HKUST Environmental Report
2009 Update

HKUST continues to commit to the development of a sustainable campus. This report highlights our efforts in the year of 2009.

1 Wastewi$e Award

The target set by the Government Wastewi$e Scheme was successfully fulfilled and HKUST was again awarded the ‘Class of Excellence Wastewi$e Label’ in the year of 2009. The multiple waste reduction efforts on campus continued throughout the year and the additional focus of 2009 was on fluorescent tubes and used lamps. The University collected totally 8,600kg fluorescent tubes and 7,600kg used lamps in 2009.

2 Model Award

HKUST joined the Programme on Source Separation of Wastes launched by the Environmental Protection Department (EPD) and fulfilled the requirement of the Program. EPD presented an award of ‘Model Member’ to the University on 20 August 2009.

3 Waste Recycling and Minimization

3.1 We continued to collect waste paper, plastic bottles and printer cartridges for recycling. The total quantities collected were:
- Waste paper: 131,440 kg
- Plastic bottles: 3,785 kg
- Printer Cartridge: 14,026 no.

3.2 The amount of aluminium cans collected increased 18% from 174kg in the year of 2008 to 205kg in the year of 2009.

3.3 In comparison with 2008, there was a huge increase in the number of rechargeable batteries collected in 2009. Totally 436 pieces of rechargeable batteries were collected in 2009. This figure was more than five times the amount collected in 2008.

3.4 The number of used CDs collected increased significantly from 2,236 in 2008 to 4,525 in 2009, representing an increase of more than 100%.
3.5 Unwanted chemical reagents were given to chemical users of HKUST or users of other local tertiary institutions free of charge. In 2009, a total of 39 items (24,570ml and 9,330g) were given out. This was more than 2 times the number of items given out in 2008.

3.6 In the year of 2009, the quantity of food waste collected and converted to fertilizer / soil conditioner was 9,000kg.

3.7 All catering outlets, bookstore and Souvenir Center had stopped providing plastic bags / shopping bags unless upon request. The Souvenir Center has also started to use bio-degradable plastic bags.

3.8 Coffee residue of LG1 restaurant was given to users for planting use.

3.9 In 2009, 10 tons materials were collected for recycling during the hall check-out exercises.

3.10 Garage Sale was organized in June and December 2009 by the Facilities Management Office (FMO).

3.11 The Staff Association continued to collect used moon-cake boxes for recycling after the Mid-Autumn Festival.

4 Resource Conservation

4.1 Service-on-demand controls were installed for six escalators. These devices slow down the escalators when there is no passenger, and will save $12k in electricity per annum.

4.2 Energy efficient lamps were installed to replace 1,186 sets aged, less energy efficient units in campus areas. This replacement, plus ongoing lighting optimization by fine-tuning of lighting operation hour and illumination levels, saves $16K per annum.

4.3 Operation of the CO₂ heat pump continues to supplement laboratories’ hot water supply, saving $25K per annum.

4.4 Addition of 16 sets of modular designed instantaneous gas water heaters to replace four conventional gas-fired calorifiers at two student halls saves $86K per annum.

4.5 Variable speed drives (VSD) were added to five virtual stack exhaust fans of laboratory building to reduce fan speed and energy consumption during low air emission period overnight. It saves $120K per annum.

4.6 The number of track light units in the Souvenir Centre had been reduced.

4.7 The power of the Mail Room was turned off when all colleagues were out for mailing service.

5 Sustainable Practice

5.1 The HKUST Sustainability Coordinator was hired in January 2009. His role is to work with different departments on campus to facilitate development of sustainability awareness and practice at the administrative, academic and facility levels of the University.

5.2 A carbon management scoping was developed to review current HKUST environmental initiatives, compare performance with other universities and make recommendations on how to continue moving forward.

5.3 The 2008/09 Campus Carbon Footprint was calculated for the 12-month period between July 2008 and June 2009.

5.4 Funded by the Environmental Campaign Committee (ECC) and the Environment and Conservation Fund (ECF), a solar hot water system was installed upstream of existing gas water heaters system for hot water supply to UG Hall VII. Upon completion in March 2010, an annual energy saving achievement of 9,900kWh per annum, equivalent to 2.6 tons CO₂ gas emission avoidance, is expected.
5.5 HKUST participated in The Climate Group (TCG) LightSavers Programme to accelerate the wider deployment of LED outdoor lighting.

5.6 The University also participated in the World Wide Fund for Nature Hong Kong’s Earth Hour 2009 to promote sustainable use of energy.

6 **Indoor Air Quality**

6.1 Annual Indoor Air Quality (IAQ) Certificates (Excellent Class) for Library and S H Ho Sports Hall as well as IAQ Certificates (Good Class) for lecture theatres and computer barns were renewed by EPD.

7 **Vehicle Emission Test**

EPD launched the ‘Free Vehicle Emission Testing Week’ at HKUST during the period from 24 to 27 November 2009 with an aim to promote environmental sustainability amongst HKUST staff and students. A total of 55 petrol-engine vehicles were tested. The data and findings of this project would help EPD establish various air quality improvement initiatives, including an Advanced Air Quality Control Programme.

8 **Green Ambassador Programme**

The programme fosters green knowledge and sustainable lifestyle through training, projects, internships and different activities. The appointed Green Ambassadors commit themselves to enhance the environmental and sustainability awareness of their peers and the public by launching green related activities and projects on campus and outreach to the community.

9 **Live Green! Learning Community**

Live Green is a specially themed Living Learning Community with over 40 students in UG Hall VII. It was formed in 2009 to educate its members on the many aspects of practicing a more sustainable and environmentally friendly lifestyle.

10 **Green Procurement**

10.1 Green products were included in the stationery supply contract and staff members have been using green stationery items regularly.

10.2 Both standard models and energy saving models on commonly used items were provided in annual supply contracts.

10.3 Prospective suppliers were required to provide information on energy efficient grade / certification of the products being offered.
11 Promotion of Environmental Awareness

11.1 An Environment Week was organized from 22 to 24 April 2009. The theme of the Week was ‘Uncovering the Student’s Role in Sustainability’. The Environment Week included Green Challenge Student Project Poster Competition, Hang Seng Green Ambassador Program Exhibit, Green Job Fair Days, workshops on ‘The Business Impacts of Climate Change’ and ‘Carbon Trading’ as well as a seminar on ‘The Demand for Green Collared Jobs’.

11.2 Institute for the Environment, FMO and Health, Safety and Environment Office jointly organized an activity ‘Clean our Coastline 2009’ to clean the rubbish on the seabed off the coastline of our campus.

12 Environmental Research Projects

12.1 A number of environmental research projects were conducted. The scope of these projects covered a great variety of environmental issues including novel fecal pollution indicators for coastal seawater, growth-dependent mercury exposure in marine fish and plankton, treatment of endocrine disrupting compounds in water, chlorination of saline sewage effluents, minimization of municipal sewage biotreatment sludge, treatment of cellulosic waste, treatment of hydrocarbon waste and biomass, air quality improvement, air pollution analysis, atmospheric organic aerosols, accumulation of persistent organic pollutants in soils, slope hazard monitoring, modeling and mitigation, etc.

12.2 Units engaging in environmental studies include:
- Department of Biochemistry
- Department of Biology
- Department of Chemistry
- Department of Chemical and Biomolecular Engineering
- Department of Civil and Environmental Engineering
- Department of Computer Science and Engineering
- Department of Mathematics
- Division of Environment
- HKUST Fok Ying Tung Graduate School
- Institute for the Environment

12.3 A comprehensive list of environmental research projects conducted in 2009 is accessible at:

13 Organic Farming

Staff and students continued to participate in organic farming activity.

14 Water Quality Control

14.1 In 2009, a total of 8,420kg used cooking oil was collected from catering outlets for recycling.

14.2 Monitoring of water quality is an ongoing effort. Water samples were collected from potable water outlets, University’s swimming pools and Dental Clinic for water quality testing.

15 Environmental Compliance

All environmental regulatory requirements applicable to University’s operations are complied with. These include monitoring of waste water and sea water discharges, hazardous waste management, air emission and environmental noise, etc.