ENVIRONMENTAL REPORT 2021

Education Bureau
The Government of the Hong Kong Special Administrative Region
of the People's Republic of China

Contents

Inside Cover Photo: New School Premise Design Model for reprovisioning of Canton Road Government Primary School

Scope of the Report

This Environmental Report covers the period from 1 January to 31 December 2021 unless otherwise specified. It provides an overview of the efforts of the Education Bureau (EDB) to maintain an environmentally friendly surrounding and create a sustainable environment.

This report is published in English and Chinese on our website to reduce paper consumption. Internet version can be accessed by scanning the following QR Codes.

English

繁體中文版

簡體中文版

Figure 1: Central Government Offices where EDB's main offices are located

I. Profile and Environmental Policy of Education Bureau

Vision and Mission

1.1 Our vision is to provide quality school education for our students, develop their potential to the full, and prepare them for the challenges in life.

1.2 Our mission is to –

- deliver professional services and ensure effective use of resources; and
- forge partnerships to promote excellence in school education.

Our Work

1.3 Our major responsibilities are –

- formulating, developing and reviewing policies, programmes and legislation in respect of education from pre-primary to tertiary levels; and
- overseeing the effective implementation of educational programmes.

1.4 We are also the School Sponsoring Body for 34 government primary schools and 31 government secondary schools.

Figure 2: Biology Field Trip at the Ho Koon Nature Education cum Astronomical Centre held by Tsuen Wan Government Secondary School in November 2021

Environmental Goal and Policy

1.5 Our environmental goal is to maintain an environmentally friendly surrounding and create a sustainable environment for our ensuing generations.

1.6 In meeting our goal, we are committed to –

- promoting environmental education;
- adopting green designs and construction works for schools;
- implementing environmental housekeeping measures; and
- enhancing environmental awareness and compliance with relevant legislation and codes of practices amongst colleagues.

Figure 3: DIY Environmentally Friendly Power Generation Workshop held by Bonham Road Government Primary School in December 2021

Figure 4: Garden Plot at South Tuen Mun Government Secondary School

II. Key Environmental Performance in 2021

(A) ENVIRONMENTAL EDUCATION

2.1 Our mission is to enhance students' environmental awareness through education and enlist their participation in conserving the environment. To take this forward, we adopt a cross-curricular approach in the promotion of environmental education and promote school-based and action-oriented activities. We also collaborate with renowned green groups, such as the Environmental Campaign Committee and the World Wide Fund for Nature Hong Kong Education Committee to provide advice on organisation of school activities and production of resources materials to schools.

2.2 To fulfil the goal of promoting environmental education, various initiatives were undertaken in 2021.

Provision of learning resources to schools

Professional Development Programmes

(i) **Eight professional development programmes** (PDP) related to education for **sustainable development**, covering the topics of green living, green building, climate change mitigation, sustainable fuel in transportation, sustainable seafood, marine life stranding, etc., were organised for all school teachers in 2021. In particular, two PDPs were held in collaboration with the **Environmental Campaign Committee** and one was held in collaboration with the **Ocean Park Academy**.

Figure 5: Teacher training held at Ocean Park Academy in November 2021

Two PDPs related to **biodiversity** were held for Science teachers to enhance their understanding on the use of technology for learning biodiversity and the latest development of biodiversity in Hong Kong.

Figure 6: Teacher training held at Hong Kong Wetland Park in March 2021

Seminars

(ii) Two **seminars** related to the recent development of sustainable farming, agricultural technology, hydroponics and the importance of the ocean were held in 2021. One of the seminars was organised in collaboration with the **Agriculture, Fisheries and Conservation Department** and the **Vegetable Marketing Organisation**. The other seminar entitled "**Introduction to Ocean Science and the Paths to Sustainability**" was organised for Science teachers.

Visits to Educational Facilities

(iii) Two visits, namely "**Visits to CLP Power Low Carbon Energy Education Centre**" and "**Visit to EMSD Education Path cum Seminar on Energy Efficiency**" were held for Science teachers to enrich their understanding of the importance of low carbon energy, energy efficiency in buildings and solar energy as a renewable energy source.

Figure 7: Visit to CLP Power Low Carbon Energy Education Centre in December 2021

Figure 8: Visit to EMSD Education Path in October 2021

Promoting students' environmental awareness

(i) **Visits to Mai Po Nature Reserve**

Funding was provided for 61 school visits to Mai Po Nature Reserve from April to December 2021.

(ii) **Student Environmental Protection Ambassador (SEPA) Scheme 2021/22**

SEPA Scheme was organised in collaboration with the Environmental Protection Department (EPD) and the Environmental Campaign Committee to promote environmental protection in schools. The main theme in 2021/22 was "**Waste Blueprint for Hong Kong 2035**" to promote waste reduction at source and to enable students to better understand waste management in Hong Kong and the current policy initiatives.

A total of **222 primary and secondary schools** participated in the SEPA Scheme 2021/22. As at December 2021, **5 685 student ambassadors** were appointed to assist teachers in organising environmental education activities. Schools, families and student ambassadors were encouraged to adopt a greener lifestyle and take more positive initiatives in improving the environment. Knowledge on proper waste recycling practices and the sustainable use of biological resources were also introduced through a series of environmental training and activities.

Figures 9 and 10: SEPA Scheme Activity held in 2021

(iii) **Outdoor Education Camp Scheme (OECS)**

We support schools in organising OECS, in which enhancing students' awareness of environmental protection is one of the learning elements. Related themes or activities include "Nature and I", "Science and Ecology Trips", "Climatology, Geography and Ecology Study Camps", etc. Some schools also adopt environmental protection as the main theme of OECS, such as "Green Living" and "Saving Energy". However, due to COVID-19, the school outdoor education camps scheduled in the 2020/21 school year were cancelled.

(iv) **Waste Separation and Recycling Scheme in Schools**

Under the Scheme, we worked together with the Environmental Campaign Committee to promote the concept of 4Rs, i.e. reducing, re-using, recycling and replacing disposable products.

Performance in 2021:

As at the end of 2021, the participating schools recycled about -

- **244 207 kg** of waste paper;
- **106 485 kg** of plastic materials; and
- **11 967 kg** of metal containers.

Figure 11: Uniform Recycling Programme in Hennessy Road Government Primary School (Causeway Bay) in October 2021

Green Activities Organised by Schools

2.3 Despite the COVID-19 epidemic situation, government schools continued to promote environmental education by organising green activities for their students in 2021.

Figure 12: Exhibition about Chinese White Dolphins held by Helen Liang Memorial Secondary School (Shatin) in October 2021

Figure 13: Exhibition about Renewable Energy held by Canton Road Government Primary School in May 2021

Figure 14: Visit to East Dam by Helen Liang Memorial Secondary School (Shatin) in December 2021

Figure 15: Visit to Hong Kong Biodiversity Museum by Bonham Road Government Primary School in December 2021

Figure 16: Outdoor Learning Day on Native Species held by Queen Elizabeth School in November 2021

Figure 17: Charity Sale of Student-nurtured Potted Plants held by South Tuen Mun Government Secondary School in November 2021

(B)
BUILDING GREENER SCHOOLS

Green Designs and Construction

2.4 We introduced various environmentally friendly initiatives in the design and construction works of new school buildings, including –

(i) increased **landscaping** in school playgrounds, and upper levels and roof floor (including **vertical greening**);

(ii) provision of varied plant species and designated **green areas** in schools to foster students' interest in natural science and enable students to develop horticultural skills;

(iii) provision of adequate space and **waste separation bins** to facilitate separation, collection and storage of recyclable materials for recycling;

(iv) use of shared facilities among schools to enable a **greener and more spacious environment** in these schools;

(v) provision of **Central Food Portioning Area** to facilitate the use of re-usable cutlery and food containers and to reduce food wastage;

Figure 18: Open Design for a School

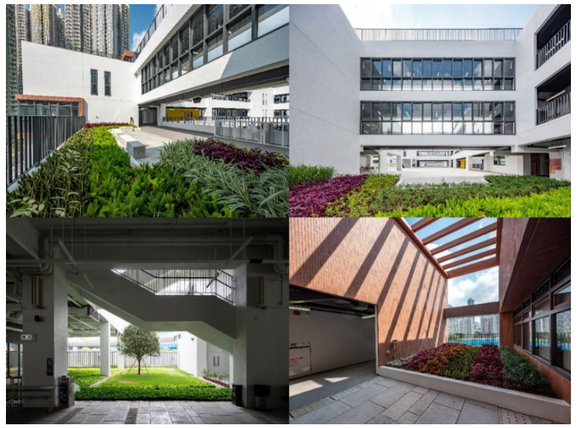

Figure 19: Greenery in Schools

Figure 20: Pak Tin Catholic Primary School completed in 2021

(vi) reduction in noise, air and water pollution during construction through implementing mitigation measures, such as **provision of noise barrier to noise sensitive area, spraying water on the surface of dusty materials and provision of traps and sediment basins to remove sand/silt particles**;

(vii) reduction in construction waste by using **Modular Integrated Construction** (MiC), **Modular Integrated Mechanical, Electrical and Plumbing** (MiMEP), and more precast and prefabricated building elements; and

(viii) use of **Building Information Modelling** (BIM) to enhance the design, construction, and project management as well as reducing the construction waste.

Figure 21: Modular Integrated Construction

Green Technologies, Materials and Devices

2.5 We have also adopted various green technologies, materials and devices in constructing new school building including –

(i) use of **renewable energy** (e.g. photovoltaic system, solar hot water system, light tubes) and alternative source of water (e.g. rainwater harvesting system);

(ii) increased application of **re-usable materials**, in particular metal framework, site hoarding and recycled products;

(iii) improvement to indoor air quality by installing central primary air handling units with **high efficiency filter** and ultra-violet lamp and using low volatile organic compound-emitting building materials;

(iv) use of **environmentally friendly refrigerant** for air-conditioners and chlorofluorocarbon free thermal insulating materials;

(v) use of **energy saving devices** (e.g. sun shading on external elevations, occupancy sensors, photo-sensor controlled lighting, LED general light fittings, LED exit signs, variable refrigerant volume air-conditioning system, direct current motor ceiling fans, demand control system for fresh air system, smart lighting control and variable speed drive system for lifts / pumps / air handling units); and

(vi) use of **water saving devices** such as dual-flush cisterns and sensor-taps for wash basins.

Figure 22: Use of Light Tubes and Solar Panels

Figure 23: Smart Lighting Control in schools

Figure 24: New School Premise Design Model for reprovisioning of Canton Road Government Primary School

(C) ENVIRONMENTAL HOUSEKEEPING MEASURES

Green Management Framework

2.6 A cross-divisional Bureau Green Management Working Group chaired by our Bureau Green Manager at directorate level (i.e. Principal Assistant Secretary (Administration)) with representatives from all divisions has been set up since 1999. It has been overseeing the implementation of green housekeeping programmes; initiating and monitoring the progress of green measures; reviewing the overall strategy for green management in the Bureau; and monitoring energy and paper consumption.

Energy and Carbon Audit

2.7 EDB has worked closely with the Electrical and Mechanical Services Department to identify new energy saving opportunities. As an on-going measures since 2017, we have been carrying out carbon audit for our offices and government schools. In 2021, carbon audits were carried out for five government schools and EDB Kowloon Tong Education Services Centre. The total carbon emission for these six premises (with total floor area of 77,892 m^2 and 1,138 employees) was **2,375 tonnes of CO_2-e**. We have carried out energy saving projects (such as upgrading of lighting to LED tubes, improvement of efficiency of chiller plants and replacement of split-type air-conditioning systems) and taken various measures to take forward the recommendations of the audits.

Figure 25: Five Government Schools selected for Carbon Audit in 2021 (from left)

1. *Chiu Lut Sau Memorial Secondary School*
2. *Kowloon Technical School*
3. *Kwun Tong Government Primary School (Sau Ming Road)*
4. *Shatin Government Secondary School*
5. *Sir Ellis Kadoorie Secondary School (West Kowloon)*

Figure 26: Upgrading of lighting to energy saving LED tubes in 2021 at EDB Kowloon Tong Education Services Centre

Figure 27: Installation of Solar Panels in the Rooftop of Kwun Tong Government Primary School (Sau Ming Road) in June 2021

Economical Consumption of Resources

2.8 We have been striving for economy in the use of resources for environmental protection.

Saving Paper

EDB **consumed about 143,000 reams of paper in 2021**. This was below the respective consumption levels in 2017 to 2019, partly due to the suspension of classes and cancellation of some operational activities during the epidemic. Nevertheless, we will step up efforts in reducing paper consumption through various measures such as printing on both sides of paper, re-using envelopes, use of electronic circulars/notices to release school information, promotion of paperless meetings, implementation of electronic classroom arrangements, and disseminating documents through website and QR codes, etc.

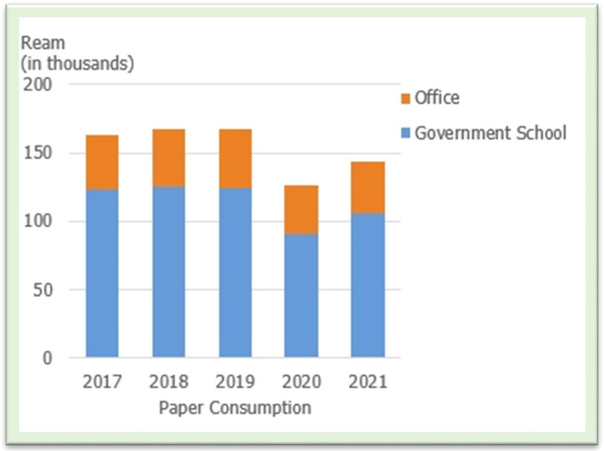

Figure 28: Paper Consumption of EDB

Energy Conservation

EDB constantly monitors energy consumption and seeks to achieve saving in electricity consumption. As set out in *Table 1* below, **energy consumption** of our office premises and government schools in financial year (FY) [Note 1] 2020-21 **reduced by 21.5%** compared to FY 2018-19. Under comparable operating conditions in FY 2018-19, **energy consumption of EDB in FY 2020-21 reduced by 9.3%, discounting the factors relating to class suspension and work-from-home arrangements**.

Table 1: Energy Performance of EDB in FY 2020-21

	Energy consumption before normalisation	Energy consumption after normalisation under comparable operating conditions [Note 2]
FY 2020-21 (million kWh)	25.342	29.178
Net change from FY 2018-19 (baseline year) (million kWh) [Note 3]	-6.927 (-21.5%)	-3.003 (-9.3%)

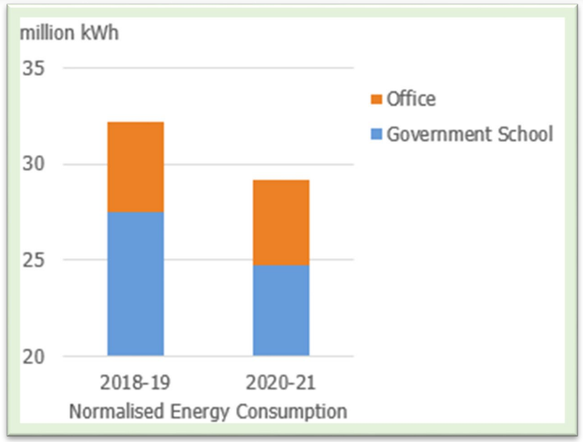

Figure 29: Energy Consumption of EDB

Note 1: A financial year starts from 1 April of a year and ends on 31 March of the following year.

Note 2: Normalisation processes are conducted to calculate the energy consumption under comparable baseline operating conditions in FY2018-19.

Note 3: The net change in energy consumption is computed by comparing with the energy consumption in FY2018-19 (baseline year) (i.e. 32.269 million kWh before normalisation and 32.181 million kWh after normalisation).

Energy Saving Measures

In 2021, we continued to reduced energy consumption by implementing the following housekeeping measures –

- ✓ shortening of operating time of the central air-conditioning systems;
- ✓ switching off air-conditioning and providing only fresh air supply in corridors and common areas;
- ✓ switching off of air-conditioning in the facilities / meeting rooms right after use;
- ✓ using more LED energy-saving tubes in our premises as far as possible;
- ✓ strictly following the Government's policy to maintain the ambient office temperature at 25.5°C;
- ✓ monitoring energy consumption by regular checking and compiling electricity consumption reports; and
- ✓ deploying server virtualisation technology and cloud services to replace traditional servers for further reductions in energy consumption and heat emissions.

Waste Reduction

2.9 EDB has all along adhered to the concept of 4Rs, i.e. reducing, re-using, recycling and replacing, to minimise waste and implement various green measures.

Waste Collection and Recycling

To encourage waste recycling, we continued to provide green boxes to offices and schools for collection of papers, plastic and aluminum wastes for recycling in 2021. EDB's Offices in Wu Chung House (WCH) also participated in EPD's "Competition on Source Separation of Commercial and Industrial Waste 2020/2021" and a Certificate of Merit was awarded to the government offices in WCH including EDB.

Performance in 2021:

- We collected **224 332 kilogrammes of waste paper** for recycling.
- We consumed **117 316 reams of recycled papers**.
- A total of **1 052 used cartridges were returned to the suppliers** concerned for recycling.
- We collected a total of **962 pieces of computer waste for recycling** by contractors.


工商業廢物源頭分類獎勵計劃 2020/21
Commendation Scheme on Source Separation of Commercial and Industrial Waste
優異獎
Certificate of Merit
(特區字樓 Pure Office)
特頒此狀予
This certificate is presented to
胡忠大廈(政府合署)
Wu Chung House (Government Offices)
及
and
第一太平戴維斯物業管理有限公司
Savills Property Management Limited
環境保護署助理署長
Assistant Director
Environmental Protection Department
環境保護署
Environmental Protection Department

Figure 30: Certificate of Merit in "Competition on Source Separation of Commercial and Industrial Waste 2020/2021" obtained by government offices in Wu Chung House

Electronic Communication

We encourage staff to communicate through electronic means, and use the intranet and internet platform and QR codes to disseminate the Bureau's information (updating grade management statistics, training activities, newsletters, etc), and process administrative and personnel matters (e.g. leave applications, bookings of conference rooms and applications for training courses).

Green Purchasing

- In products procurement, we continue to take into account environmental factors such as recyclability and energy efficiency. We also continue to purchase green products like **recycled ink and toner cartridges**.
- Trade-in arrangements for supply of ink and toner printer cartridges were arranged.
- When inviting tenders for new cleansing contracts for our offices and schools, we require tenderers to use **recycled / degradable plastic bags** and **approved cleansing chemical and materials**.

Improvement in Air Quality

2.10 On the front of improving air quality, we have deployed different strategies –

Improvement in Indoor Air Quality

Under the EPD's Indoor Air Quality (IAQ) Certification Scheme, offices in Central Government Offices in Tamar have obtained the "Excellent Class" IAQ Certificate while offices in Wu Chung House and EDB Kowloon Tong Education Services Centre have obtained the "Good Class" IAQ Certificate in 2021.

Use of Fuel-efficient Types of Vehicles

Reducing vehicular emissions is an effective way to improve air quality. We have been using unleaded petrol for our vehicle fleet since 1991. In accordance with the relevant guidelines on Green Procurement in the Government, all our six vehicles have been replaced by environmentally friendly petrol saloon cars with lower emissions and more fuel-efficient engines over the past years. Among these, two are equipped with a "hybrid system" combining a gasoline engine and electric motor power to improve fuel economy and minimise emission of polluting particles. We are considering to replace the remaining four vehicles with hybrid models upon expiry of their life span.

Promotion of Green Driving

To reduce idling emissions and achieve fuel saving, we regularly remind our drivers to strictly comply with the requirements set out in the Motor Vehicle Idling (Fixed Penalty) Ordinance against idling of vehicle engines. Surprise inspections are conducted regularly to ensure compliance.

Economical Pool Car Resources

We have been practising car pooling and task combination, i.e. to achieve multiple objectives in one journey instead of arranging separate trips. Whenever circumstances permit, car pooling arrangement would be made to reduce the use of vehicles and meet transport demands of different users at the same time.

(D) PROMOTIONAL GREEN ACTIVITIES

2.11 We organised a series of activities in 2021 to raise awareness and compliance with green practices amongst colleagues –

Promotional Messages on Newsletter and Intranet

We disseminated green messages, notices and tips through the Bureau's quarterly newsletter "EDB Pulse" and other internal publications on our intranet.

Figure 31: Extracted from "EDB Pulse" (July 2021 Issue)

The 22nd Paper Saving Competition

We organised the 22nd Paper Saving Competition to promote paper saving in daily operation among colleagues working in government schools and offices.

Ms F WONG,
Principal (Belilios Public School)

Ms S K TANG (left), Headmistress, and Ms W B MAK (right), Clerk-in-charge of Hoi Pa Street Government Primary School

Ms Sherrie SIU
Representative of School Administration Division

Figures 32, 33 and 34: Representatives of Prize-winning Teams

Table 2: Result of the 22nd Paper Saving Competition

Group	Prize	Winning Teams
School	Best Performance Award in Paper Saving	Belilios Public School
	Best Progress Award in Paper Saving	Hoi Pa Street Government Primary School
Office	Best Performance Award in Paper Saving	School Administration Division
	Best Progress Award in Paper Saving	School Administration Division

Green Christmas 2021

- In "Green Christmas 2021", we encouraged colleagues to donate second-hand items, including clothing, small electrical appliances and toys. Items collected were donated to Salvation Army for recycling and distribution to people in need (including street sleepers, deprived elderly, etc).

Figure 35: Items donated by EDB staff in Green Christmas 2021

- With a view to promoting paper saving, we also encouraged staff to use e-Christmas cards to share their Christmas blessings.

Figure 36: 2021 EDB e-Christmas card

Figure 37: Landscaping on Roof and Greenery Areas in Kowloon Technical School (top left), Hong Kong Southern District Government Primary School (bottom left) and Kwun Tong Government Primary School (Sau Ming Road) (right)

III. Embracing the Green Era

Embracing the Green Era

Think Green, Learn Green, Work Green

3.1 We fully recognise the importance of environmental protection and green management. EDB will continue to devote efforts and resources to maintaining a high level of green management practices and setting a good example to the community.

Environmental Education

3.2 To support schools in environmental education, we will continue to provide a broad range of services including school visits, teacher education programmes, territory-wide green activities, and learning and teaching resources.

Planned Activities in 2022

- ✓ EDB will continue to provide subsidies to students and eligible teachers to participate in education camps under the **Outdoor Education Camp Scheme** in the 2021/22 and 2022/23 school years;
- ✓ **Four life event exemplars** on topics of **green living, low-carbon diet, green consumption, and global warming** are planned to be provided for primary and secondary schools in 2022; and
- ✓ **Slogan cum poster design competition** is planned to be conducted in 2022 to enhance primary and secondary students' awareness of low carbon living and climate change mitigation respectively.

Figure 38: Beach Cleanups activity organised by Tin Shui Wai Government Primary School in May 2021

Green Projects

3.3 We will strive to reduce electricity consumption, having regard to actual operational requirements, and will implement green designs / proposals / projects based on the recommendations of energy / carbon audits.

Green Projects in the Pipeline

- ✓ Installation of **water-cooled air conditioning** system;

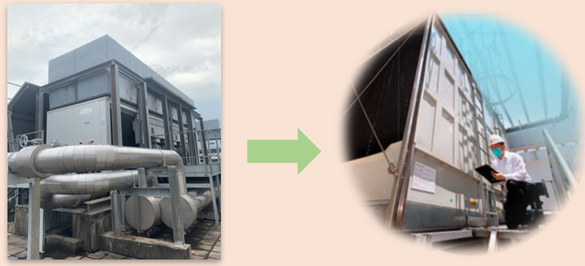

Figure 39: The works of replacing an air-cooled chiller in Kowloon Tong Education Services Centre with a more energy efficient water-cooled chiller will be conducted during mid-2022 to mid-2023

- ✓ Installation of **water flow controllers** in government schools to reduce water consumption; and
- ✓ Replacement of **split-type air conditioners** to achieve energy saving in government schools.

Stepping Up Green Promotion

3.4 In conducting our business, we will continue to economise on the use of resources. We are planning to introduce more effective measures to promote the use of renewable energy, paper saving and staff's awareness and participation in green practices in 2022.

Contact Us

If you have any comments / suggestions, please contact our Bureau Green Manager through any of the following means –

Mail: Room E301, East Block, Education Bureau Kowloon Tong Education Services Centre, 19 Suffolk Road, Kowloon Tong, Hong Kong

Email: edbinfo@edb.gov.hk

Fax: 2117 0081