線的實地試驗。生態海岸線旨在以人工海岸線為掩體保護海岸線免受侵蝕，並同時作為微生境促進人造海岸的海洋生態及生物多樣性，研究選址分別屬於不同水體，例如西貢屬於海洋性、馬料水屬於半開放水域和屯門龍鼓灘則屬於河口性。在上述位置進行的實地監察已於 2021 年 12 月完成。數據顯示，生態海岸線組件可以有效增加人造海岸的生物多樣性。團隊正在準備研究報告，就香港應用生態海岸線提供指引。

垂直海堤
Vertical Seawall

Eco-shoreline Study

CEDD collaborated with the University of Hong Kong and City University of Hong Kong to conduct site trials of eco-shoreline at Sai Kung, Lung Kwu Tan and Ma Liu Shui in studying the feasibility of using eco-shoreline which serves as a coastal defense structure protecting the shoreline from erosion and at the same time provides microhabitats to enhance the marine ecology and bio-diversity of artificial shoreline. Different water bodies were selected as the trial sites, for example, the water bodies at Sai Kung, Ma Liu Shui and Lung Kwu Tan were identified as oceanic type, semi-enclosed type and estuarine type respectively. The above-mentioned site monitoring was completed in December 2021. The data collected have revealed that eco-shoreline could effectively enhance bio-diversity of artificial shoreline. The consultants are preparing the final report which includes recommended guidelines for application of eco-shoreline in Hong Kong.

斜面海堤
Sloping Seawalls

與學術界合作促進可持續發展

Collaboration with Academics for Sustainable Development

東涌生態海岸線

東涌新市鎮擴展是首次引入生態海岸線設計的政府填海工程，目的是在可行的情況下加入模仿自然潮間帶的設計。以岩石生態海岸線為例，其設置了高高低低的生態磚，透過凹凸不平的表面在潮退時可儲起海水以降溫，亦為海洋物種提供合適生境，促進潮間帶物種依附在生態磚上生長及繁殖。東涌生態海岸線，包括直立式生態海岸線、紅樹林生態海岸線和岩石生態海岸線，有助促進生物多樣性，工程預計於2023年完成。

Eco-shoreline at Tung Chung

Tung Chung New Town Extension is the first government reclamation project adopting eco-shorelines, with the primary objective of mimicking the physical properties of natural inter-tidal zones as far as practicable, for example, with uneven and rather rough surfaces that can retain sea water when tides are low, bio-blocks of various heights line the Rocky Eco-shoreline. Since these bio-blocks can lower temperature and provide suitable habitats for marine species, species in the inter-tidal zones can easily attach themselves to the blocks for growth and reproduction. Tung Chung eco-shorelines, including vertical eco-shoreline, mangrove eco-shoreline and rocky eco-shoreline, can enhance biodiversity. The works are expected to be completed in 2023.

東涌東生態海岸線示意圖
Illustration of Tung Chung East eco-shoreline

環保培訓

為裝備員工和顧問的工地監督人員對必要環保法例的知識，並加強他們履行環境監督職責的能力，我們聯同環境保護署為項目工程師、土木工程拓展署/顧問的工地監督人員及承建商的工地要員，安排最新環保法例的培訓班。於2021年，有191位人員接受培訓。

Environmental Training

To equip and reinforce our staff and our consultants' resident site staff with the necessary knowledge on environmental legislation and to strengthen their competency of environmental monitoring duties, CEDD collaborated with the Environmental Protection Department to organise training on the latest development of environmental legislation for project engineers, CEDD/consultants' site supervisory staff and contractors' key site staff members. In 2021, 191 staff completed the training.

環保法例培訓班
Environmental Legislation Training

員工培訓
Staff Training

參觀嘉道理農場及綠匯學苑

我們為員工提供不同的環保培訓，例如我們在去年年底安排了逾20多名同事參觀嘉道理農場暨植物園和綠匯學苑。

今次參觀的目的是增加參與者對可持續發展的認識，及借鏡相關的技術以應用在我們的新發展區項目中，這正符合土木工程拓展署策略計劃中將香港建設成宜居、具抗逆力和可持續發展的城市的願景。

參觀嘉道理農場期間，我們參觀了人工濕地污水處理系統，新發展區項目亦可參考利用濕地植物作為污水循環再用系統的藍綠建設。通過參觀生機園，我們了解到種植本地物種對提高城市環境生物多樣性的重要性和挑戰。嘉道理農場的相關專業人員還與我們分享了他們在不同的野生動物友善工作和設施方面的可持續發展經驗，包括觀音山、三號水庫、蘭花溫室、野生動物拯救中心及一斗田等等。

我們還參觀了歷史、建築和生態保育都非常成功的項目「綠匯學苑」。參觀過程中，我們了解到他們在實施保育方面的努力及如何積極解決問題，例如處理老樹和受感染的樹木，以及減低對鄰近的大埔墟鷺鳥林生態影響。同事在這次活動得到的環保知識對我們日後在工程策劃、設計和施工有不少裨益。

Kadoorie Farm and Green Hub Visits

CEDD provided various environmental trainings to our colleagues. For example, we organized a technical visit to Kadoorie Farm and Botanic Garden (KFBG) and Green Hub in end 2021. There were more than 20 colleagues from different offices joining the visit.

The purpose of the visit was to enhance participants' knowledge in sustainability and we hope that the technologies could be adopted in our New Development Area projects, which conforms to CEDD's vision to build Hong Kong a liveable, resilient and sustainable city.

參觀嘉道理農場暨植物園
Visit to Kadoorie Farm and Botanic Garden

參觀綠匯學苑
Visit to Green Hub

參觀合照
Group Photo of Visit

During the visit to Kardoorie Farm, we visited the Wetland Wastewater Treatment System, which demonstrated a self-sustaining wastewater recycle system with wetland plants. New development area projects could also refer to the Blue-Green construction using wetland plants as a sewage recycling system. Through visiting the Eco-garden, we learnt about the importance and challenges of planting native species for enhancing biodiversity in the urban environment. Respective professional staff in KFBG also shared with us their practical experience in sustainable development of wildlife friendly engineering and facilities including Kwun Yum Shan Summit, Reservoir No. 3, Orchid Haven, Wild animal rescue centre, and one-dou farm.

We also visited the Green Hub showcasing how heritage, architecture and ecology could be successfully integrated in a conservation project. During the visit, we learned about their conservation efforts and how to actively solve problems, such as dealing with old and infected trees, and reducing the ecological impact on the nearby Tai Po Market Egretry. The environmental knowledge obtained in this visit would be beneficial to our subsequent project planning, design and construction.