香港浸會大學
HONG KONG BAPTIST UNIVERSITY

Campus Sustainability Guide

By the Task Force on Sustainable Campus

January 2016

FOREWORD

Consensus has been reached by scientists and leaders that climate change and the corresponding challenges of environmental sustainability pose an unprecedented threat to the present and future mankind. Universities are at the frontiers of combating climate change by researching scientific breakthroughs and contributing to the transmission of intergenerational knowledge to educate future leaders.

Mr. Andy Lee Shiu-chuen

Chairman of Environmental Health and Safety Committee cum
Vice-President (Administration) and Secretary

Hong Kong Baptist University has positioned itself at the forefront of such efforts by supporting research in relation to global climate challenges, and by building a sustainable low-carbon campus. In this regard, we seek the active support of each and every member of the University. This Guide has been established to assist members of the University community to contribute to the concerted efforts for enhancing environmental sustainability.

I would encourage every member of the University community to follow the Guide as far as possible. I would also welcome any feedback on the Guide so that it can be further improved.

FOREWORD

Dr. Chung Shan Shan

Convenor of Task Force on Sustainable Campus
Assistant Professor of Department of Biology

Echoing to the overarching goal to build a sustainable low-carbon campus and to develop a sustainable culture, the Task Force on Sustainable Campus has been established to devise strategies for promoting low-carbon campus practices.

The sustainability performance of the University has been recognised by receiving a number of awards including a Silver Award in the Sectoral Awards - Public Organisations and Utilities and granted "Class of Excellence" Wastewi$e Label by the Hong Kong Awards for Environmental Excellence as well as the Gold Prize in the "Green Purchaswi$e Award (Corporation)" category of the Hong Kong Green Awards 2010.

It is evident that the University has spared no effort to develop a low-carbon campus. These achievements benchmarked the commitments and acknowledged the efforts of the University, bringing tremendous encouragement to our past and future campus sustainability initiatives. We are looking forward to taking further positive actions to build a sustainable campus.

This Guide offers excellent practical recommendations in line with the Sustainable Policy for developing a low-carbon campus. With the collaborative efforts and tremendous support of each and every member of University, I have no doubt that we are going to scale new heights in the future.

Contents

1. Introduction

Throughout Hong Kong, buildings consume 90% of our electricity and are estimated to produce up to 67% of total local carbon emissions. Having implemented the new academic system under the 4-year undergraduate curriculum since 2012, the University has welcomed a fast growing population to the campus. This has led to a significant increase in the demands upon and rapid development of campus facilities, which have in turn resulted in heavy energy consumption. According to the Hong Kong Ecological Footprint Report 2010, local paper consumption recently reached 86 kg per person per year. To produce 1 tonne of paper, an average of 24 trees are required. Currently, there are over 45,000 students and staff at Hong Kong Baptist University (HKBU), hence it is clear that the amount of paper required for everyday operations is potentially enormous.

On the other hand, the freshwater supplies in Hong Kong are under threat due to environmental factors including wasteful lifestyles, pollutions, climate change and resource mismanagement. Therefore, it is crucial to harness every effort when seeking to create a more environment-friendly and resilient campus where students and staff learn, work and live. In order to achieve this goal, each and every member is encouraged to contribute by making small but still significant adjustments to his or her lifestyle and habits.

This Guide offers one means of sharing knowledge and experience, by enhancing the awareness of students and staff in environmental impacts associated with daily work practices and studies, as well as to provide useful ideas and opportunities for members of our community when reflecting upon how they may better appreciate specific principles of our campus sustainability policy.

The aims of the Guide are to:

i. Introduce the Sustainability Policy of HKBU
ii. Provide recommendations on achieving a sustainable campus
iii. Highlight each University member's role when promoting sustainable a campus culture

2. Sustainability Policy

The sustainability policy has been established since 2010, aiming to promote sustainable development and to achieve long-term value creation for the University community. The sustainability performance of the University is regularly evaluated and the policy has been reviewed in November 2015 for continuous improvement and accomplishment.

PREAMBLE

Hong Kong Baptist University aspires to attain the highest possible standards of low carbon campuses and to cultivate a culture in which sustainability and environmental responsibility permeates our everyday learning, teaching and research activities. We are committed to taking on our social responsibility in outreaching and partnering with the wider community to achieve a sustainable society. We strive to surpass applicable standards of sustainability in our facilities and will monitor the impact of our daily operations in the natural world. Our goal is – through our academic and communal pursuits, knowledge and wisdom sharing for harmonious living and good corporate citizenship practices – to be at the forefront of higher educational institutions in securing a greener and more resource efficient future.

POLICY STATEMENT

We, as a University, undertake to put into practice the principle of sustainability that involves balancing environmental, social, economic and cultural considerations in all aspects of operation through:

Resource and Energy:

a. Continually raising energy consumption efficiencies by strategic conservation means, including University-wide adoption of electricity, water and fuel saving measures, recycling of materials and environmental friendly commutation.

b. Utilising materials, services and technologies with less negative environmental impacts demonstrated by expanding green procurement, adopting renewable energies and other low carbon technologies.

Green Campus:

c. Integrating sustainable features into new building design and application.

d. Ensuring that all campus development will be compatible with the surrounding natural and cultural environments, and enhance the natural biodiversity of local areas wherever possible.

e. Complying with all relevant legislation while exploring ways to extend beyond stipulated standards.

Sustainable Culture:

f. Instilling environmental literacy and a prudent sense of responsibility for the future into the goal of educating the whole person.

g. Fostering a culture of sustainability and promoting green lifestyles in the University community through curricular, co-curricular and extra-curricular activities.

h. Contributing to the sustainability wisdom and knowledge development by conducting sustainability-pertaining research studies.

i. Engaging the public to address the issues of climate change and to raise our environmental awareness.

The responsibilities in this policy are shared by all individuals of the University. The policy will also be made available and known to all stakeholders including alumni, suppliers, contractors, service providers, government and the public. Regular sustainability performance monitoring is to be performed to ensure the progressive reduction of our ecological footprints.

3. Electricity Conservation

According to the latest figures measuring HKBU's carbon footprint, average annual energy consumption accounted for more than 95% of our total greenhouse gas emissions. Therefore, reducing electricity consumption for building operations will be necessary when seeking to reduce the carbon footprint at the University. In particular, the use of air-conditioning systems contributes more than 50% to the University's total electricity consumption.

The Estates Office and the Task Force on Sustainable Campus continuously monitor electricity consumption patterns and explore sustainable opportunities so as to achieve more robust energy savings for the University, especially by the light of emerging sustainability trends and eco-technology solutions. Additionally, in aggregate individuals' personal habits have been proven to greatly influence long-term levels of energy consumption, including diverse uses of air-conditioning, lighting and office equipment. The active support of each and every member of the University is required in order to achieve our stated targets for environmental sustainability. The following steps are straight-forward, easily implemented and can make a significant difference when seeking to reduce energy consumption.

Energy saving best practices in general areas

Air-conditioning

- Discourage or limit the use of air-conditioning after office hours
- Maintain the air-conditioning thermostat at 25.5℃ ± 2℃ when in use
- Keep all windows and doors closed when the air-conditioner is in operation
- Use fans whenever possible, instead of air-conditioning, to regulate comfortable temperatures, humidity, and ventilation

- Arrange the proper maintenance including the cleaning of ductwork, fans and grilles

- Dress light clothing in order to minimise the use of air-conditioner

Lighting

- Make sure that all lights are turned off before leaving the office at the end of work day

- Turn off all non-essential and decorative lighting, especially in unoccupied or under-utilised areas

- Practise “daylight harvesting” by maximising the use of natural light where possible

Office equipment

- Switch computers to sleep mode instead of using energy-intensive screensavers

- Enable computer monitor to enter stand-by mode automatically after no more than five minutes of inactivity

- Adjust monitor’s brightness to the minimal acceptable level for effective viewing

- Adopt computerised fax service where possible

- Employ multi-functional/all-in-one office devices to reduce the total number of electrical appliances in operation

- Turn off all electrical equipment when not in use

- Unplug battery chargers when portable devices are fully charged or chargers are not in use

- Upgrade office equipment to more energy saving models where possible. Follow maintenance schedules of appliances

One of the primary challenges is to meet stringent energy efficiency goals while maintaining a comfortable environment for teaching, learning and research activities. It is crucial to maintain an effective communication and collaboration among all end-users, especially for particular facilities such as advanced computing servers or scientific laboratories requiring 24/7 air-conditioning due to operational requirements.

The Estates Office consults regularly with end-users for deriving a holistic sustainable strategy when seeking to improve energy efficiency including the proper monitoring and control of ventilation systems, heating and cooling loads. As a result, most of the teaching and some of the research laboratories no longer require a 24/7 air-conditioning supply. Additionally, the following energy conservation measures should be adopted as best practices in accordance with relevant international standards[1].

Energy saving best practices in specialised areas

Laboratory

- Optimise the exhaust systems and air-conditioning metrics with reference to relevant standards[1], e.g. adopt appropriate settings for temperature, humidity and ventilation when heat-sensitive equipment is in use

- Always keep the sash of fume hoods as low as possible for minimising the exhaust rate while implementing safe practice

- Turn off all fume hoods and other local exhaust systems when not in use as a means of reducing ventilation workload

[1] Laboratories for the 21st Century: Best practice Guide by United States Environmental Protection Agency and relevant Australian Standards

Server room

- Adopt an energy efficient cooling and air distribution design as appropriate with reference to the Green Data Centre Practices by the Hong Kong Government, such as to arrange servers into hot and cold aisles to maximise energy efficiency

- Maintain the operating temperature at 23°C ± 3°C and relative humidity at 50% ± 10% in order to optimise energy efficiency

- Deploy uninterruptible power supply system and monitor server utilisations to identify under-utilised servers for optimisation through consolidation and virtualisation

- Conduct regular maintenance of the equipment with engineer to ensure that servers are operating at optimal efficiency

A PC monitor switched off overnight saves enough energy to microwave six dinners.

4. Paper Conservation

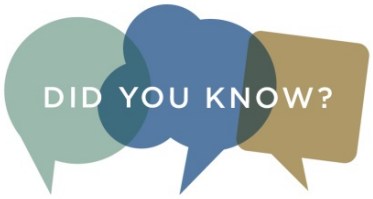
Practicing the "Three R's principle" (Reduce, Reuse and Recycle) offers a simple way to minimise negative impacts on the environment. These and other green actions listed in this Guide can help guide users towards conserving energy and other resources (such as paper).

- Conduct correspondence and issue newsletters, brochures and promotional materials via electronic means whenever possible in order to minimise the number of hardcopies distributed
- Use "Print Preview" to check document layout and style before printing. Reduce paper margins and adjust font size of documents to optimise paper use
- Print only when necessary. Set double-sided printing as the default option for all copying and printing jobs to minimise the total number of paper printouts
- Collect and reuse single-sided papers, envelopes and boxes, whenever possible
- Reuse single-sided paper when printing drafts and other documents
- Keep a tray in the printer/photocopier stocked with single-sided papers to facilitate the above
- Encourage the exchanging of used books/magazines. An Eco-bookshelf may be found at the BU Green Corner on the 3/F of the Academic and Administration Building
- Avoid packing or wrapping as far as possible; if needed, use double-sided printed papers or magazine inner pages as packing materials

- Encourage students and staff to make scanned copies of retained documents, which allows documents to be distributed and saved electronically, saving paper and time

- Digitise records and employ an e-filing system to gradually replace printed records; doing so will save paper, printer ink and minimise energy use as well as physical storage space

- Subscribe to electronic version of newsletters, magazines or reports whenever possible



Personal paper recycling bins ready for your use

Knowing that most of our colleagues are working in partitioned cubicles, we can assume that little space may be spared for an extra paper recycling bin. To encourage the habit of paper recycling, the Task Force on Sustainable Campus has made available partition-hanging recycling boxes for colleagues; please contact us at 3411-2249 if you are interested in using one.

e-means

U-wide eFax Service – when Fax goes paperless

Are you aware that Office of Information Technology (ITO) has launched a new service – the electronic fax service (eFax) which will progressively replace all individual fax machines in Departments/Offices? This centralised service allows computer users to send and receive faxes on their PCs in electronic formats, as well as to search and retrieve fax easily from the central server. All the existing fax numbers owned by Departments/Offices will be migrated to the new fax service at no cost.

This revolutionary change will no doubt drastically reduce the volume of paper consumed and hence the environmental impacts incurred in receiving fax messages traditionally. It also saves the costs attributed to purchasing paper and printing ink.

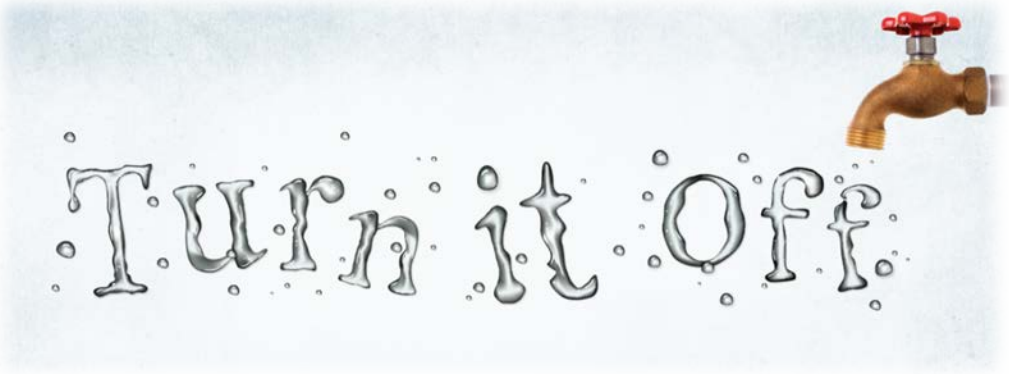
For further enquiries about the eFax service, please contact ITO's Service Call Centre at 3411-7899, or email to hotline@hkbu.edu.hk.

5. Water Conservation

HKBU promotes water conservation to all members of the University, with a view to increasing their awareness of environmental impacts associated with wasting water.

- Report all dripping faucets and water dispensers, running or leaking appliances to the Estates Office (Tel: 3411-5660) immediately
- Turn off any unnecessary flows and make sure water tap is off completely
- Conserve water by turning off faucets when not in use. When you're washing your hands, turn off the water while you lather the soap and then rinse
- Stop recreational water events requiring wasting water in order to avoid the misuse of precious water resources
- Use reusable water bottle/mug. Water dispensers are installed around the campus for water refilling
- Instruct frontline staff/cleaning staff to use the right amount of water when mopping or cleaning
- Use rainwater for watering plants where possible

"We never know the worth of water till the well is dry" — Thomas Fuller, British historian



6. Green Catering

Adopting sustainable food practices is highly imperative when seeking to avoid wastes. We have been encouraging members of the University community and the on-campus catering outlets to act closely together to promote sustainable food practices, so as to conserve resources and reduce food waste. Specifically, HKBU is currently seeking to encourage students and staff to:

- Purchase food and beverages that are manufactured locally and seasonal where possible, so as to minimise our carbon footprint
- Explore a wider variety of sustainable food production and consumption options. We encourage our students and staff to select organic, seasonal and/or locally grown food (and even consider serving vegetarian options and/or meat dishes with a lower carbon footprint, such as white meat, e.g. chicken and turkey)
- Consider eating finger foods that are not individually wrapped and do not require utensils to consume to reduce waste
- Provide/use reusable food-ware to serve. If reusable items are not available, ask for one-off plates/containers that are made from agricultural or other wastes. Avoid polystyrene foam boxes at all times
- Do not consume bottled water. Provide pitcher water and encourage attendees at on-campus events to bring their own mugs. Notify participants of the location of water dispensers in the venue
- Serve food and drink in bulk. Avoid single-serving condiments, sauces, spread and/or other items to minimise waste
- Ban the serving or consumption of shark fin soups (or other dishes) in all University activities

- Consider the slogan, “More Vegetables, Less Meat”, for all catered events. Reducing meat consumption can also help reduce the food-related carbon footprint

- Register attending guests in advance for accurate estimation of the amount of food required for an event. Prepare reasonable portion sizes to reduce food waste

7. Green Purchasing

A proactive green purchasing policy signifies our determination when choosing products and services that are least harmful to our environment on and off campus. Everyone should give preference to environment-friendly products to reduce the individual carbon footprint. Do consider the following recommendations:

- Use paper with at least 50% recycled content possible for ALL types of printing to maximise environmental benefits
- Use rechargeable batteries
- Prioritise energy efficiency when purchasing appliances that may achieve actual energy (and hence cost) savings
- Select office equipment that is labelled with the top two most energy efficient ranks and products which are eco-labelled and contain highly recyclable content
- Order only appropriate quantities of products
- Purchase products which are durable and easy to maintain, as opposed to one-off items
- Request that vendors reduce (or avoid) using packaging, or substitute it with recycled content packaging
- Support locally manufactured products which, by definition, reduce transport and fuel cost
- Do not purchase consumable products containing harmful chemicals that make a disproportionate impact upon the environment

8. Green Transportation

Petroleum-fuelled vehicles produce a significant amount of roadside pollution in Hong Kong. Prolonged exposure to roadside pollution not only irritates the human respiratory system, but also exacerbates climate change as exhaust contains greenhouse gases such as carbon dioxide and nitrogen oxides, which directly contribute to global warming. Members of the University community are strongly encouraged to travel by public transport and/or walk instead of driving to work, so as to lessen the adverse environmental impacts of fuel combustion.

Additional steps we can take to promote green transportation include:

- Promoting the use of public transport by providing attending guests with access to relevant information such as routes and timetables
- Choosing a venue that is accessible via public transport and promoting the use of public transport
- Considering car-pooling or arranging group transport access (e.g. shuttle bus) for your event/meeting venue. If the event is not within walking distance, car-pool to minimise the use of individual vehicles
- Always seeking to reduce the need for travel; consider using video or teleconferencing if possible
- For essential business air travel, offset emissions by choosing airlines that are more fuel-efficient and/or which participate in cap-and-trade carbon buy-back schemes

Avoiding just 10 miles of driving every week would eliminate about 227 kg of carbon dioxide emissions a year.

9. Reduce, Reuse and Recycle

Each year, thousands of kilograms of unwanted goods including recyclables and reusable are dumped in landfills across Hong Kong. According to the 2014 waste statistics report by the Environmental Protection Department (EPD), the average daily quantity of municipal solid waste (MSW) disposed of in Hong Kong's landfills was 9,782 tonnes, and the per capita MSW disposal rate per day was 1.35 kg. The amount of MSW generated each year in Hong Kong is enormous, given that the city houses over 7 million people and is a regional centre of commerce and tourism.

The "Three R's principle" offers an effective and easy to use approach for personal waste management. Directly and simply "Three R's" reminds you which actions may be taken so as to avoid producing waste and to conserve natural resources, energy, water and landfill space. Environmentally responsible decisions today will help make for a better tomorrow.

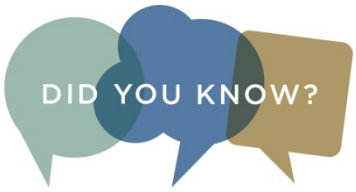
The "Three R's principle" is summarised as follows:

i. **Reduce**
   To make something smaller or use less, minimising the amount of waste at source

ii. **Reuse**
   To use the same product multiple times until it cannot be used anymore to extend the life of a product and maximise the functions of resource

iii. **Recycle**
   To be remade into either the same kind of items, or new products

"There must be a reason why some people can afford to live well. They must have worked for it. I only feel angry when I see waste. When I see people throwing away things we could use." — Mother Teresa



What do the symbols on the bottom of plastic bottles and containers mean?

These symbols help people identify the kind of plastic resin used to make the container; they are identifiers that can help you determine if the container can be accepted by the local recycling programme.

1 PETE	2 HDPE	3 PVC	4 LDPE	5 PP	6 PS	7 OTHER
PETE – Polyethylene Terephthalate			LDPE – Low-density Polyethylene			OTHER – Mixed Plastics
HDPE – High-density Polyethylene			PP - Polypropylene			
PVC – Polyvinyl Chloride			PS - Polystyrene			

10. Environmental Legislation and Infrastructure in Hong Kong

All trade and industrial activities in Hong Kong are required to operate in accordance with statutory environmental standards and requirements set out by the EPD and other related departments of the Hong Kong Special Administrative Region.

Under these ordinances, there are subsidiary regulations, technical memoranda and codes of practices, which provide controls over specific environmental usages, practices and accesses which are available via the EPD's website: http://www.epd.gov.hk.

Controlling environmental laws and statues include:

- Air Pollution Control Ordinance
- Ozone Layer Protection Ordinance
- Noise Control Ordinance
- Water Pollution Control Ordinance
- Waste Disposal Ordinance
- Dumping at Sea Ordinance
- Environmental Impact Assessment Ordinance
- Hazardous Chemicals Control Ordinance
- Product Eco-responsibility Ordinance

Appendix I: Campus Initiatives

Appendix II: Recyclables and Non-Recyclables