土木工程拓展署

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Environmental Report 2020 環保報告

We Engineer

Hong Kong's Development

卓越工程　建設香港

目錄

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Foreword

這份 2020 年的環保報告闡述土木工程拓展署在環境保護方面的各項政策、措施及其成效。土木工程拓展署致力環保，履行《清新空氣約章》和《減碳約章》，以符合可持續發展的原則推動各項發展及基建項目。

在 2020 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。在綠色建築工程設計上，本署深得業界認同，如在塱原自然生態公園訪客中心的設計應用了減碳節能及循環再用的概念，引入了多種綠化設計，有助減少全年 32%以上的能源消耗，獲得香港綠色建築議會的綠建環評暫評核為「鉑金」級水平。而其他工程項目如位於啟德的淤泥清理站及香港兒童醫院，均獲得綠建環評認證註冊登記「鉑金」評級。

此外，東涌東填海是首個應用嶄新的環保填海技術「深層水泥拌合法」的工務工程項目。以非浚挖及不牽涉移除海床淤泥的方法填海造地，減低工程對附近水質及生態環境的影響，也較傳統的填海方式更快峻工。

This Report summarises Civil Engineering Development Department (CEDD)'s environmental protection policies, initiatives and achievements in year 2020. CEDD is committed to environmental protection, supporting the Clean Air Charter and Carbon Reduction Charter to promote sustainable development in various development plans and infrastructure works.

In 2020, 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. CEDD has also introduced the green building in the engineering design with recognitions by stakeholders. For example, the Visitor Centre of Long Valley Nature Park is designed to adopt a variety of green features, and energy reduction and material recycling concepts which will effectively achieve over 32% of annual energy saving. The Visitor Centre has obtained the BEAM Plus Provisional "Platinum" rating from the Hong Kong Green Building Council. Other projects, e.g. the desilting compounds and Hong Kong Children's Hospital at Kai Tak have also attained "Platinum" rating for BEAM Plus certification.

Besides, Tung Chung East reclamation is the first public works project using the latest environmentally-friendly method – the non-dredged "Deep Cement Mixing" (DCM) method for reclamation. No dredging or removal of marine mud on the seabed is involved. The DCM method reduces impact on water quality and marine ecology nearby and takes a shorter time than the traditional reclamation method to complete the works.

引言
Introduction

關於本報告

這份環保報告總結了由 2020 年 1 月 1 日至 12 月 31 日土木工程拓展署的環保措施成果，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、環境管理及公眾參與所作出的努力。

部門概覽

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、策略性發展研究等工作。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。

土木工程拓展署 2020 年的編制共有大約 2070 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、技術主任、測量師、園境師等。

About this Report

This Environmental Report summarises CEDD's environmental achievements in the period from 1 January 2020 to 31 December 2020. It also presents our efforts in supporting the Clean Air Charter, Carbon Reduction Charter, energy saving, staff environmental training, renewable energy, environmental management and public engagement in CEDD projects.

Department Profile

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 include slope safety, quarry maintenance and geotechnical consultations. Meanwhile, the East, South, West and North Development Offices are responsible for the land development, infrastructure works, feasibility studies, etc. in their respective areas. Last but not least, the Sustainable Lantau Office, established in 2017, is responsible for implementing the development and conservation plans of the Lantau Island and other outlying islands.

In 2020, there were around 2070 staff in CEDD. Two-third of them are professional and technical grade staff, including civil engineers, geotechnical engineers, technical officers, surveyors and landscape architects, etc.

組織結構
Organisation

引言
Introduction

我們的環保政策與工作

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並已成功取得 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。

Our Environmental Policy and Activities

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 is successfully certified to ISO14001:2015. Our environmental measures and greening achievements have been well recognised by professional bodies.

綜合管理系統政策
IMS Policy

土木工程拓展署
Civil Engineering and Development Department

綜合管理系統政策

IMS Policy

香港品質保證局證書
HKQAA Certificate

CERTIFIED COMPANY
HKQAA

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
The Government of the Hong Kong Special Administrative Region

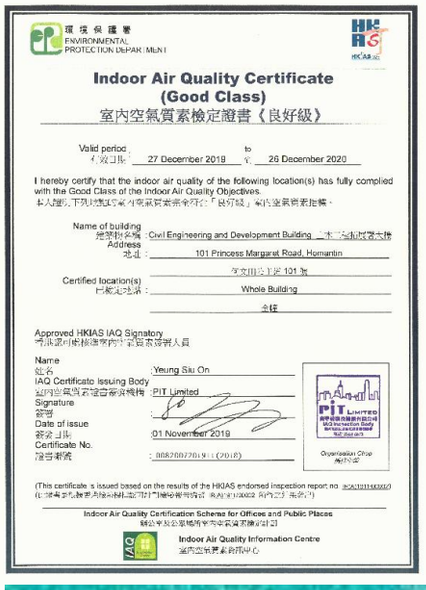
HONG KONG QUALITY ASSURANCE AGENCY

清新空氣約章及減碳約章
Clean Air Charter & Carbon Reduction Charter

綠色辦公室

我們積極履行《清新空氣約章》的承諾。截至 2020 年，土木工程拓展署大樓連續第 18 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 1 張「卓越」級及 12 張「良好」級檢定證書。

我們繼續履行《減碳約章》的承諾。在 2019 年 4 月至 2020 年 3 月期間，總部大樓的運作直接產生的二氧化碳為 24.34 公噸，比上一年度少 7.64 公噸。通過用水用電間接排放量 則為 2,297.76 公噸，比上一年度少 34.33 公噸。二氧化碳的總排放量比上一年少 41.97 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 12.51 公噸，比上一年度少 3.34 公噸。而通過用水用電間接排放的二氧化碳則為 23,339.86 公噸，比上一年度多 4,830.94 公噸；主要由於鋪路磚測試數量上升所致。


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 2019 to 至 26 December 2020

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」的室內空氣質素指標。

Name of building
Address
地址: 101 Princess Margaret Road, Homantin
Certified location(s)
Whole Building

Approved HKIAS IAQ Signatory
Name
IAQ Certificate issuing Body: PIT Limited
Signature
Date of issue
01 November 2019
Certificate No.

(This certificate is issued based on the results of the HKIAS endorsed inspection report no.)

Indoor Air Quality Certification Scheme for Offices and Public Places
Indoor Air Quality Information Centre

室內空氣質素檢定證書「良好」級
Indoor Air Quality Certificate "Good Class"

Green Office

We actively fulfilled our commitment under the "Clean Air Charter". As at 2020, the Civil Engineering and Development (CED) Building has been awarded the "Good Class" Indoor Air Quality Certificate for 18 consecutive years. Together with our outstation offices, we were awarded a total of one "Excellent Class" and 12 "Good Class" Indoor Air Quality Certificates.

We continued to fulfill our obligations under the "Carbon Reduction Charter". From April 2019 to March 2020, the amount of carbon dioxide generated directly by the operation of the CED Building was about 24.34 tonnes which was 7.64 tonnes less than the preceding year. The amount emitted indirectly through water and electricity consumption was about 2,297.76 tonnes which was 34.33 tonnes less than the preceding year. The total amount of carbon dioxide emitted was 41.97 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 12.51 tonnes, which was 3.34 tonnes less than the preceding year. The amount emitted indirectly through water and electricity consumption was about 23,339.86 tonnes which was 4,830.94 tonnes more than the preceding year. The increase in carbon dioxide emission was mainly due to the increased paving blocks testing.

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 2020 年 12 月，本署現有 18 輛（13 輛全電動車及 5 輛混能車）電動汽車。

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, without internal combustion occurs in EVs in motion, they are quieter than those driven by internal combustion engine, and help reducing traffic noise pollution. As at December 2020, CEDD has 18 EVs (13 full EVs and 5 hybrid EVs) in service.


電動車 Electric vehicle

清新空氣約章及減碳約章
Clean Air Charter & Carbon Reduction Charter

節省用電

本署的總耗電量由 2018 年的 5,720,420 度減少至 2020 年的 5,590,517 度，減少 2.32%，達至我們這方面的環保目標。

本署於 2020 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	3,255,168 [+0.33%][3]
工務中央試驗所大樓 PWCL	1,857,819 [+7.25%][4]
旺角道一號商業中心 One Mong Kok Road Commercial Centre	12,337 [-94.526%]
華懋廣場[5] Chinachem Golden Plaza[5]	3,845 [-97.07%]
新都會廣場 Metroplaza	100,598 [-1.21%]
高銀金融國際中心[2] Goldin Financial Global Centre[2]	25,873 [不適用] [NA]

注釋:

1. 只包括已安裝獨立電錶的辦公室。
2. 相關辦公室於2019年或以後才開始使用，因此與2018年耗電量的比較並不適用。
3. 在2020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。
4. 由於鋪路磚測試的數量增加，導致電力消耗上升。
5. 相關辦公室於2019年停止使用，並於2020年完成還原工程。
6. 在2020年增設泛光燈，以加強倉庫保安措施。

Saving in Electricity Consumption

The total electricity consumption of the Department has been decreased by 2.32%, from 5.720 million kWh in 2018 to 5.591 million kWh in 2020, which achieved our environmental target in this respect.

The Electricity Consumption of CEDD in 2020 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	15,456 [+0.84%][3]
帝國中心[5] Empire Centre[5]	1,199 [-99.36%]
英皇道1063號 1063 King's Road	46,193 [-3.32%]
狗虱灣政府爆炸品倉庫 Kau Shat Wan Explosives Depot	396,343 [-1.33%]
九龍政府爆炸品倉庫 Kowloon Explosives Depot	48,843 [+3.27%][6]

Notes:

1. Only offices with individual electricity metres installed are included.
2. The office was commissioned in or after 2019, comparison with 2018 is not applicable.
3. The electricity consumption in CEDB was generally unchanged although number of staff increased in 2020.
4. The increased paving blocks testing of Concrete Testing Unit led to the increase in electricity consumption.
5. The office ceased commission in 2019 and reinstatement works were completed in 2020.
6. Floodlights were added in 2020 to strengthen the security measures at depot.

節省用電措施

在 2020 年度，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 - 本署正安排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。

Electricity Saving Measures

In 2020, we implemented and planned the following electricity saving measures:

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

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

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得到持續改善。2020 年的工作成效如下:

2020 年的環保目標和指標
Environmental Objectives and Targets in 2020

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 1.2%
To reduce total electricity consumption of the CED Building by 1.2% 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 88 萬棵樹/ 灌木
To plant at least 0.88 million trees/shrubs

Environmental Performance

To achieve continuous improvement in our environmental performance, we have set annual environmental objectives and targets. Below is a summary of our achievements in 2020:

2020 年的成績
Achievement in 2020

總用紙量較 2003 年減少 29.3%
Total paper consumption reduced by 29.3% when compared with that in 2003

環保紙佔總用紙量的 61.7%
Recycled paper accounted for 61.7% of total paper consumption

本署的總用電量較 2018 年減少 2.32%
Electricity consumption of the CED Building reduced by 2.32% when compared with that in 2018

本年度已美化 166 幅在「長遠防治山泥傾瀉計劃」下鞏固的斜坡
166 upgraded slopes under the Landslip Prevention and Mitigation Programme landscaped

本年度已種植 200 萬棵樹/ 灌木
2 million trees/shrubs planted

可再生能源
Renewable Energy

可再生能源

由於地球上的化石燃料正逐步消耗，加上它會對環境造成不良影響，可再生能源扮演的角色愈趨重要。可再生能源與化石燃料(例如煤、石油)不同之處，在於前者可讓我們用之不竭，而且在周圍環境中蘊藏量極多，可來自太陽、風、流水、海浪、生物質能等。可再生能源資源最大好處是可以不斷重複使用；另一大好處是這些能源不會釋放溫室氣體或其他空氣污染物。

Renewable Energy

With the gradual reduction of available fossil fuel reserves and its impact on the environment, renewable energy (RE) is becoming increasingly important. Unlike fossil fuels such as coal and oil, RE will never run out. It is abundant in the environment, which can come from the sun, wind, running water, waves and biomass. The absolute value of all RE sources is that we can use them repeatedly. Another important advantage is that they will not emit greenhouse gases or atmospheric pollutants.

公眾碼頭

我們挑選了六個合適的公共及政府碼頭(荃灣渡輪碼頭、石壁碼頭、索罟灣公共碼頭、蒲台島碼頭、塔門碼頭及沙頭角公眾碼頭)的上蓋安裝太陽能系統。到 2020 年 12 月為止，我們已在荃灣渡輪碼頭完成安裝該系統。我們計劃於不久將來完成在石壁碼頭、索罟灣公共碼頭、蒲台島碼頭、塔門碼頭及沙頭角公眾碼頭的安裝工程。這六個碼頭的太陽能電池板可產生的總能量約每天 69.78 千瓦時。

Public Piers

We selected 6 public/government piers (Tsuen Wan Ferry Pier, Shek Pik Pier, Sok Kwu Wan Public Pier, Po Toi Pier, Tap Mun Pier and Sha Tau Kok Public Pier) to install solar energy systems. By December 2020, the installation works at Tsuen Wan Ferry Pier had been completed. We target to complete the installation works at Shek Pik Pier, Sok Kwu Wan Public Pier, Po Toi Pier, Tap Mun Pier and Sha Tau Kok Public Pier in near future. The total amount of energy generated by the solar energy system installed at the 6 piers will be around 69.78 kwh per day.

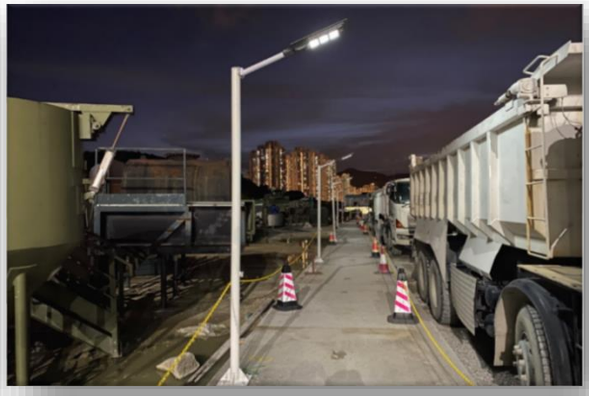
荃灣渡輪碼頭的太陽能系統
Solar energy system at Tsuen Wan Ferry Pier

藍地石礦場延續修復工程

為了節約能源，我們於藍地石礦場的行人路裝設智能太陽能路燈作夜間照明。

The Rehabilitation of Lam Tei Quarry – Extended Works

In order to save energy, we have been using the smart solar energy lights at the pedestrian walkway at Lam Tei Quarry for lighting purpose.



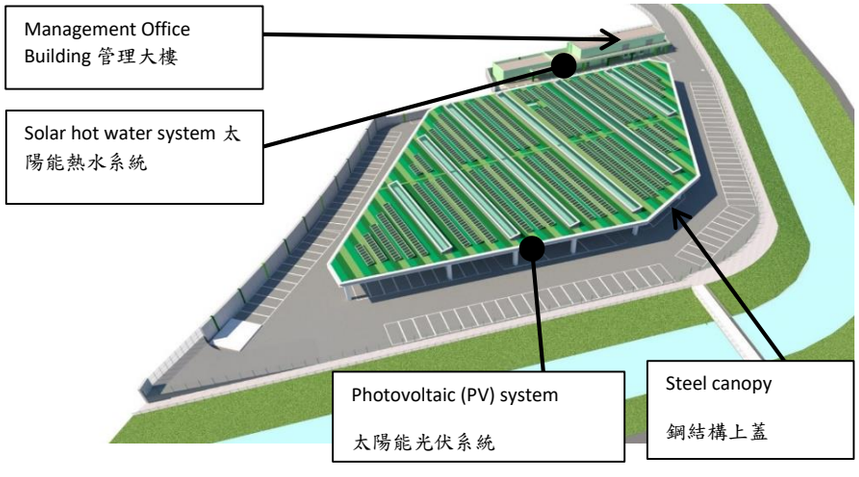
智能太陽能路燈
Smart solar energy lights

重置北區臨時農產品批發市場

在重置北區臨時農產品批發市場時，我們在管理大樓的上蓋增設了太陽能熱水系統。這個系統利用真空管集熱器去收集太陽輻射產生的熱能，為管理大樓的沐浴設備提供熱水，有效節省用於製造熱水的能源及費用。 我們更在營運區的鋼結構上蓋上安裝太陽能光伏系統，把太陽輻射的能量轉化成電能供照明及通風系統使用，以節省批發市場從供電公司所需的電力。

Re-provisioning the North District Temporary Wholesale Market for Agricultural Products (NDTWM)

In re-provisioning the North District Temporary Wholesale Market for Agricultural Products (NDTWM), we installed solar hot water system at the roof of Management Office Building (MOB). This system uses evacuated tube collectors to collect heat energy from radiation of sunlight for providing hot water for the bathing equipment in the MOB, leading to effective saving of energy and cost in heating water. Photovoltaic systems were also installed on the roof of steel canopy to convert radiation of the sunlight into electricity for lighting and ventilation systems in order to save the electricity demand from the power company.



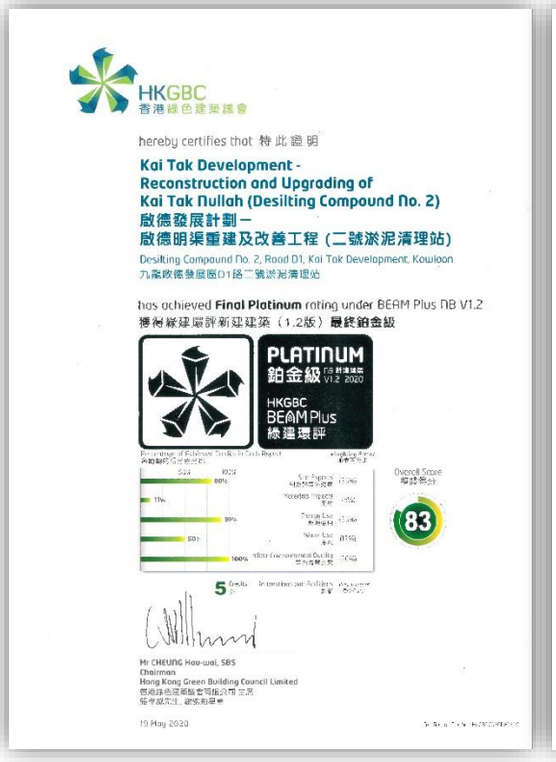
重置後的北區臨時農產品批發市場
North District Temporary Wholesale Market for Agricultural Products (NDTWM) after re-provisioning

啟德的智能元素

為提升區內生活質素、促進可持續發展，我們在啟德發展區的建築和基建設計方面加入智能元素。所有建築樓面面積超過5000平方米的新建政府建築物，將以達致香港綠色建築議會的綠建環評 (BEAM Plus) 的金級或以上評級為目標。當中淤泥清理站及香港兒童醫院均於2020年獲得綠建環評認證註冊登記「鉑金」評級。

Smart Elements at Kai Tak

We included smart elements in the design of government buildings and infrastructures of the Kai Tak development area to enhance living quality and sustainable development. All newly-built government buildings with a floor area of more than 5,000 square meters will be constructed to attain the gold or above rating for the BEAM Plus certification of the Hong Kong Green Building Council. The desilting compounds and Hong Kong Children's Hospital have achieved "Platinum" rating for BEAM Plus certification as better and more environmental designed buildings in 2020.


HKGBC
香港綠色建築議會

hereby certifies that 特此證明

**Kai Tak Development -
Reconstruction and Upgrading of
Kai Tak Nullah (Desilting Compound No. 2)
啟德發展計劃－
啟德明渠重建及改善工程（二號淤泥清理站）**

Desilting Compound No. 2, Road D1, Kai Tak Development, Kowloon
九龍啟德發展區D1路二號淤泥清理站

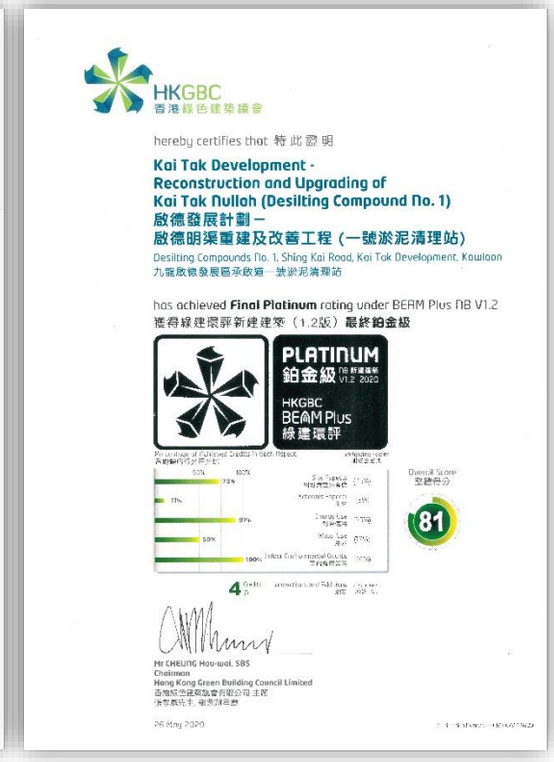
has achieved **Final Platinum** rating under BEAM Plus NB V1.2
獲得綠建環評新建建築（1.2版）最終鉑金級

PLATINUM
鉑金級
HKGBC
BEAM Plus
綠建環評

Overall Score
83

Mr CHEUNG Hau-wai, SBS
Chairman
Hong Kong Green Building Council Limited

19 May 2020


HKGBC
香港綠色建築議會

hereby certifies that 特此證明

**Kai Tak Development -
Reconstruction and Upgrading of
Kai Tak Nullah (Desilting Compound No. 1)
啟德發展計劃－
啟德明渠重建及改善工程（一號淤泥清理站）**

Desilting Compounds No. 1, Shing Kai Road, Kai Tak Development, Kowloon
九龍啟德發展區承啟道一號淤泥清理站

has achieved **Final Platinum** rating under BEAM Plus NB V1.2
獲得綠建環評新建建築（1.2版）最終鉑金級

PLATINUM
鉑金級
HKGBC
BEAM Plus
綠建環評

Overall Score
81

Mr CHEUNG Hau-wai, SBS
Chairman
Hong Kong Green Building Council Limited

26 May 2020

啟德明渠重建及改善工程獲得綠建環評認證註冊登記「鉑金」評級

"Platinum" rating for BEAM Plus in Reconstruction and Upgrading of Kai Tak

惰性拆建物料的循環再用與再造

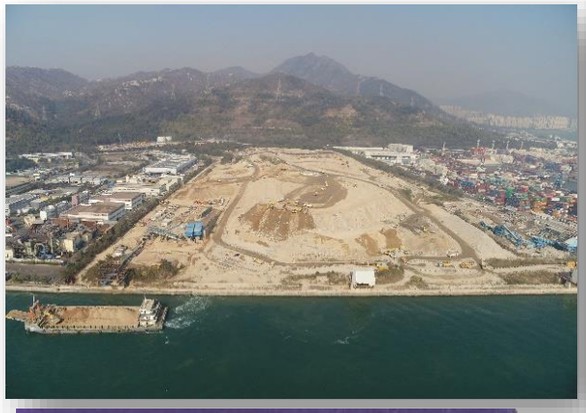
政府一直透過多管齊下的措施，以妥善管理本地建造業所產生的各類拆建物料，當中包括鼓勵盡量減少和重用拆建物料。因此，土木工程拓展署在將軍澳和屯門營運公眾填料接收設施，以接收和儲存惰性拆建物料，待日後在填海或地盤平整工程中使用。於2020年，填料庫供應予本地工程項目（包括香港國際機場三跑道系統、東涌新市鎮擴展、綜合廢物管理設施等現正施工的填海工程）再用的剩餘公眾填料約有1,400萬公噸。

這些拆建物料中，部分為破碎混凝土及石塊，被壓碎成再造碎石填料後可於工程重用，以減少開採石材，有助香港持續發展。2020年合共有45個工程項目使用了填料庫生產的200級再造石填料。

Reuse and Recycling of Inert Construction and Demolition Materials

The Government has been adopting a multi-pronged approach to manage Construction and Demolition (C&D) materials generated by the local construction industry, including promoting minimisation and reuse of C&D materials. As such, CEDD has commissioned public fill reception facilities in Tseung Kwan O and Tuen Mun to receive and temporarily stockpile inert C&D materials disposed of by the local construction industry for reuse in new reclamation or site formation projects. In 2020, about 14 million tonnes of surplus public fill have been supplied from the fill banks to local projects (including the existing reclamation projects under construction, i.e. Three-Runway System, Tung Chung New Town Extension and Integrated Waste Management Facilities, etc.).

A good proportion of the C&D materials are broken concrete and rock pieces which can be crushed into recycled rockfills for reuse in construction works, reducing the need for quarrying to facilitate the sustainable development in Hong Kong. In 2020, 45 contracts have used Grade 200 recycled rockfills produced by fill banks in their construction works.



屯門第38區填料庫
Tuen Mun Area 38 Fill Bank

本地填海工程於將軍澳第137區填料庫利用運輸帶提取公眾填料
Collection of Public Fill from the Tseung Kwan O Area 137 Fill Bank by local reclamation projects via conveyor belts

破碎混凝土及石塊可循環再造成200級再造石填料
Recycling of broken concrete and rock pieces into Grade 200 recycled rockfills

東涌新市鎮擴展

使用回收玻璃進行填海工程

截至2020年底，東涌新市鎮擴展-填海及前期工程使用約4000公噸回收玻璃物料作填海之用。

非浚挖式的填海技術

以往填海造地，特別是建造海堤時，一般先挖走海床鬆軟的海泥，再棄置到特定海泥坑。過程中海泥的微細顆粒有機會隨水飄流，影響附近水域的水質和海洋生物。此外，運送海泥產生大量海上運輸船程，增加碳排放。隨着建造技術進步，近年香港採用可持續的方法填海造地，以滿足對土地及房屋供應的殷切需求。

東涌東填海工程採用非浚挖式的技術 -「深層水泥拌合法」進行填海，可避免挖走海泥，減低對水質的影響，更避免因棄置海泥所產生的額外海上運輸船程，大大減低對環境造成的影響，令填海工程更環保。這工程亦是本港首個使用「深層水泥拌合法」的政府工務工程，其原理是利用機械攪拌器把水泥漿混合鬆軟的海泥，於短時間內形成水泥拌合柱(圖 1)；這些水泥拌合柱羣在海床組合成深層水泥拌合地層，鞏固海床，以承托之後在上層建造的海堤(圖 2)。

Tung Chung New Town Extension

Use of recycled Glass for Reclamation

As at end of 2020, about 4000 tonnes of glass cullets had been used as reclamation materials in the Tung Chung New Town Extension - Reclamation and Advance works.

Non-dredged Reclamation Technology

Traditional reclamation technology requires the excavation of soft marine deposit, especially for seawall construction, and disposal of at designated mud-pits. Throughout the process, fine particles of the marine deposit might drift with water causing negative impacts on the water quality of adjacent waters and nearby marine habitat. Besides, the dumping of marine deposit would generate huge amount of marine traffic resulting in an increase in carbon emission. With the advancement of construction technology, Hong Kong has adopted sustainable construction approach to create new land by reclamation with an aim to meeting the great demand on land and housing supply.

The Tung Chung East reclamation contract adopts the non-dredged technology – deep cement mixing (DCM) method for reclamation, which does not require the removal of marine deposit, causing less impact on water quality. In addition, marine transportation for dumping marine deposit can be avoided and impacts on the environment are greatly minimised. It makes the reclamation works more environmentally friendly. The Tung Chung East reclamation is the first public works project using DCM technology in Hong Kong. The principle of DCM is to inject cement slurry into the marine deposit and mix them mechanically to form DCM columns within a short period of time (see Figure 1). These DCM columns form a DCM treatment area which solidifies the seabed to support the seawall to be built on the top thereby (see Figure 2).

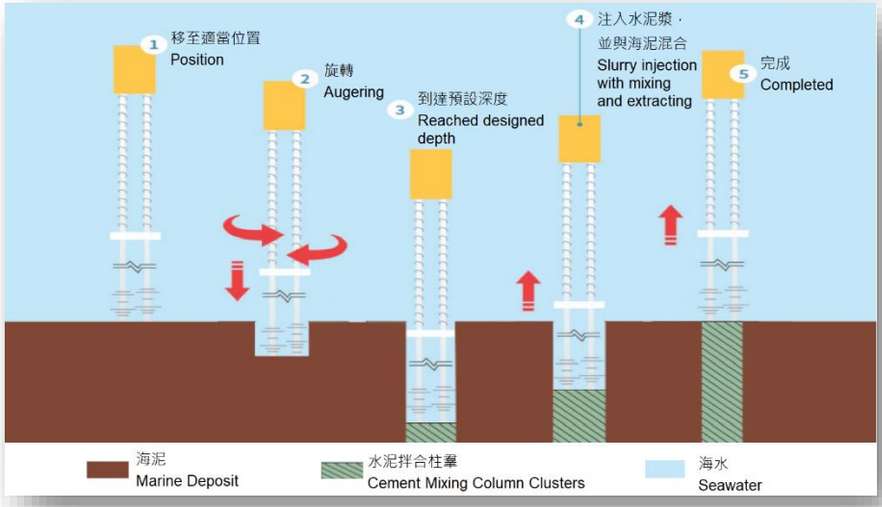


圖 1：深層水泥拌合法流程圖
Figure 1: Procedure of DCM method

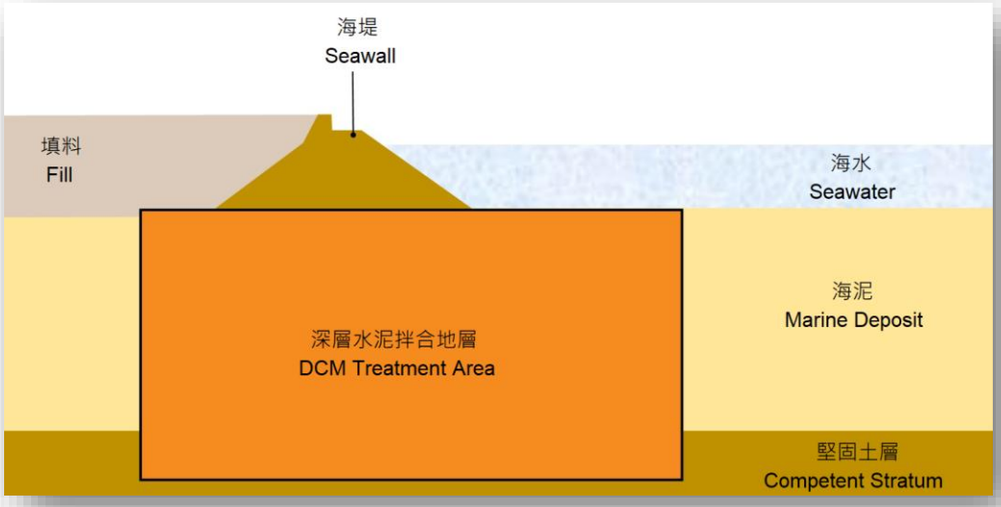


圖 2： 深層水泥拌合法填海的典型切面圖
Figure 2: Typical section of reclamation by DCM method

圖 3：深層水泥拌合工程船
Figure 3：DCM vessel

河套地區生態區

為保育河套地區生態價值及保育生物物種的覓食和棲息地，土木工程拓展署在區內東南部建立了一個面積達12.8公頃的生態區。生態區把現有零散的蘆葦及淡水植物沼澤棲息地整合，並連接附近的舊河曲和魚塘，把米埔自然護理區、附近濕地和蠔殼圍一帶形成一道鳥類飛行走廊。該工程已於2020年12月底峻工。

Ecological Area at the Loop

To preserve the foraging grounds and habitats, CEDD has created an Ecological Area (EA) of 12.8 hectares in the southeastern part of the Loop. The EA integrates the existing scattered reed marsh and freshwater marsh habitats, connects the nearby Old Shenzhen River Meander and fish ponds, and establishes a bird flight corridor across the Mai Po Nature Reserve, adjacent Wetlands and Hoo Hok Wai. The works were completed in late 2020.

塱原自然生態公園訪客中心
Visitor Centre for Long Valley Nature Park

訪客中心採用綠化設計
Green features in Visitor Centre

生態區的睡蓮
Nymphaea spp. at the ecological area

綠化總綱圖項目

土木工程拓展署於2011年開始制訂新界綠化總綱圖。綠化工程覆蓋範圍集中在市中心、旅遊景點、主要交通幹線等，以有效增加和改善綠化空間。位於新界東南及西北的沙田、西貢、屯門及元朗為首先進行新界綠化總綱圖工程的地區，有關工程已於2017年10月完成，並於2018年把所栽種植物全部移交給相關護養部門。在新界東南及西北的綠化工程中，我們種植了約4,000棵樹和2,600,000棵灌木。而位於新界西南及東北的葵青、荃灣、離島、北區及大埔等地區綠化總綱圖的綠化工程亦已於2020年12月展開，預計我們將會在區內種植約1,850棵樹和830,000棵灌木。

我們的基建發展工程大部分都加入大規模的種植計劃，作為景觀的改善及緩解措施。綠化工程涉及不同的環境，包括道路旁的花槽、行人和行車天橋、斜坡、單車徑、海濱長廊等。

元朗綠化總綱圖(天水圍天華路)
Greening Master Plan for Yuen Long (Ting Wah Road, Tin Shui Wai)

Greening Master Plan Project

CEDD has started formulating the Greening Master Plans (GMPs) for the New Territories (NT) since 2011. The GMP studies focused primarily on core town centres, major transportation routes and tourist attraction locations, in order to effectively enhance the greening effect for environmental improvement. We have firstly implemented the recommended greening measures in Sha Tin, Sai Kung, Tuen Mun and Yuen Long districts under Northwest and Southeast NT GMPs. The relevant works were completed in October 2017 and all plants were handed over to the relevant maintenance departments in 2018. About 4,000 trees and 2,600,000 shrubs have been planted in these districts. The greening works for Kwai Tsing, Tsuen Wan, Islands District, North District and Tai Po under Southwest and Northeast NT GMPs commenced in December 2020. It is estimated that about 1,850 trees and 830,000 shrubs will be planted in these districts.

Most of our infrastructure and development projects include the provision of extensive planting schemes serving as landscape enhancement and impact mitigation measures. Such greening works involve planting in a variety of settings, like roadside planter, footbridges, flyovers, slopes, cycle tracks and promenades.

屯門綠化總綱圖(青山灣海濱長廊)
Greening Master Plan for Tuen Mun (Castle Peak Bay Waterfront Promenade)

藍綠建設

東涌河畔公園及可持續城市排水系統

位於東涌谷的東涌河具有高生態價值，惟其中一段位於石榴埔東北面的東涌河下游已被渠道化。為還原上下游的生態連繫，我們將活化這段已渠道化的河段，使其回復天然面貌，並把部分河段發展成河畔公園，以推廣親水文化和活動。為促進保育和豐富訪客體驗，我們會於河畔公園內設立訪客中心。

為改善東涌河的水質，我們將在東涌西設置一系列的可持續城市排水系統，包括雨水滯留及處理池，以及生態草溝和透水路面，以控制流入東涌河的地面徑流的水量和改善水質。此外，在東涌西的雨水滯留及處理池對於東涌河也具備防洪的緩衝作用。

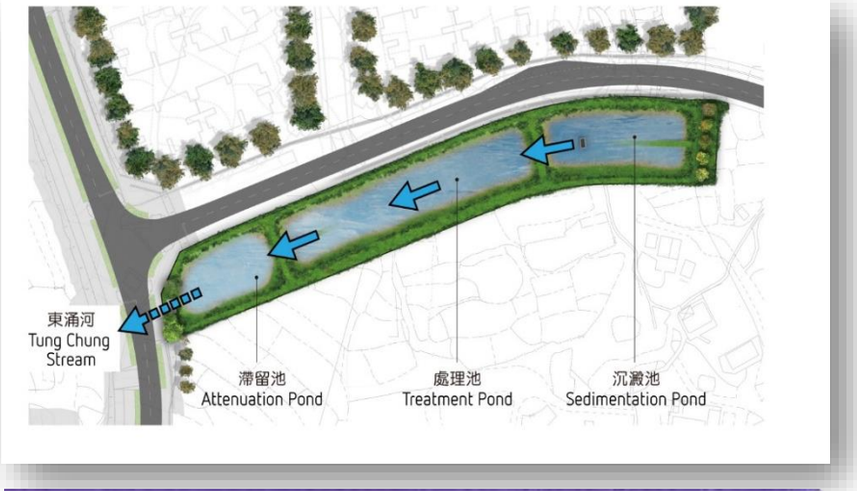
Blue Green Infrastructure

Tung Chung River Park and Sustainable Urban Drainage System

The Tung Chung Stream in Tung Chung Valley has high ecological value. While a section of the existing Tung Chung Stream at its downstream in the northeast of Shek Lau Po is channelised, we will restore the ecological connection between upstream and downstream of the Tung Chung Stream by revitalising this channelised section to its natural setting and developing a section into a River Park to promote water-friendly culture and activities. To promote conservation and enrich visitors' experience, we will set up a visitor centre within the River Park.

To improve the water quality of Tung Chung Stream, we will install a series of sustainable urban drainage system in Tung Chung West, including stormwater attenuation and treatment ponds, as well as bioswales and permeable pavements, to control the amount and improve the quality of surface runoff discharged into the Tung Chung Stream. In addition, the stormwater attenuation and treatment ponds in Tung Chung West will serve as buffers for flood prevention of the Tung Chung Stream.

擬議東涌河畔公園及訪客中心構想圖
Artistic impression of the proposed River Park and Visitor Centre



可持續城市排水系統構想圖
Sustainable urban drainage system conceptual design

我們在施工階段採取的環保緩解措施主要包括：定時灑水以抑制塵土飛揚；採用低噪音設備、可移動的臨時隔音屏障和隔音物料，以盡量減低施工噪音的影響；採用管狀太陽能燈及風力發電機以達致節能目的。

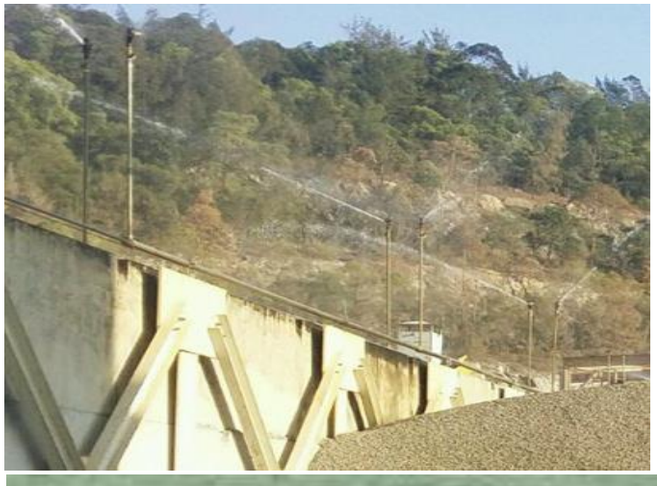
Our environmental mitigation measures during the construction phase mainly include regular water spraying for dust control; adopting quieter equipment, movable temporary noise barriers and noise insulation materials to minimise construction noise impact; using tubular solar lights and wind generators to save energy.

空氣質素控制

Air Quality Control

在地盤及鄰近公共道路上使用洗街車及機動掃街車清理泥塵

Use of water spraying truck and mechanical street sweeper to reduce dusty materials on site and neighboring public roads



以自動灑水方式抑制塵埃產生

Use of automatic water sprinkler to suppress dust generation

建築工地採取的環保緩解措施
Environmental Mitigation Measures implemented in Works Projects

噪音緩解

Noise Mitigation

以隔音布減少工程噪音滋擾
Use of noise reduction sheet to reduce noise nuisance from construction works

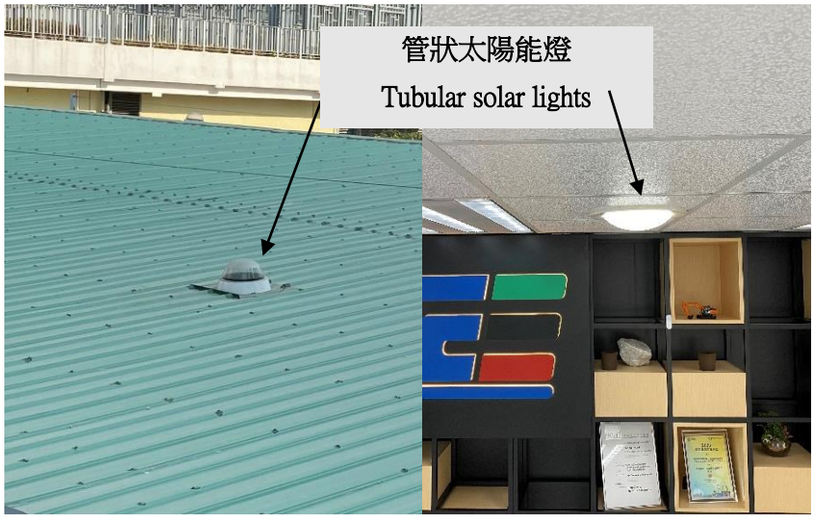
Foldable nature and inner layer covered with acoustical cotton

Custom fit to our generator

以隔音物料減少發電機噪音滋擾
Use of noise reduction fabric to reduce noise nuisance from generator

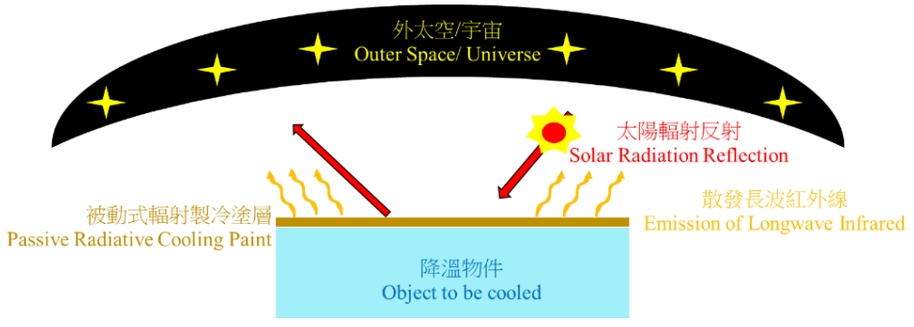
可持續措施

Sustainable Measures



於地盤辦公室採用管狀太陽能燈
Installation of tubular solar lights at roof of site office works

於地盤採用風力發電機
Installation of wind turbine at works area



於地盤辦公室應用被動式輻射製冷塗層
Adoption of passive radiative cooling paint at the roof of site office

建築工地採取的環保緩解措施
Environmental Mitigation Measures implemented in Works Projects

可持續措施

Sustainable Measures

於主地盤通道應用太陽能板作照明
Installation of solar panels for energy supply to lightings along the main site access

地盤和行人天橋裝設太陽能燈作夜間照明
Solar lights at works area and footbridge

環保團體和公眾參與活動
Public Engagement Activities with Green Groups

河套地區生態發展

土木工程拓展與多個環保團體、生態學家、禾本科植物專家及其他持份者於 2020 年進行多次技術交流及實地考察，聽取他們對建立河套生態區的專業意見。

Ecological Development of the Loop

CEDD conducted a number of sharing sessions and site visits with green groups, ecologists, horticultural experts and other stakeholders in 2020 to exchange ideas on the establishment of the Ecological Area of the Loop.

濕地實地考察和意見交流
Wetland site visit and exchange of ideas

環保培訓
Staff Environmental Training

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2020年，有161位人員接受培訓。

Staff 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 2020, 161 staff completed the training.

環保法例的培訓班
Environmental Legislation Training