

# Environmental Report 2017



Education Bureau

# Environmental Report 2017

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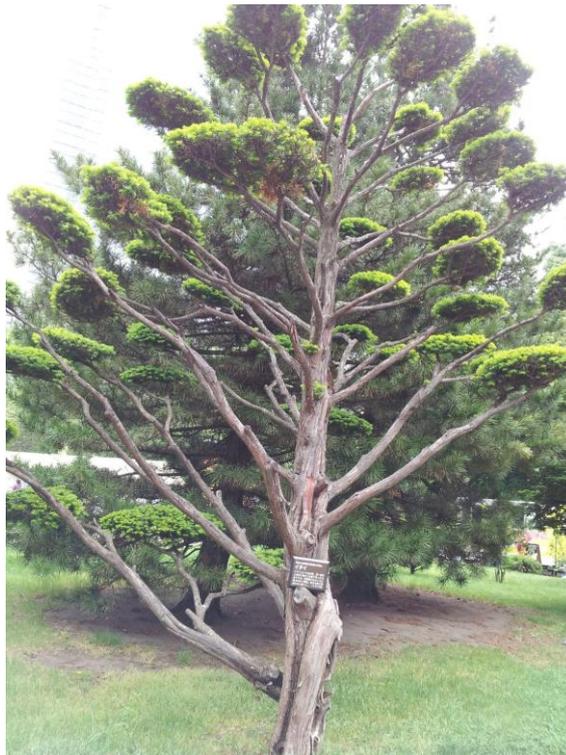
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# Foreword

Maintaining an environmentally friendly surrounding is crucial to the development of our future generations. As a standing policy, we are committed to conserving our environment through various means and delivering our services in an environmentally responsible manner. To take this forward, we undertake to promote environmental education in schools, nurture civic responsibility and an environmentally responsible attitude among our young generation, initiate housekeeping measures to preserve common resources and fully comply with environmental legislation.

The objective of this report is to outline our policies and management measures with respect to environmental issues, our performance in 2017 and our direction for the coming year.



# Controlling Officer's Profile of Key Responsibilities

The Education Bureau is responsible for formulating and reviewing education policy and overseeing the effective implementation of education programmes. We are also the School Sponsoring Body for 34 primary schools and 31 secondary schools in Hong Kong.

The Education Bureau seeks to provide quality education for Hong Kong's students, to develop their potential to the full and to prepare them for challenges in life.

The Bureau had an establishment of 5 884 permanent posts as at 31 December 2017, with offices located in 22 venues throughout Hong Kong. We strive to deliver professional services and ensure effective use of resources.



# Environmental Policy

Our environmental policy is to promote environmental education in schools, to maintain a management system to improve the environmental quality of our activities, to adopt responsible environmental housekeeping practices, to enhance our staff's environmental awareness and to comply with relevant legislation and codes of practice.



# Key Environmental Performance in 2017

## (A) ENVIRONMENTAL EDUCATION

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.

To fulfill the goal of promoting environmental education, various initiatives have been undertaken. They include:

- ✚ issuing curriculum guides and other reference materials to promote environmental education in schools;
- ✚ producing multimedia packages and education television programmes on environmental education;
- ✚ organising school events on environmental education together with various government departments and green groups;
- ✚ incorporating appropriate environmental education elements in school syllabuses at all levels and updating curriculum guides and exemplars to assist schools in planning environmental education programmes; and
- ✚ supporting the “Greening for the Chest” Campaign organised by the Community Chest of Hong Kong.



## 1. Interaction with Schools

### (a) School Inspections and Visits

We conducted 8 school visits on General Studies for Primary Curriculum in 2017 giving advice to teachers on the implementation of environmental education. Schools were also encouraged to formulate an environmental school policy and implement measures on energy conservation.

### (b) Provision of Resources to Schools

✚ 6 Professional Development Programmes related to environmental education were provided for Liberal Studies teachers. The programmes covered environmental issues in Hong Kong, the Mainland of China and other countries, such as energy and sustainable development in China and overseas experience in achieving sustainable communities.



✚ 20 teaching packages and resources materials were provided for Liberal Studies teachers on social issues related to the environment and sustainable development, such as air pollution and solid waste management.

✚ A total of 5 training programmes in the form of seminars and visits on Education for Sustainable Development were organised. Schools' good practices on green school policies and food waste reduction were disseminated.

✚ 3 on-site professional development programmes were conducted in the 2016/17 school year to enhance teachers' capabilities in organising life-wide learning activities related to environmental protection education.

✚ A seminar on “Encouraging a Low-carbon Lifestyle for Promoting Education for Sustainable Development” was conducted to disseminate schools' good practices on promoting low-carbon lifestyle. Talk on climate change was also delivered. 2 sets of resource materials, with one on low-carbon lifestyle and the other on renewable energy, were produced.

✚ A web-based environmental education learning package on “Education for Sustainable Development in Schools in Hong Kong” was developed.

- ✚ A set of learning and teaching resources materials on “Green Living” in the form of CD ROM was produced for the subject of General Studies and distributed to primary schools.

**(c) School Activities to Promote Environmental Awareness**

- ✚ Funding was provided for 363 school visits to the Mai Po Nature Reserve.

- ✚ **Student Environmental Protection Ambassador Scheme (SEPAS) 2017/18**

- ✚ SEPAS 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 2017/18 was “Nature and Biodiversity” to encourage students to understand biodiversity and its importance and to take action to conserve the nature.



- ✚ A total of 363 primary and secondary schools participated in the SEPAS 2017/18. As at September 2017, 10 158 Student Environmental Protection Ambassadors (SEPAAs) were appointed to assist teachers in organising environmental education activities. The SEPAAs, schools and families 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 would be introduced to them through a series of environmental training and activities.



## ✚ The sixteenth Hong Kong Green School Award Scheme (16<sup>th</sup> HKGSAS)

- ✚ This award was organised in collaboration with the EPD and the Environmental Campaign Committee to promote environmental protection in schools.
- ✚ A total of 229 pre-schools, primary and secondary schools participated in the Scheme.
- ✚ Hoi Pa Street Government Primary School and Wong Tai Sin Government Primary School were awarded the title of “Hong Kong Green School”.



## ✚ Inter-school Cross-curricular Project Competition on Climate Change 2016/17

- ✚ The Competition has been accredited as one of the 20th Anniversary Celebration events of the HKSAR, as well as an event under the “Climate Ready@HK” Campaign.
- ✚ A total of 103 primary and secondary schools forming 138 teams joined the Competition, with 21 teams of primary and secondary students receiving awards on “Best Invention”, “Best Investigative Study” and “Outstanding Geographic Information System (GIS) Application”.

- 3 green study trips to Seoul, Qingdao and Guangzhou were organised for the winning teams of the Competition in June and July 2017.



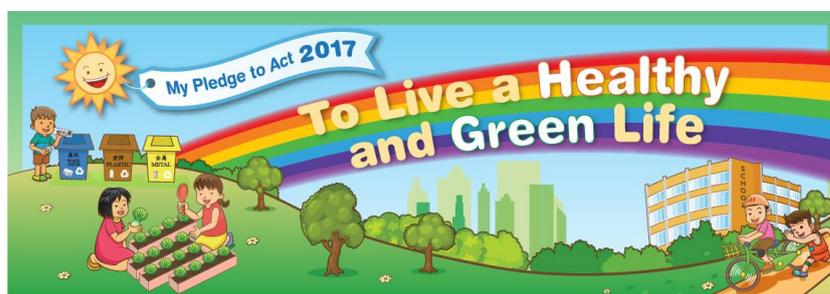
#### Outdoor Education Camp Scheme (OECS)

- We supported schools in organising OECS in which enhancing students' awareness of environmental protection was one of the learning elements. Some schools adopted environmental protection as the main theme of the OECS, such as "Green Living" and "Saving Energy". Related themes or activities included "Nature and I", "Science and Ecology Trips", "Climatology, Geography and Ecology Study Camps", etc.
- A total of 75 699 students, including 24 452 secondary and 51 247 primary students from 841 schools (313 secondary and 528 primary schools), participated in the OECS in the 2016/17 school year.



## ✚ My Pledge to Act 2017

- ✚ The theme of My Pledge to Act 2017 was “To Live a Healthy and Green Life”, which aimed at encouraging students to cultivate environmentally friendly living habits and lead a healthy lifestyle. It aroused students’ awareness of the current environmental problems and encouraged their willingness to take action in their daily lives to protect the environment. At the same time, students’ positive values and attitudes, including perseverance, responsibility and commitment, could be nurtured through enhancing their understanding of the health benefits of adopting a green lifestyle.



## ✚ Waste Separation and Recycling Scheme in Schools (WSRSS)

- ✚ 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. As at the end of 2017, the participating schools collected about 180 097 kilograms of waste paper and 158 435 kilograms of plastic materials.





■ In addition, about 10 741 kilograms of metal was collected.

## 2. Building Partnerships

We collaborated with various government departments and relevant green groups to promote environmental protection. We participated in the following working group, committees and subcommittee in 2017 to provide advice on the organisation of school activities and production of resources materials to schools:

+ Community Involvement Committee on Greening

+ Environmental and Conservation Fund Committee

+ Environmental Campaign Committee

+ Environmental Campaign Committee – Environmental Education & Community Action Projects Vetting Subcommittee

+ Environmental Campaign Committee – Education Working Group

+ Hong Kong Green Building Council (HKGBC) – Public Education Committee

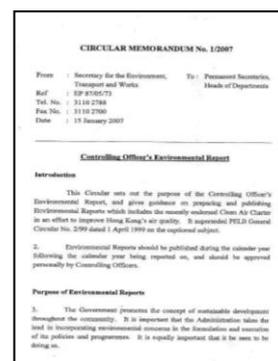
+ World Wild Fund for Nature Hong Kong Education Committee

+ Management Committee of Lung Fu Shan Environmental Education Centre



## **(B) GREEN MANAGEMENT FRAMEWORK**

To put in place an effective management framework, Principal Assistant Secretary (Administration) has been appointed the Green Manager of the Bureau to oversee environmental protection issues. Under her chairmanship, a cross-divisional Bureau Green Management Working Group with representatives from all divisions set up since 1999 has been overseeing the implementation of green housekeeping programmes. Apart from serving as the focal point for directing and addressing energy and environmental management issues and strengthening green efforts in the Bureau, the Working Group also initiates and monitors the progress of green measures and reviews the overall strategy for green management in the Bureau.



A two-tier Energy Manager Scheme has been introduced to promote and monitor green measures in the Bureau:

### **1. Green Managers at Divisional Level**

15 Energy Managers have been appointed at divisional level to oversee the implementation of energy saving and green measures.

### **2. Assistant Energy Managers and Green Executives at Sectional Level**

Environmental audit and inspection teams with 43 Assistant Energy Managers and 47 Green Executives have been set up at sectional level to perform energy conservation duties and implement green measures, such as conducting regular checks, tendering advice to staff concerned and monitoring energy consumption. They also function as Energy and Emission Management Teams to co-ordinate measures to reduce energy and paper consumption.

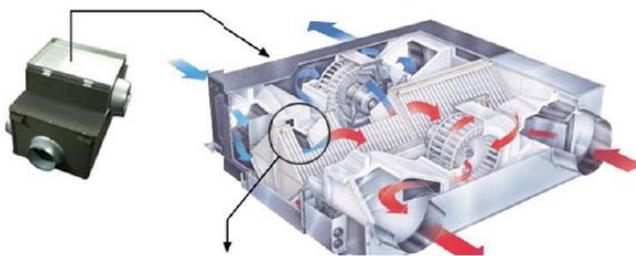
Furthermore, electricity consumption of all offices is critically reviewed and closely monitored at the regular Green Management Working Group meetings.

## (C) IN-HOUSE HOUSEKEEPING MEASURES

### 1. Design and Construction Works for New Schools

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

- reduction in noise, air and water pollution during construction through implementation of mitigation measures;
- use of renewable energy (e.g. photovoltaic system) and alternative source of water (e.g. treated rain water ) as far as practicable;
- reduction in construction waste by using more precast and prefabricated building elements;
- increased application of re-usable materials, in particular metal framework, site hoarding and recycled products;
- improvement to indoor air quality by installing fresh air pre-conditioners in classrooms and using low volatile organic compound-emitting building materials;



- use of environmentally friendly refrigerant for air-conditioners;

- use of energy saving devices such as sun shading on external elevations, occupancy sensors, photo-sensor controlled lighting, LED general light fittings, LED exit signs, variable refrigerant volume air-conditioning system and fresh air pre-conditioners;



- use of water saving devices such as dual-flush cisterns and sensor-taps for wash basins;



- increased landscaping in school playgrounds and upper levels and roof floor of school (including vertical greening) for a greener environment in schools and campuses;



- 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;



- provision of adequate space and waste separation bins to facilitate separation, collection and storage of recyclable materials for recycling;
- use of shared facilities among schools to enable a greener and more spacious environment in these schools;
- introduction of hygiene improvement measures to schools, including toilet provision without main entrance doors and hand-washing facilities in playgrounds; and
- provision of Central Food Portioning Area to facilitate the use of re-usable cutlery and food containers and to reduce food wastage.



Hybrid type solar energy collector



Hybrid type lamp pole



Mono-crystalline PV panels



Semi-transparent amorphous PV panels



Solar powered LED bollard light



LED accent lighting

## 2. Environmental Policy and Energy Saving Measures in Schools

To take collaborative actions to face the challenge arising from global climate change, we issued a circular in April 2017 to remind all schools to formulate and put in place a school-based environmental policy and implement measures for energy saving, aiming to enhance students' environmental awareness, develop their environmentally friendly attitude and promote green practices and environmental education. To adopt best practices for energy saving, schools are reminded to maintain an average indoor temperature between 24°C and 26°C during the summer months as far as practicable. An environmentally friendly lifestyle among students has also been promoted via a circular on green lunch and reduction of food waste in school issued in June 2016. Under the "Greening for the Chest" Campaign collaborated by our Community Youth Club, we encouraged schools to support the green campaign of 2017-18 through EDB Circular Memorandum No. 158/2017.

Ref: EDB(SA)/ADM/150/5/39/1(6) Government of the HKSAR  
Education Bureau  
20 April 2017

Education Bureau Circular No. 4/2017  
Environmental Policy and Energy Saving Measures in Schools

[Note: This circular should be read by –  
(a) Supervisors / Heads of all schools – for necessary action, and  
(b) Heads of Sections – for information.]

SUMMARY

This circular aims to remind schools of the importance of formulating a school-based environmental policy and implementing measures for energy saving, and provide updates on the related information and resources. It supersedes the Education Bureau (EDB) Circular Nos. 7/2006 and 12/2006 dated 26 May 2006 and 22 November 2006 respectively.

DETAILS

(f) Environmental Policy for Schools

2. Climate change is now a great global challenge. As in other places, Hong Kong should get ready to take collaborative actions to rise to this challenge. In this connection, all schools are urged to formulate and put in place their school-based environmental policy which aims to enhance students' environmental awareness, develop their environmentally friendly attitude, and promote green practices and environmental education as a whole so as to prepare students for making well-informed, justifiable and practical decisions and taking actions in response to the impact of climate change. The environmental policy, which should be endorsed by the School Management Committee (SMC) / Incorporated Management Committee (IMC) of schools, is expected to be reported regularly at the SMC / IMC meetings for ongoing review and sustainable development.

3. The environmental policy should, inter alia, lay down (i) schools' commitments to regulatory compliance, prevention of pollution and continual improvement on environmental management, such as in waste reduction and energy saving, and the promotion of environmental protection to all members of the school; (ii) their mission, vision and beliefs towards the environment; and (iii) strategies to

Ref: EDB(SAS1)/SA-POL/10(I) Government of the HKSAR  
Education Bureau  
1 June 2016

Education Bureau Circular No. 3/2016  
Arrangements for Green Lunch and Reduction of Food Waste in School

[Note: This circular should be read by –  
(a) Supervisors and Heads of all primary and secondary schools and kindergartens for necessary action, and  
(b) Heads of Sections for information.]

SUMMARY

This circular serves to provide schools with practical guidelines on green lunch and reduction of food waste in school. This circular supersedes Education Bureau (EDB) Circular No. 18/2009 dated 3 September 2009 and should be read in conjunction with Education Bureau Circular No. 17/2009 on Meal Arrangements in School.

DETAILS

2. Appropriate green lunch arrangements in school are conducive to promoting an environmentally friendly lifestyle among students. To realize the concept of green lunch, schools should follow the principle of reducing waste and minimizing wastage at all times.

3. Schools are requested to adopt/continue with the following practices:

(a) To use reusable food containers and cutlery;  
(b) To facilitate students to bring and use reusable cutlery given to them. If spare sets of cutlery are provided to students who have forgotten to bring their own, they should also be reusable.  
(c) To implement on-site meal portioning as far as practicable. If situation of the school does not allow students to take meal in a designated dining area, students taking their meal portioned in classrooms should be considered as an alternative where appropriate;  
(d) To portion out food in a flexible manner. If on-site portioned meal service is adopted, schools should avoid serving excessive food to

EDUCATION BUREAU  
CIRCULAR MEMORANDUM NO. 158/2017

From : Secretary for Education To : Heads of all Primary and Secondary Schools  
Ref : EDB(ESP/CYC/24/3)(10)  
Date : 8 September 2017

"Greening for the Chest" Campaign 2017/18

Summary

The Community Chest of Hong Kong is organizing a "Greening for the Chest" Campaign to help improve the environment of Hong Kong and to raise funds for The Community Chest. This Campaign is collaborated by the Education Bureau's Community Youth Club (CYC). Heads of schools are requested to encourage their teachers and students to support by organizing teams to participate in the Campaign.

Details

2. The "Greening for the Chest" Campaign 2017/18 will include the following activities:

Fund Raising Activities  
(a) Cleaning for Charity, Hiking for Charity and Green Acts for Charity  
(b) Charity Fund Sale

Details of these activities and the application forms provided by The Community Chest are attached.

3. CYC member schools that wish to join the fund raising activity in paragraphs 2(a) & (b) above organized by the CYC District Executive Committees need not complete the forms. Details will be announced by the relevant CYC District Executive Committee at a later stage.

4. Non-CYC member schools interested in participating as school-based/joint school teams in the fund raising activity are requested to complete and return the attached Form 1 by email (email: greening@communitychest.org) or by fax (no.:2566 1201) to The Community Chest of Hong Kong on or before 31 October 2017.

5. A poster and leaflet for this Campaign prepared by The Community Chest will be sent to schools by mail. Schools are requested to display the poster at a prominent place in the campus.

Enquiry

6. For enquiry, please contact The Community Chest Office at 2599 4111 or the CYC Office at 2892 6660.

Ms Margaret KWAN  
for Secretary for Education

c.c. Heads of Sections - for information

### 3. Energy and Carbon Audit

We worked closely with the Electrical and Mechanical Services Department (EMSD) to identify new energy saving opportunities. The EMSD completed energy audits in our offices in Wu Chung House, Kowloon Tong Education Services Centre, Central Government Offices in Tamar as well as three government primary schools in 2016. Carbon audit for our offices in Central Government Offices has been carried

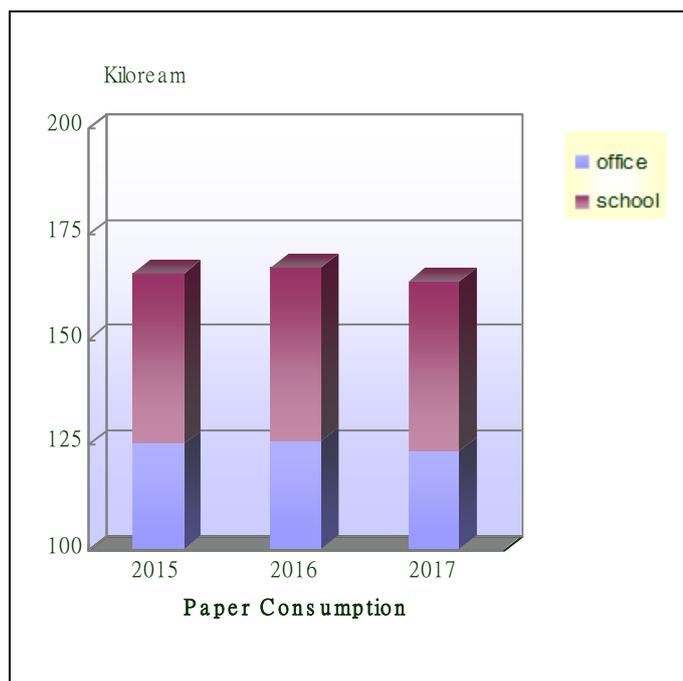
out since 2013 as an on-going measure. In 2017, carbon audits were carried out for 25 government schools and Kowloon Tong Education Services Centre covering the period from 1 April to 31 December 2017. The total carbon emission for these 26 premises was 11 628.3 tonnes of CO<sub>2</sub> -e. We have carried out energy saving projects (such as installation of lift regenerative devices, improvement of efficiency of chiller plants and replacement of split-type air-conditioning systems) and taken various measures (including removing part of the fluorescent lamps in over-lit areas, switching off some passenger lifts during non-peak hours and adding occupancy sensor control in toilets) to take forward the recommendations of the energy / carbon audits.



#### 4. Consumption of Resources

##### (a) Saving Paper and Electricity

We have been making continuous efforts in economising the use of paper and reducing electricity consumption. Compared with last year, our paper consumption was reduced by 2%.

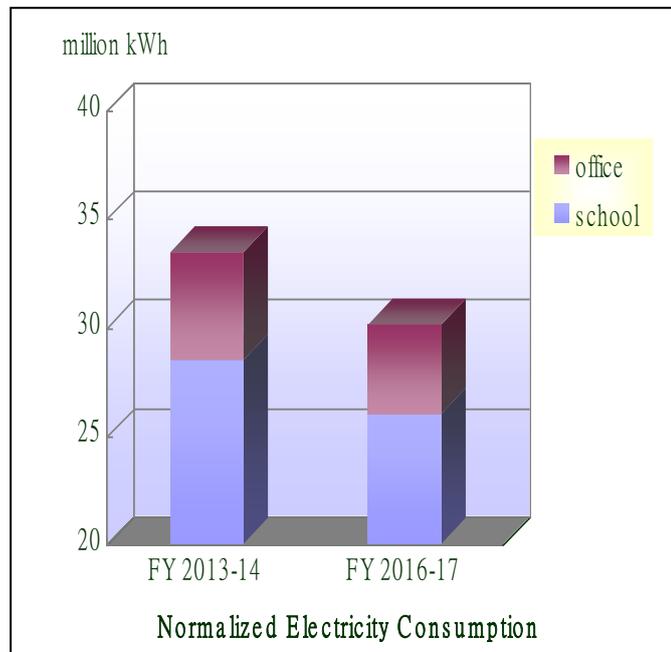


Electricity consumption of our government buildings in FY 2016-17 is compared with the base line in 2013-14 below:

|                           | Electricity consumption<br>(million kWh) | Electricity consumption under<br>comparable operating conditions<br>(million kWh) |
|---------------------------|--|---|
| FY 2013-14<br>(base line) | 33.399                                   | Not applicable  |
| FY 2016-17                | 33.849<br>(+1.3%)                        | 31.576<br>(-5.5%)   |

As set out above, electricity consumption of our government buildings has increased by 1.3% from FY 2013-14 to FY 2016-17, taking into consideration the major factors such as the increase in number and total area of office premises, increase in number of staff and increased utilisation of facilities and departmental activities.

Under comparable operating conditions of FY 2013-14, saving in electricity consumption in FY 2016-17 was 5.5% after the implementation of housekeeping measures, including shortening of operating time of the central air-conditioning system, switching off of air-conditioning in the facility / meeting room right after use, etc.



We shall continue to maintain our efforts to achieve savings in electricity and paper consumption.

### (b) Conserving Energy

We shall continue to adopt energy-efficient measures and sustain our efforts in reducing energy consumption.

- Energy saving fluorescent tubes with electronic ballasts and light bulbs are used in our offices as far as possible.



- We have been strictly following the Government's policy to maintain the ambient office temperature at 25.5 °C.



- Electricity consumption reports were compiled on a quarterly basis. Internal energy audits were conducted periodically.
- Moreover, our Information Technology Management Division has deployed server virtualisation technology and cloud services to reduce energy consumption. This also reduces the need to procure new IT equipment.
- At present, there are over 500 virtual servers in the Bureau. There are also 6 systems running in the cloud environment of the service providers. We shall continue to deploy technologies to reduce energy consumption where applicable.



## 5. Reduction of Air Pollution

### (a) Use of Fuel Efficient Types of Vehicles

Vehicular emissions are the major local source of air pollution and reducing emissions from vehicles is an effective way to improve air quality. We have been using unleaded petrol for our vehicle fleet since 1991.



We have gradually replaced all our six vehicles by environmentally friendly petrol saloon cars with lower emissions and more fuel-efficient engines over the past years. Among these, three are equipped with a “hybrid system” combining a gasoline engine and electric motor power to improve fuel economy and minimise emission of polluting particles.

### (b) Promotion of Green Driving

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



**(c) Economical Pool Car Resources**

Furthermore, 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 at the same time to meet transport demands of different users.

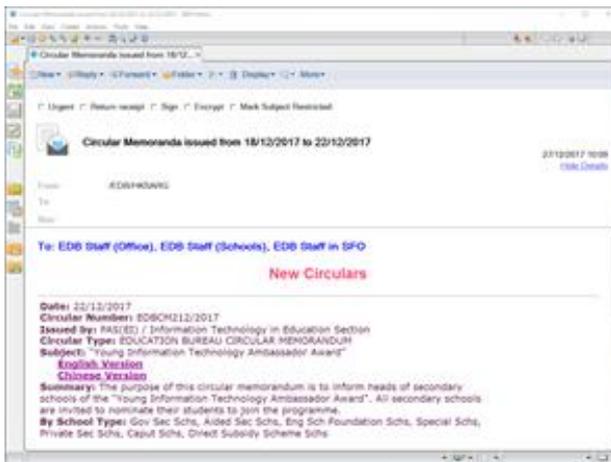


## 6. Highlights of Other Green Measures in 2017

We have all along adhered to the 4Rs principles of “Reduce, Re-use, Recycle and Replace disposable products” and focused on minimising waste and implementing various green measures on an on-going basis.

### (a) Minimising and Reducing Wastes

#### (i) *Using Electronic Means of Communication*



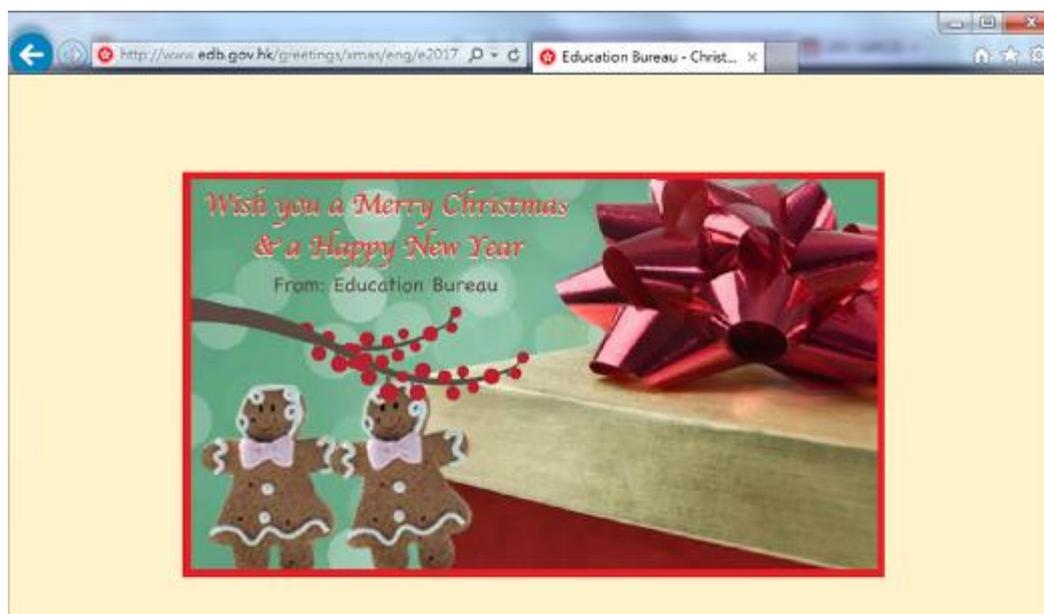
- With a view to promoting paperless operation in our daily work and reducing the use of paper, staff in the Bureau are provided with email accounts and use of electronic mails has become the most popular means of communication in the Bureau.

- Staff in the Bureau are provided with intranet accounts. The intranet platform has been widely used to disseminate the Bureau’s information (including telephone directory, updates on grade management statistics, training activities, newsletters, etc.) and process administrative and personnel matters (e.g. bookings of conference rooms, leave applications and applications for training courses). We encourage staff to exchange documents through electronic means.



(ii) **Electronic Christmas Cards**

- As one of our paper-saving measures, we used e-cards to send Christmas and New Year greetings to our working partners. Staff were also encouraged to use the GovHK Internal e-Card Platform to distribute e-cards.



(b) **Re-use and Waste Recycling**

As an integral part of our green strategy, we have put in place the following recycling programme:

(i) **Green Purchasing**

- In procurement of products, we took into account environmental factors such as recyclability and energy efficiency as far as applicable. We also purchased green products like recycled ink and toner cartridges.
- We supported procurement of green products for use in the Bureau. In arranging tenders, we included common environmentally friendly terms such as trade-in clauses, recycling arrangements, etc. as far as practicable. Trade-in arrangements for supply of ink and toner printer cartridges were arranged. In this connection, a total of 2 596 used cartridges were returned to the suppliers concerned for recycling or public auction in 2017. Furthermore, we collected a total of



2 757 pieces of computer waste for recycling either by contractors under the disposal contracts or through public auction.

- When inviting tenders for new cleansing contracts for our offices and schools, we required tenderers to include use of recycled / degradable plastic bags and approved cleansing chemical and materials in the service schedule.

### ***(ii) Collecting Waste***



- We joined the EPD’s “Programme on Source Separation of Commercial and Industrial Waste” and provided green boxes in offices and schools for collection of papers, plastic and aluminium wastes for recycling.

- We collected a total of 181 969 kilograms of waste paper for recycling throughout the year.

- We participated in the “Waste Check Charter” launched by the EPD and actively promoted waste reduction and recycling through waste reduction plan and waste measurement in our offices in Central Government Offices and Kowloon Tong Education Services Centre.



### ***(iii) Use of Recycled Paper***

- Following the EPD’s recommendation of wider use of recycled paper, we consumed 95 939 reams of recycled papers in 2017.
- We continued with our efforts in reducing paper consumption and measures, such as printing on both sides of paper and re-using envelopes.



(iv) *Green Christmas*

- In the exercise of “Donation of Clothing, Small Electrical Appliances and Toys” launched during Christmas 2017, we collected clothing, small electrical appliances and toys from colleagues for recycling donation to the Salvation Army.



(c) **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 Kowloon Tong Education Services Centre have obtained the “Good Class” IAQ Certificate in 2017. We will continue to monitor the indoor air quality regularly to ensure the IAQ meets the standard promulgated by the EPD.



## (d) Promotional Green Activities

We organised a series of activities to promote green management in the Bureau in 2017, including:

### (i) *The Eighteenth Paper Saving Competition*

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



### Winning Teams

#### Prize

Best Performance  
Award in Paper Saving

- Quality Assurance and School-based Support Division
- Tseung Kwan O Government Secondary School

Best Progress Award in  
Paper Saving

- Quality Assurance and School-based Support Division
- Ma Tau Chung Government Primary School

(ii) Promotional Messages on Newsletter and Bureau Intranet

- To encourage direct participation by colleagues and appeal for their support and contribution in protecting the environment, we disseminated green messages and notices and green tips in the Bureau's newsletter "EDB Pulse" and other internal publications through the EDB intranet.

**教育局脈搏**

本校展品負責人黎孝榮、謝榮俊、吳學基及陳麗儀介紹「小植人」。

**學生科展顯·潛能  
連繫人與大自然**  
何文田官立中學

何文田官立中學學生於第四十九屆聯校科學展覽憑藉發明品「小植人」，先後奪得計劃書設計比賽冠軍及科學展覽全場總冠軍。

香港科技園公司主席蕭范淑芬女士在科學展覽開幕禮上頒發計劃書設計比賽冠軍獎座予本校得獎學生。

**49TH JOINT SCHOOL SCIENCE EXH  
第四十九屆聯校科學展覽**

**展品簡介**

人與大自然的關係密不可分，但隨着現代生活的城市化及科技化，人與大自然的接觸亦逐漸減弱。本校參賽同學根據科學展覽的年度主題——「綠繫」，研發出智能花盆「小植人」。「小植人」令種植盆栽變得更有意思，既培養大家對栽種植物的興趣，也拉近了人和自然的關係。

你可曾想過盆栽能跟你說出它的生長需要嗎？「小植人」內置的風速、光度和溫度感測器可檢測及記錄植物的生長情況，透過裝置上的液晶螢幕及同學編寫的網頁，植物主人可隨時隨地留意植物的生長狀態，提供適時照顧。展覽場上「小植人」發出的語音訊息吸引參觀人士，當植物水份不足時，「小植人」便會「說」：「我很口渴！你能夠給我一些水嗎？」這功能同時有利視障人士種植盆栽。

**發明品「小植人」**

**老師感想**

參加聯校科學展覽，同學需要結合自己已有的科學知識和常規課程以外的科技知識，解決研發過程的問題。參賽前，同學只曾於課外興趣小組中學寫編寫簡單程式，但在製作展品期間，同學須閱讀有關的學術文獻，嘗試編寫一系列的程式。

這次參展亦讓同學了解到，科學研究對中學生而言未必是遙不可及，而創新科技的靈感往往源於日常觀察。在構思設計時，同學察覺到都市人鮮有時間在家栽種植物；同時，智能產品已成為大部份人日常生活中不可或缺的隨身工具。基於這兩項觀察，同學靈機一觸，構思利用普及的智能產品打破人與大自然之間的隔閡。同學對於科技創新的感受，或可藉其中一位展品負責人梁孝嘉同學在一次採訪中的說話作總結：「科技對生活的影響比我們想像的更大，只要我們多一點觀察，多一點留意身邊的事物，往往就能帶來突破和嘗試。」

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# Way Forward

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



In terms of education, we will continue to encourage schools to develop a green culture, and to equip students with the knowledge, skills and attitude to become environmentally friendly citizens. 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.

Within the Bureau, we will strive to reduce electricity consumption having regard to actual operational requirements and will implement energy saving proposals / projects according to the recommendations of energy / carbon audits, e.g. installation of lift regenerative device, improvement of efficiency of chiller plants and replacement of split-type air-conditioning systems.



## TARGETS FOR 2018

Our targets for promotion of environmental education in the 2017/18 school year are as follows:

| <i>Key Action Area</i>  | <i>Targets for 2017/18 School Year</i>   |
|---|--|
| <ul style="list-style-type: none"> <li>■ Conducting school inspections and visits to give advice on environmental education</li> <li>■ Organising school activities to enhance students' awareness of environmental protection</li> </ul> | <ul style="list-style-type: none"> <li>■ To advise schools on environmental education during school visits and other learning experience activities</li> <li>■ To fund 400 school visits to the Mai Po Nature Reserve</li> <li>■ To organise activities in collaboration with various government departments and non-government organisations to promote green living</li> <li>■ To subsidise schools through the "Outdoor Education Camp Scheme" with the aims to deepen students' understanding and love of the nature as well as enhance their awareness of environmental protection</li> </ul> |
| <ul style="list-style-type: none"> <li>■ Providing advice on organisation of school activities and production of resource materials for schools to promote environmental protection</li> </ul>  | <ul style="list-style-type: none"> <li>■ To enrich the web-based learning and teaching resources, such as the life event exemplars relating to environmental education</li> </ul>  |



In conducting our business, we will continue to economise on the use of resources and minimise waste. In the coming year, we will continue to:

1. initiate and promote environmentally friendly housekeeping practices;
2. conduct indoor air quality check and devise more effective measures to improve air quality;
3. implement housekeeping measures and best practices for energy saving and conduct energy / carbon audits where necessary with a view to achieving energy saving;
4. implement improvement measures to achieve further energy conservation according to the recommendations of energy / carbon audits;
5. promote the use of renewable energy;
6. promote and encourage saving of paper among staff through organising activities and publishing encouraging messages in internal publications;
7. promote the use of electronic means of communication within the Bureau; and
8. organise activities and training to promote staff's awareness and participation in green management.



# Contact Us



If you have any comments / suggestions, please send them to the Centre Manager (Address: Room E301, East Block, Kowloon Tong Education Services Centre, 19 Suffolk Road, Kowloon Tong, Hong Kong; Email address: [edbinfo@edb.gov.hk](mailto:edbinfo@edb.gov.hk); Fax no.: 2117 0081). Thank you.

