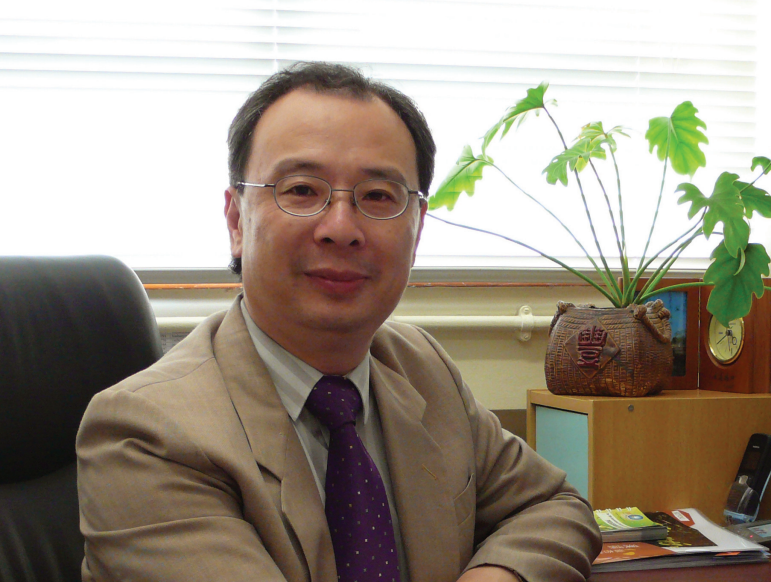


# Sustainability Report 可持續發展報告

# 2008



香港中文大學  
The Chinese University of Hong Kong



*Prof. L.M. Chu, Chairman of the Committee on Campus Environment*

校園環境委員會主席朱利民教授

## PREFACE

This is the University's third sustainability report which provides an opportunity for us to reflect on our environmental achievements and shortcomings, and to explore improvement possibilities. We always strive to reduce our environmental footprint, but the pressure is building as we face all sorts of challenges in campus development to accommodate the move to the new 3-3-4 academic system. The university has made every effort to comply with local energy and climate initiatives, curb the increasing burden on our resources, and create a cleaner and greener campus. There have been notable accomplishments such as the Campus Master Plan (CMP) and various green measures on energy and waste management, which should be credited to our colleagues, students and alumni who have been actively involved, in particular the Steering Committee on CMP, Estate Management Office, Campus Development Office, and the University Safety and Environment Office. It is up to us to choose, but the decisions we make now and in the future will determine whether our development is sustainable. Let's work together and stay committed, doing more and better in the pursuit of a sustainable campus environment.

## 前言

這是香港中文大學第三份可持續發展報告。撰寫本報告是反思我們在環境保護工作上的成就和不足的寶貴機會，可為我們指出改善的方向。本校向來致力減少環境足印，但由於三三四新學制的實施，校園發展須予配合，帶來種種挑戰，環保工作的壓力越來越大。校方已致力配合香港的節能計劃和關注氣候活動，控制資源上日益沉重的負擔，創建更清潔、更環保的校園，在校園發展計劃、各種節能和廢物管理措施等方面，成就有目共睹。這些成績，都是中大同事、學生和校友積極參與的成果，特別是校園發展計劃督導委員會、物業管理處、校園發展處，以及大學安全及環境事務處。在發展的過程裏，我們有權選擇，只是現在和將來的決定，將影響我們能否持續發展。讓我們攜手合作，努力不懈，做得更好，以提倡可持續發展的校園環境為目標。

## SUSTAINABILITY REPORT 2008

When construction of The Chinese University of Hong Kong (CUHK) began in the early 1960s, the site was totally barren due to the removal of large quantities of rock and topsoil for building the Plover Cove Reservoir. The campus with its luxuriant vegetative growth that we see today has been created through decades of concerted effort and vigilance.

To protect the green campus and its environs, the University has been taking a responsible approach in all aspects of its daily activities since the early 1990s. Apart from resource conservation and pollution control, we share our vision with our stakeholders - students, staff, alumni and contractors – and seek their cooperation and contribution. Faced with the challenges of campus development and ecological concerns, sustainability has become a guiding principle in the University's roadmap for the future.

In the years prior to 2006, the University had been reviewing its environmental performances in its annual *Environmental Report*. In 2006, it was replaced by the *Sustainability Report* which better reflects the University's strategic measures for ensuring environmental sustainability. With this as focus, the social and economic components in the context of sustainable development are not discussed in this report. Also excluded from statistical consideration are offices and activities beyond the Main Campus, as well as staff quarters, student hostels and canteens which are individually metered and whose resources consumption is settled directly by staff and caterers.

The site of CUHK in the 1960s

上世紀六十年代的中大地盤

## 2008年可持續發展報告

香港中文大學（簡稱「中大」）在上世紀六十年代初啟建時，地盤一片荒蕪，當時因興建船灣淡水湖，移走了大量石塊和表土層。今天的校園鬱蔥處處，是數十年來各方協力，苦心經營的成果。

為保護綠色校園及其環境，自上世紀九十年代初起，中大即以負責任的態度，處理一概日常活動。除保育資源、控制污染外，還與持份者——學生、教職員、校友和承辦商——分享理念，邀請他們合作，為環境貢獻力量。在面對校園發展和生態問題的挑戰時，可持續性已成為大學未來發展的指導原則。

多年來，中大一直在每年一度出版的《環境報告》中回顧其環保工作。自2006年開始，即出版《可持續發展報告》代之，以期更明確反映中大為確保環境可持續發展而實施的策略性措施。既以此為重點，本報告不會討論可持續發展中的社會和經濟元素，統計數據不包括校園本部以外的辦事處和活動的數據，亦不涵蓋教職員宿舍、學生宿舍和飯堂；因為這些地點的資源耗用都是獨立計算，直接由職員和營運商支付。

# UNIVERSITY PROFILE 大學概覽

With a history of 44 years, an area of 134 hectares and over 150 buildings, the University has the largest campus among tertiary institutions in Hong Kong. At present, the University has eight faculties - Arts, Business Administration, Education, Engineering, Law, Medicine, Science, and Social Science. There are more than 6,000 academic and non-academic staff members, and the total number of postgraduate and undergraduate enrolment stands at over 21,500. In 2008, 6,673 first degrees and higher degrees were awarded and the cumulative number of alumni is 117,529.

With the reversion to a four-year normative curriculum in 2012, the University will admit an extra 3,000 undergraduates. To meet the increasing needs, five new Colleges will be built in addition to the existing four on campus, bringing the total number to nine.

中大有四十四年歷史，校園面積達一百三十四公頃，建築物一百五十多座，校園之大是香港專上學院之冠。大學現有八個學院 - 文學院、工商管理學院、教育學院、工程學院、法律學院、醫學院、理學院和社會科學院，教職員六千多名，本科生和研究生總數二萬一千五百人以上。2008年共頒授六千六百七十三個學士及深造學位，校友數目累計十一萬七千五百二十九名。

二零一二年回復四年制後，中大將多招收三千名本科生。為配合需求增長，中大將加建五所新書院，連同現有的四所，合共將有九所書院。

**Table 1. Total Number of Full-time Equivalent (FTE) Students & Total Number of Full-time Staff in CUHK at 31 December 2008**  
表 1. 中大等同全日制學生總數及全職教職員總數（截至2008年12月31日）

	Number 人數
Total number of FTE students (including UGC-funded and self-financed) 等同全日制學生總數（包括大學教育資助委員會資助的學生及自費學生）	18,817
Total number of full-time staff 全職教職員總數	6,319





The Committee on Campus Environment meets  
校園環境委員會開會情況

## GOVERNANCE STRUCTURE

The Committee on Campus Environment (CCE), which replaced the University Steering Committee on Environment (USCE) in 2008, is a subcommittee under the Administrative Affairs Committee (AAC). Its major tasks are to promote awareness among students and staff on environmental protection and campus ecology, recommend for consideration by AAC strategies and policies related to environmental protection, investigate complaints on environmental matters and recommend actions where appropriate, and undertake any other duties/functions in relation to environmental matters assigned by the Vice-Chancellor.

The University Safety and Environment Office (USEO) acts as co-ordinator among relevant offices - the Estates Management Office (EMO), the Campus Development Office (CDO) and the Transport Unit (TU) - to assist the CCE in implementing various environmental projects and plans in order to consistently maintain the University's hygiene, safety and environmental standards at levels above those required by law.

The University has established several committees to steer campus development, community safety and campus landscaping. They are the Steering Committee on Campus Master Planning, which focuses on designing the Campus Master Plan; the Standing Committee on Campus Geotechnical Matters, which monitors slope projects and has the power to approve slope improvement projects; the Building Committee, a project-based, ad hoc committee that deals with issues specifically related to building projects; and the Campus Landscaping Enhancement Committee, which focuses on landscaping and greening issues.

### 管治架構

校園環境委員會在2008年取代大學環境事務督導委員會，隸屬行政事務委員會，主要職責是促進學生和教職員的環保和校園生態意識，向行政事務委員會建議環保策略，調查有關環境的投訴，並建議恰當的跟進行動，以及執行校長指示的環保工作。

大學安全及環境事務處統籌多個有關的部門，包括物業管理處、校園發展處和交通組，以協助校園環境委員會實施各項環保計劃，目的是確保中大的衛生、安全和環境標準經常維持在法定水平以上。

中大成立了多個委員會，指導校園發展、校園安全和校園景觀美化等事宜，分別為：校園發展計劃督導委員會，專責設計校園發展計劃；大學校園岩土事務委員會，負責監察斜坡工程，有權批核斜坡改善工程；建築委員會，是因應個別項目而設立的專責委員會，處理與興建項目有關的事宜；校園景觀美化委員會，專責環境美化和綠化事宜。



# PERFORMANCE INDICATORS

PERFORMANCE INDICATORS 表現指標

## Energy Consumption

Climate change is a global challenge. As a corporate citizen, the University is aware that energy conservation plays an important role in tackling climate change issues and improving air quality. To this end, the EMO has adopted various types of energy efficient facilities and measures, such as LED exit signs, temperature limiting thermostats, solar control window film and evaporative water cooling systems.



Occupancy sensors are installed to control lighting in the library

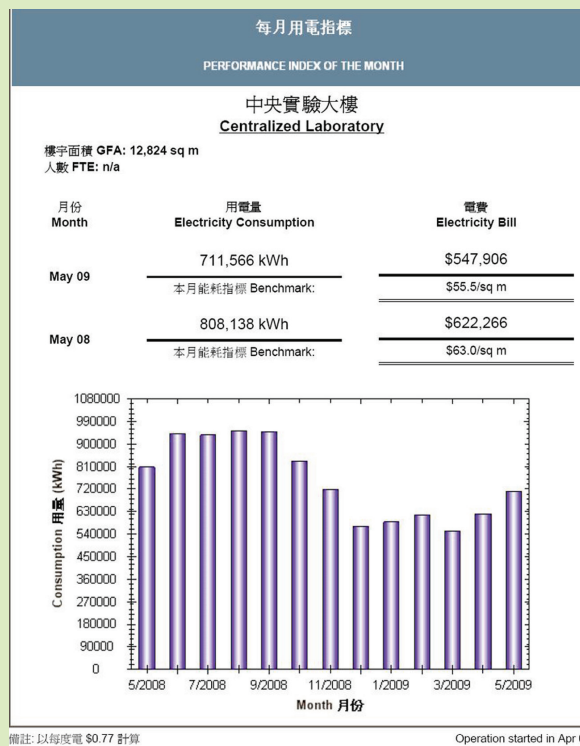
裝設感應器，控制圖書館的燈光

Furthermore, major electricity users are identified and a monthly Energy Performance Index (EPI) for the top 18 high-consumption buildings is monitored and posted in prominent areas to inform occupants of their building's energy consumption levels. An Energy Saving Incentive Scheme has been launched in the Science Centre, William Mong Man Wai Engineering Building, Ho Sin Hang Engineering Building and the Centralized Science Laboratories Building to encourage participation in reducing electricity consumption within the University community. Part of the costs saved is allocated to incentive activities to reward the participants.

## 能源消耗

氣候轉變是全球面對的挑戰。作為企業公民，中大深明節約能源對處理氣候轉變和改善空氣質素作用重大。為此，物業管理處採用多項措施和節能設備，例如發光二極體出路燈箱、限溫恆溫器、太陽隔熱膜和蒸發式冷卻系統等。

此外，中大識別主要的電力用戶，監察耗電量最高的十八座樓宇的每月能源表現指數，張貼在當眼處，讓大樓使用者得悉能源消耗情況。校方亦在科學館、蒙民偉工程學大樓、何善衡工程學大樓和科學實驗室專門大樓推行「節能獎激勵計劃」，鼓勵師生減少耗電。省回的部分成本用作舉辦獎勵活動，以嘉獎參與者。



The Energy Performance Index of the Centralized Science Laboratories Building

科學實驗室專門大樓的能源表現指數

## Clean Energy

With energy demand constantly on the rise, the University is actively developing clean renewable energy on campus. The evacuated tube solar hot water system has been installed in 27 student hostels, the Swimming Pool and the University Sports Centre. Solar bus stops, solar gardens, solar fountains and hydraulic ram pumps have been installed in various parts of the campus. It is estimated that over 1,050,000 kWh electricity was generated by renewable energy facilities in 2008.

Two wind turbines have been installed at the Eastern Gate and the Water Sports Centre by the CDO and EMO to study the possibility of using renewable energy on campus. Wind speed and direction have been gauged at the Water Sports Centre for more than a year, and the analysis shows that wind velocity and power output at this location are not stable enough for large wind turbines, but it is still feasible to install medium- or small-sized alternatives. The University will test wind turbines of different models and sizes later in order to minimize the noise generated by the rotation of blades. The alternative of silent wind turbines will also be studied to ensure balance between location selection, economy of resources and power generation efficiency.

## 清潔能源

隨著能源需求不斷增加，中大致力在校園內開發清潔的可再生能源。我們在二十七座學生宿舍、游泳池和大學體育中心安裝了真空熱導管式熱水器。此外，校園多處均設有太陽能巴士站、太陽能花園、太陽能噴泉和水錘泵。2008年，可再生能源設備估計生產了逾1,050,000千瓦小時電力。

校園發展處和物業管理處在東閘和水上活動中心裝設了兩台風力發電機，以研究在校園內使用可再生能源的可能性。校方已監察水上活動中心的風速和風向逾一年，結果顯示這裏的風速和電力輸出量不夠穩定，不足以設立大型風力發電機，但可安裝中型或小型發電機。校方稍後將測試不同型號和大小的風力發電機，以盡量減少風車葉片轉動時產生的噪音。亦會研究靜音風力發電機，確保在選址、節省資源和發電效率各方面取得平衡。

Solar panels on Kou Mou Building of Shaw College  
逸夫書院國楨樓的太陽能板



In 2008, each full-time equivalent (FTE) student consumed about 4,234.93 kWh of electricity per annum, which represents a curbing of the increasing trend of consumption in 2006 and 2007. It may be due to the use of energy efficient facilities and clean energy measures.

2008年，每名等同全日制學生每年使用約4,234.93千瓦小時電力，2006和2007年耗電量增加的趨勢亦見遏止，這可能是採用具能源效益的設備和清潔能源措施所致。

**Table 2. Energy Consumption in terms of FTE Student & Per Capita**  
 表 2. 按每名等同全日制學生及人均計算能源消耗量

No. 編號	Indicator (Unit) 指標 (單位)	Definition / Remark 定義 / 備註	Results 結果
EN1	Electricity consumption per FTE student (kWh / FTE student) 每名等同全日制學生電力使用量 (千瓦小時 / 等同全日制學生)	Total electricity consumption / Number of FTE students 電力總耗量 / 等同全日制學生數目	4,234.93 kWh / FTE student (千瓦小時 / 等同全日制學生)
EN2	Electricity consumption per capita (kWh / Total number of FTE students & full-time staff) 人均電力使用量 (千瓦小時 / 等同全日制學生及全職教職員總數)	Total electricity consumption / Number of FTE students & Number of full-time staff 電力總耗量 / 等同全日制學生及全職教職員數目	3,170.3 kWh / capita (千瓦小時 / 人)

**Graph 1: Electricity consumption in 2006, 2007 and 2008**

圖 1: 2006、2007和2008年耗電量



■ Electricity consumption per FTE student (kWh / FTE student)  
 每名等同全日制學生電力使用量 (千瓦小時 / 等同全日制學生)

■ Electricity consumption per capita (kWh / total number of FTE students & full-time staff)  
 每人電力使用量 (千瓦小時 / 等同全日制學生及全職教職員總數)

## Transportation

The University owns more than 110 vehicles for transportation mainly within the campus. While the Transport Unit is the main supplier of the intra-campus bus service, extra bus services are also provided by a contractor. In 2008, the coach mileage and diesel consumption per FTE student were 50.45 km and 21.93 litres respectively, showing an increasing trend vis-à-vis the figures of 2006 and 2007. The increase in fuel consumption of buses was possibly due to the new bus route that has been serving Shaw College since January 2008. To enhance transport efficiency on campus, the Transport Unit monitors the operation of buses and conducts regular reviews of driver performance and bus schedules. A passenger survey was also conducted during the year to ensure cost-effectiveness of the bus service.

## 交通運輸

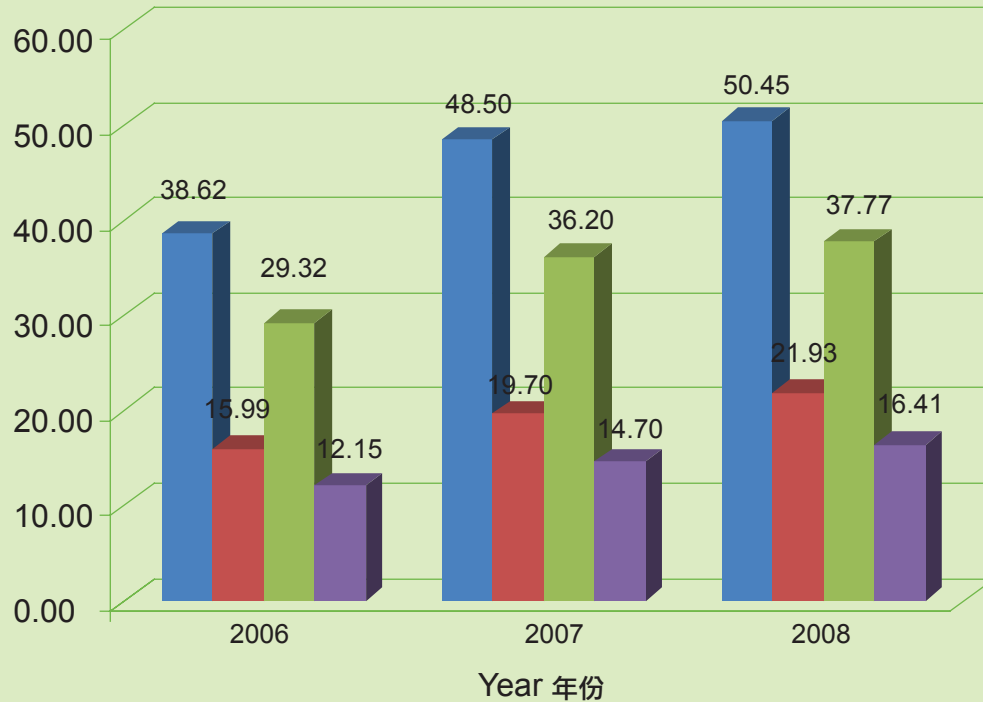
目前中大有一百一十多部車輛，主要在校園內提供交通服務。交通組是校園巴士服務的主要提供者，但所提供服務不足以應付中大師生的需要，因此我們還向承判商租用巴士服務。2008年，按每名等同全日制學生計算的巴士行車里數和柴油消耗量，分別是50.45公里和21.93公升，較2006年和2007年有所上升。巴士燃油耗量上升，應是往返逸夫書院的新巴士路線自2008年1月起啟用所致。為提升校園交通運輸的效率，交通組監察巴士的運作，定期檢討司機表現，並檢討巴士班次，年內還進行了乘客調查，確保巴士服務的成本效益。

Table 3. Coach Mileage & Diesel Consumption in terms of FTE Student & Per Capita  
表 3. 按每名等同全日制學生及人均計算的巴士行車里數及柴油消耗量

No. 編號	Indicator (Unit) 指標 (單位)	Definition / Remark 定義 / 備註	Results 結果
TP1	Mileage per FTE student (km / FTE student) 每名等同全日制學生行車里數 (公里 / 等同全日制學生)	Total mileage / Number of FTE students 總行車里數 / 等同全日制學生數目	50.45 km / FTE student (公里 / 等同全日制學生)
TP2	Diesel consumption by coach per FTE student (litres / FTE student) 每名等同全日制學生巴士柴油使用量 (公升 / 等同全日制學生)	Total diesel consumption / Number of FTE students 柴油總耗量 / 等同全日制學生數目	21.93 L / FTE student (公升 / 等同全日制學生)
TP3	Mileage per capita (km / Total number of FTE students & full-time staff) 人均行車里數 (公里 / 等同全日制學生及全職教職員總數)	Total mileage / Number of FTE students & full-time staff 總行車里數 / 等同全日制學生及全職教職員數目	37.77 km / capita (公里 / 人)

Graph 2: Diesel consumption and mileage in 2006, 2007 and 2008

圖 2: 2006、2007和2008年柴油消耗量和行車里數



- Mileage per FTE student (km / FTE student)  
每名等同全日制學生行車里數 (公里 / 等同全日制學生)
- Diesel consumption by coach per FTE student (litre / FTE student)  
每名等同全日制學生巴士柴油使用量 (公升 / 等同全日制學生)
- Mileage per capita (km / total number of FTE student & full-time staff)  
每人行車里數 (公里 / 等同全日制學生及全職教職員總數)
- Diesel consumption by coach per capita (litre / total number of FTE student & full-time staff)  
每人巴士柴油使用量 (公升 / 等同全日制學生及全職教職員總數)

To reduce black smoke emission and increase fuel efficiency, maintenance work is performed regularly to keep all University vehicles in top mechanical condition. Currently, the University owns 12 buses with Euro III or Euro IV engines. Older buses will be phased out and replaced by buses with Euro IV engines. The quieter, more environmentally friendly electric scooter has been introduced since 2002.

為減少排放黑煙，提升能源效益，中大定期維修車輛，使所有車輛的機械性能保持最佳狀態。現有巴士中，十二輛使用歐盟三型或四型引擎；較舊的巴士，將逐步更換為使用歐盟四型引擎的巴士。自2002年起，中大已引進電動摩托車，比舊的摩托車更寧靜、更環保。



A bus with Euro IV engine  
使用歐盟四型引擎的巴士



Wastes  
Waste  
廢物

Table 4a. Waste collected in the past three years

表 4a. 過去三年回收的廢物

Items 種類	2006	2007	2008
Waste paper (kg) 廢紙 (公斤)	321,662	326,131	259,418
Plastics (kg) 塑膠 (公斤)	830	1,140	4,869
Aluminum cans (kg) 鋁罐 (公斤)	1,174.86	709.40	592.8
Metal (other than aluminum) (kg) 金屬 (鋁除外) (公斤)	---	---	544
Printer cartridges (No.) 打印機碳粉盒 (個)	567	568	743
Used clothes (kg) 舊衣物 (公斤)	894	4,165	4,629
Compost (kg) 堆肥 (公斤)	---	104	160
Recycling rate 回收率	---	18.0%	11.0%

## Municipal Solid Waste

The 4 'R' strategy – reduce, reuse, recycle and replace – has been implemented in the University since the early 1990s to save resources and minimize waste generation. Nowadays, strategic recycling points have been created to facilitate the recycling of paper, plastics and toner cartridges. Furthermore, recycling programmes are conducted regularly to collect other items such as CDs, old clothing, books and toys, which are then distributed to those in need through local charity organizations.

As rechargeable batteries contain rare metals that can be recovered and reused, the University implements a programme launched by the Environmental Protection Department (EPD) to collect domestic type rechargeable batteries for recycling. In addition, metal scraps are sorted out and collected for recycling in the refuse station.

## 都市固體廢物

上世紀九十年代初期開始，中大已採取4R策略，即減少廢物、物料再用、循環再造和取代使用，盡可能節省資源，減少產生廢物。今天中大已在多個方便位置設立廢物回收點，以利回收廢紙、塑膠物料和打印/複印機碳粉盒。此外還定期推行回收計劃，收集光盤、舊衣物、書籍和玩具等，透過本地慈善機構分贈有需要的人士。

由於充電池含稀有金屬，可回收再用，中大實施了由環境保護署推出的計劃，回收家用充電池，以供循環再造。此外，亦從垃圾站揀出金屬廢料，回收再造。





Unused clothing collected is delivered to charity organizations for distribution to those in need  
收集所得的衣物，送往慈善機構，分贈有需要的人士



The Landscape Section uses kitchen waste to produce compost  
園藝組利用廚餘生產堆肥

Over the past few years, the University has implemented measures to reduce the volume of waste produced daily on campus. Last year, 259,418 kg of paper, 4,869 kg of plastics, 593 kg of aluminum, 544 kg of metal, 743 printer cartridges and 4,629 kg of old clothes were collected for recycling. 160 kg of compost was produced from kitchen waste by the Landscape Section of EMO. In 2008, municipal solid waste generated by each FTE student was 114 kg and the overall recycling rate of municipal solid waste was around 11%. The drop in recycling rate in 2008 when compared with 2007 was due to collectors entering the campus without prior notice to collect valuable waste.

過去數年，中大推行多項措施，以減少校園內每天產生的廢物量。去年，我們收集了259,418公斤廢紙、4,869公斤塑膠、593公斤鋁、544公斤金屬、743個打印機碳粉盒和4,629公斤舊衣物供循環再造。物業管理處的園藝組利用廚餘生產了160公斤堆肥。2008年，每名等同全日制學生產生的都市固體廢物為114公斤，都市固體廢物的整體回收率約11.0%。2008年的回收率較2007年下降，原因是有廢料收集者擅進校園拿取有價值的廢料。



The RCP's wall, made of eco-glass blocks incorporating photo-catalytic material, accelerates the decomposition of airborne pollutants

垃圾收集站的牆壁以環保磚建造，內含光催化物料，可加速分解空氣中的污染物

## Carbon Neutral Refuse Collection Point

An environmentally friendly refuse collection point (RCP) emitting 'zero carbon' was built between the Science Centre, the Centralized Science Laboratories Building, and the Basic Medical Science Building. This new RCP was built partially with environmentally friendly eco-glass blocks into which an air-cleaning agent has been incorporated. This agent has been shown to remove air-pollutants from vehicles by at least 20%. The RCP is powered entirely by solar energy and meets the most stringent CO<sub>2</sub> emission standards. It has three photovoltaic panels to generate power for lights and mosquito killers. It is also naturally ventilated. Water from Weiyuan Lake is used for both washing and the irrigation of planters. A sullage recycle system will also be installed to collect grey water from nearby washrooms, which will be treated and reused for cleaning and other purposes.

## 零碳排放垃圾收集站

科學館、科學實驗室專門大樓和基本醫學大樓之間，興建了零碳排放環保垃圾收集站。該站部分以環保磚建造，當中含有令空氣清新的物料，數據顯示該物料可減少最少兩成的汽車污染物。垃圾收集站完全以太陽能發電，符合最嚴謹的二氧化碳排放標準。另裝設三塊光伏板，可發電供照明和滅蚊用；亦有天然通風設計。清洗和灌溉則用流入未圓湖的溪水。校方亦將裝設污水循環系統，從附近洗手間收集污水，經處理後用作清洗和其他用途。

## Hazardous Waste

In 2008, 1.89 kg of chemical waste and 0.69 of biological waste were generated by each FTE student. All these waste materials were properly stored, collected and transported by licensed collectors. Waste disposal guidelines were well communicated to staff and students to require them to properly dispose of hazardous waste.

Radioactive waste is managed according to the approved methods in the radiation licenses. In most cases, sealed radioactive sources are returned to the manufacturers so that the radioactive substances can be reused. Those radioactive sources that cannot be returned to the manufacturers are stored in the purpose-built radioactive waste store managed by the USEO. Short half-life radioactive sources that have been stored over a period of time will decay to a condition suitable for disposal as ordinary waste. Long half-life radioactive sources are stored and await being shipped to the EPD's radioactive waste storage facility. Low concentration or low radio-toxicity chemicals are disposed of as ordinary waste. All disposals are recorded and meet the disposal limits in the radiation licenses.

*Chemical wastes are properly stored and collected*

化學廢物經妥善貯存和收集

## 有害廢物

2008年，每名等同全日制學生產生1.89公斤化學廢物、0.69公斤生物廢物。這些廢物都經妥善貯存，然後由持牌收集商收集搬運。大學備有廢物處理指引，並已向教職員和學生說明有關指引，要求他們妥善棄置有害廢物。

放射性廢物按放射牌照內註明的核准方式處理。在大部分情況下，放射源封存後，均交回持牌生產商，以便再用。不能交回生產商的放射源，均存放於特別建造、由大學安全及環境事務處管理的放射性廢物貯存庫內。半衰期短的放射源，在存放一段時間後，會逐漸衰變至可當作一般廢物棄置；半衰期長的放射源，會運往環境保護署的放射性廢料貯存設施；放射量低或放射毒性低的化學廢料，以一般廢料的方式處置。所有棄置物料均予記錄，並符合放射牌照內註明的棄置限量。





## Electronic and Electrical Waste

To reduce the quantity of unwanted computers and obsolete electrical and electronic equipment going to landfills, the University adopted a creative approach. Instead of disposing them as refuse, 155 items were sold to CU departments and staff for reuse and 1,180 items were sold to the public for resale and recycling in 2008. Furthermore, computer recovery programmes are organized by the student hostels each summer. The items collected are delivered to charity or non-profit-making organizations to be handed out to those in need.

## 電子及電器廢物

為減少送往堆填區的廢棄電腦、舊電器及電子用品，中大採取較有創意的處理方法，沒有當作一般廢物予以棄置。2008年，155件舊電腦和電器售予大學部門和職員重用，1,180件則售予公眾人士，供轉售及循環再造。此外，各宿舍每年夏季均推行回收計劃，所得物品捐贈慈善團體或非牟利機構，送贈有需要的人士。

*Old computers and accessories are collected and sold for reuse, resale or recycling*

舊電腦和零件收集後，售出供再用、轉售或循環再造



## Construction & Demolition (C&D) Waste

The University requires contractors to submit a waste management plan which outlines their waste minimization measures in each project. The contractors should reduce waste generation by adopting the waste management hierarchy, viz., 'avoidance, recovery, reuse, recycle and disposal'. Contractors are required to minimize the generation of construction waste, use recyclable materials such as metal to replace hardwood for site hoardings, formworks and scaffoldings, and sort construction waste for recycling. Inert materials such as rocks and concrete generated by the construction and renovation projects are always reused by other construction sites instantly or disposed of at the public filling facilities designated by the Civil Engineering and Development Department or the EPD for reclamation. The non-inert portion - C&D waste - is disposed of at landfills. In 2008, 252 kg of construction waste per FTE student was generated.

### 建築及拆卸廢料

中大要求承建商提交廢料管理計劃，列明每項工程的減廢措施。承建商須採用層次式廢物管理方法，即避免產生廢物、物料回收、物料再用、循環再造和棄置。中大要求承建商減少產生建築廢料、使用循環再造材料，例如以金屬取代木材作為地盤圍板、模板和棚架的用料，以及把建築廢料分類，供循環再造。建造和裝修工程產生的惰性質，例如石塊、混凝土等，均立即由其他地盤再用，或棄置在土木工程署或環境保護署指定的公眾填土設施，供回收使用。非惰性的建築廢料，則在堆填區棄置。2008年，每名等同全日制學生產生252公斤建築廢料。

*Metal hoarding is used to replace wood hoarding*

以金屬圍板取代木質圍板

table 4b. Waste Volume in terms of FTE Student & Per Capita

表 4b. 按每名等同全日制學生及每人計算的廢物量

No. 編號	Indicator (Unit) 指標 (單位)	Definition / Remark 定義 / 備註	Results 結果
WM1	Municipal solid waste per FTE student (kg / FTE student) 每名等同全日制學生都市固體廢物量 (公斤 / 等同全日制學生)	Total municipal solid waste / Number of FTE students 都市固體廢物總量 / 等同全日制學生數目	113.73 kg / FTE student (公斤 / 等同全日制學生)
WM2	Municipal solid waste per capita (kg / Total number of FTE students & full-time staff) 人均都市固體廢物量 (公斤 / 等同全日制學生及全職教職員總數)	Total municipal solid waste / Number of FTE students & full-time staff 都市固體廢物總量 / 等同全日制學生及全職教職員數目	85.14 kg / capita (公斤 / 人)
WM3	Chemical waste per FTE student (kg / FTE student) 每名等同全日制學生化學廢物量 (公斤 / 等同全日制學生)	Total chemical waste / Number of FTE students 化學廢物總量 / 等同全日制學生數目	1.89 kg / FTE student (公斤 / 等同全日制學生)
WM4	Chemical waste per capita (kg / Total number of FTE students & full-time staff) 人均化學廢物量 (公斤 / 等同全日制學生及全職教職員總數)	Total chemical waste / Number of FTE students & full-time staff 化學廢物總量 / 等同全日制學生及全職教職員數目	1.41 kg / capita (公斤 / 人)
WM5	Biological waste per full-time equivalent (kg / FTE student) 每名等同全日制學生生物廢物量 (公斤 / 等同全日制學生)	Total biological waste / Number of FTE students 生物廢物總量 / 等同全日制學生數目	0.69kg / FTE student (公斤 / 等同全日制學生)
WM6	Biological waste per capita (kg / Total number of FTE students & full-time staff) 人均生物廢物量 (公斤 / 等同全日制學生及全職教職員總數)	Total biological waste / Number of FTE students & Number of full-time staff 生物廢物總量 / 等同全日制學生及全職教職員數目	0.52 kg /capita (公斤 / 人)
WM7	Construction and demolition waste per FTE student (kg / FTE student) 每名等同全日制學生建築廢料量 (公斤 / 等同全日制學生)	Total construction and demolition waste / Number of FTE students 建築廢料總量 / 等同全日制學生數目	251.61 kg / FTE student (公斤 / 等同全日制學生)
WM8	Construction and demolition waste per capita (kg / Total number of FTE students & full-time staff) 人均建築廢料量 (公斤 / 等同全日制學生及全職教職員總數)	Total construction and demolition waste / Number of FTE students & full-time staff 建築廢料總量 / 等同全日制學生及全職教職員數目	188.36 kg / capita (公斤 / 人)

The generation of biological and chemical waste has been steady, but municipal solid waste has fluctuated in the past three years. As there were many new building projects in 2008, the volume of construction waste increased when compared with 2007. It is expected that the volume of construction waste will keep rising in the next few years due to the 3-3-4 development.

過去三年，生物及化學廢物的產生量穩定，但都市固體廢物量則有波動。2008年有許多新建造項目，因此建築廢料量較2007年增加。配合三三四學制的發展，預料未來數年的建築廢料量續有增加。

圖 3b: 2007和2008年建築廢料量

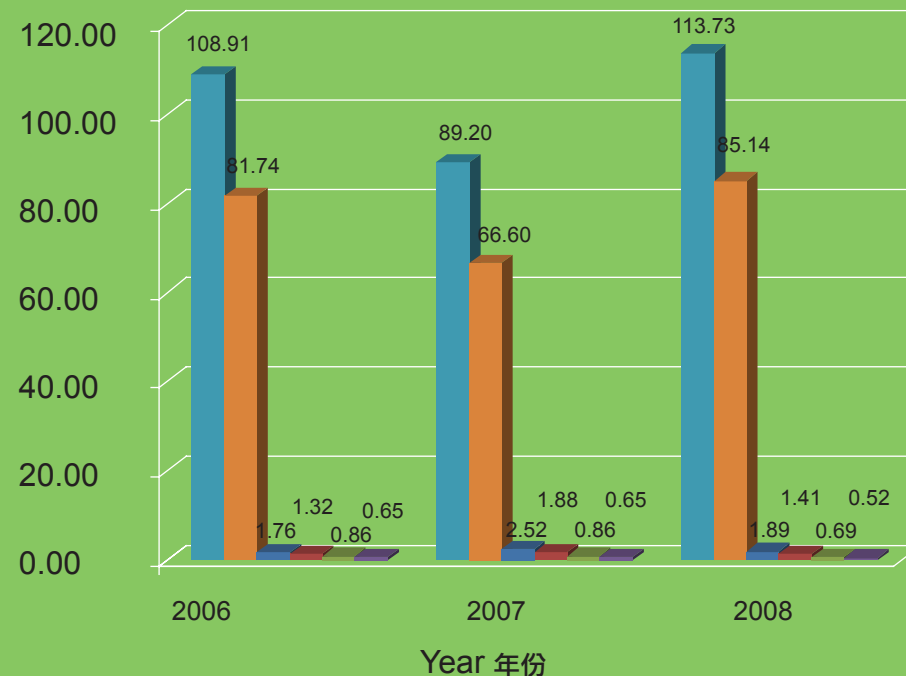


Construction and demolition waste per capita (kg / total number of FTE students & full time staff) 每人建築廢料量 (公斤 / 等同全日制學生及全職教職員總數)

Construction and demolition waste per FTE student (kg / FTE student) 每名等同全日制學生建築廢料量 (公斤 / 等同全日制學生)

Graph 3a: Waste generation statistics of 2006, 2007 and 2008

圖 3a: 2006、2007和2008年廢料量



Municipal solid waste per FTE student (kg / FTE student) 每名等同全日制學生都市固體廢物量 (公斤 / 等同全日制學生)

Municipal solid waste per capita (kg / total number of FTE students & full time staff) 每人都市固體廢物量 (公斤 / 等同全日制學生及全職教職員總數)

Chemical waste per FTE student (kg / FTE student) 每名等同全日制學生化學廢物量 (公斤 / 等同全日制學生)

Chemical waste per capita (kg / total number of FTE students & full time staff) 每人化學廢物量 (公斤 / 等同全日制學生及全職教職員總數)

Biological waste per full time equivalent (kg / FTE) 每名等同全日制學生生物廢物量 (公斤 / 等同全日制學生)

Biological waste per capita (kg / total number of FTE & full time staff) 每人生物廢物量 (公斤 / 等同全日制學生及全職教職員總數)

## Water

Water is consumed on the University campus mainly for washing, flushing, irrigating and filling the Swimming Pool. In 2008, each FTE student consumed 45.7 m<sup>3</sup> of potable water. To reduce water wastage, automatic cut-off taps are installed in the washrooms in administrative and academic buildings. Water from the Chung Chi Stream and Weiyuan Lake is used for irrigation, flushing and cooling. With the abovementioned measures, in 2007 and 2008, the water consumption per FTE student dropped about 10%, compared to that of 2006. The EMO is going to install meters in different buildings to study water usage on campus.

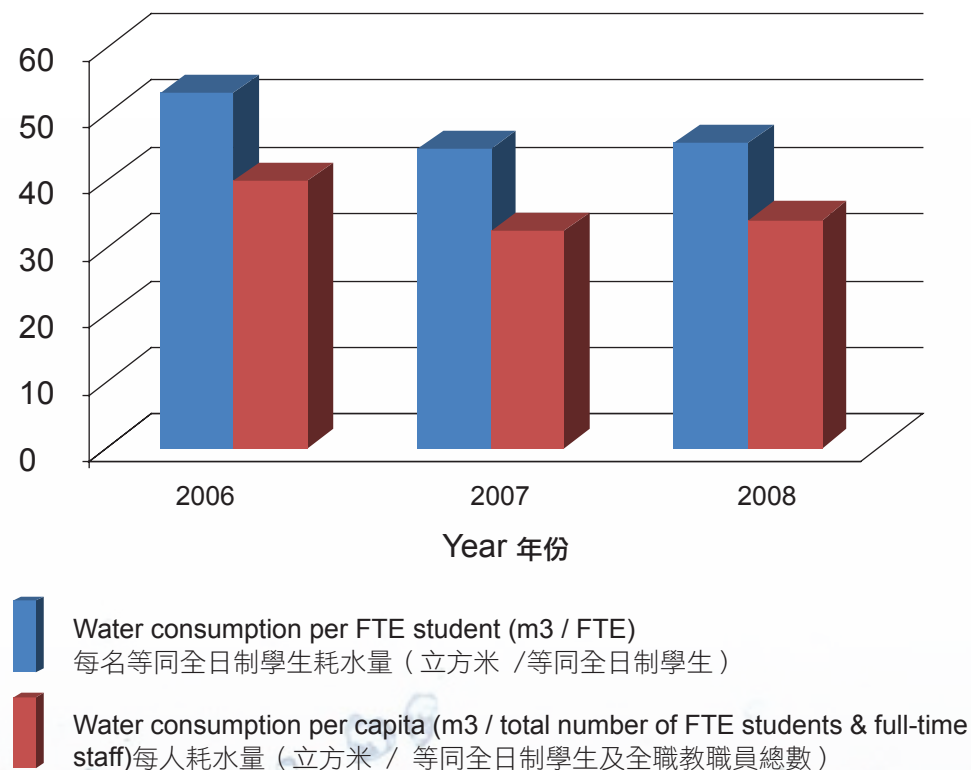
## 水

中大校園的用水，主要用作洗滌、沖廁、灌溉，以及維持游泳池運作。2008年，每名等同全日制學生消耗約45.7立方米飲用水。為減少耗水量，中大在行政教學大樓的洗手間安裝會自動關上的水龍頭。我們利用小橋流水和未圓湖的溪水作灌溉、沖廁和冷卻之用。採取以上措施後，與2006年相比，2007和2008年每名等同全日制學生的耗水量下跌約百分之十。物業管理處將於各大樓裝設水表，研究校園用水的情況。

Table 5. Water Consumption in terms of FTE Student & Per Capita  
 表 5. 按每名等同全日制學生及每人計算的耗水量

No. 編號	Indicator (Unit) 指標 (單位)	Definition / Remark 定義 / 備註	Results 結果
WA1	Water consumption per FTE student (m <sup>3</sup> / FTE) 每名等同全日制學生耗水量 (立方米 / 等同全日制學生)	Total water consumption / Number of FTE students 總耗水量 / 等同全日制學生數目	45.72 m <sup>3</sup> / FTE student (立方米 / 等同全日制學生)
WA2	Water consumption per capita (m <sup>3</sup> / total number of FTE students & full-time staff) 人均耗水量 (立方米 / 等同全日制學生及全職教職員總數)	Total water consumption / Number of FTE students & Number of full-time staff 總耗水量 / 等同全日制學生及全職教職員數目	34.23 m <sup>3</sup> / capita (立方米 / 人)

Graph 4: Water consumption in 2006, 2007 and 2008  
 圖 4: 2006、2007和2008年耗水量



## COMPLIANCE AND MONITORING

During the year, the University and its contractors had zero prosecution for environmental non-compliance. A total of eight environment-related complaints were received, most of them related to vehicle exhaust, tree felling and paper wastage. To ensure environmental compliance, the University periodically conducts audits and monitoring.

### Stream Water at the Chung Chi Stream and Weiyuan Lake

The wastewater generated on campus is properly discharged to municipal sewers and conveyed to the Sha Tin Sewage Works for treatment. The Campus Development Office (CDO) hires consultants and contractors to check and rectify the leakage of some underground facilities in order to avoid any contamination of underground water. The staff from the University Safety & Environment Office (USEO) and external consultants conduct regular water testing to monitor the water quality of Chung Chi Stream and Weiyuan Lake.



Testing leakage of underground facilities by consultants  
顧問人員測試地下設施是否有滲漏

## 遵守法規與監察

年內，中大及其承辦商從未因不符環保要求而被檢控。有關環境的投訴共八宗，大部分與汽車廢氣污染、砍伐樹木和浪費紙張有關。為確保符合環保要求，中大定期進行審核和監察。

### 小橋流水與未圓湖的溪水

校園產生的污水，均妥善排放至污水管，輸送至沙田污水處理廠。大學校園發展處聘用顧問和承辦商，檢查地下設施，改正滲漏情況，以防止污染地下水。大學安全及環境事務處的人員和外間顧問定期測試，以監察小橋流水和未圓湖的水質。



The water of the Chung Chi Stream and Weiyuan Lake is strictly monitored.  
小橋流水和未圓湖水質受到緊密監察



A TSP sampler is installed near Residence 10 to monitor the dust level

第十苑附近裝設了總懸浮微粒取樣器，監察塵埃水平

## Dust and Noise Monitoring at Campus Circuit

The University has succeeded in applying to the Government for an extension of campus grounds to what is known as 'Area 39', to the north of the existing campus, on which the University's Centralized General Research Laboratories Complex is proposed to be built. To cater for the new 3-3-4 curriculum, the first laboratory building is targeted for completion by 2012. To facilitate site formation works at Area 39, the University has allowed access by construction vehicles of the Civil Engineering and Development Department to certain portions of the Campus Circuit and within restricted hours. The arrangement has been in effect since March 2008 and will last for one and a half years, with extension subject to the University's approval. The Security and Transport Office has reviewed the additional traffic on Campus Circuit and considers it acceptable since there is no significant impact on campus traffic as a whole. To closely monitor the environmental quality throughout the period, the USEO has measured the noise level and dust emission of this area.

## 監察環迴路的塵埃與噪音

中大已向政府申請把校園範圍擴展至現有校園以北的第三十九區，並已獲政府批准。中大的綜合科研實驗室大樓，即建議在這裏興建。為配合三三四學制，第一座實驗室大樓的目標落成日期是2012年。為便於第三十九區進行地盤平整工程，大學容許土木工程拓展署的工程車在劃定時段使用環迴路的部分路段。這項安排由2008年3月起生效，為時一年半，經大學同意後可予延長。保安及交通事務處已檢視環迴路上增加的交通量，認為對校園整體交通影響不大，可以接受。為緊密監察這段期間的環境質素，大學安全及環境事務處亦量度了該地的噪音水平和塵埃排放量。



The USEO conducts an IAQ survey for select locations  
大學安全及環境事務處在選定地點進行室內空氣質素調查

## Indoor Air Quality

The EMO regularly inspects and maintains the air-conditioning system on campus. Last year, some common areas and classrooms in 57 buildings were selected for carbon dioxide (CO<sub>2</sub>) gauging. Results were found to be satisfactory.

In addition to the monitoring of indoor air quality (IAQ) conducted prior to the opening of new buildings on campus, a monitoring programme was initiated to formulate IAQ monitoring instrumentation and criteria by USEO according to the Guidance Notes for the Management of Indoor Air Quality in Offices and Public Places. Buildings including the Centralized Science Laboratories Building, Ho Sin Hang Engineering Building, the Science Centre and the Academic Building were selected for the IAQ monitoring survey. The premises covered included desk areas, general offices, laboratories and workshops. Ten IAQ parameters were measured, namely, room temperature, relative humidity, air movement, carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), total volatile organic compounds (TVOC), nitrogen dioxide (NO<sub>2</sub>), formaldehyde, respirable suspended particulates (PM10) and radon (Rn). A total of 243 sets of data were collected by the USEO, of which over 96% met the IAQ Objectives for Office Buildings and were classified as 'Good'. The data were then analysed for possibilities of further improvement in indoor workplace air quality. A comprehensive IAQ monitoring programme will be conducted on the campus in the near future.

## 室內空氣質素

物業管理處定期檢查維修校園內的空調系統。去年在五十七座樓宇的公眾地方和教室進行二氧化碳監察，結果令人滿意。

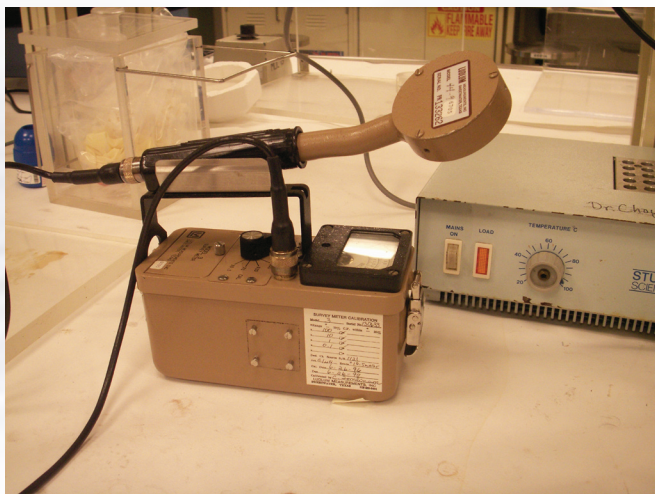
除在校園內的新建樓宇啟用前監察室內空氣質素外，中大推出了監察計劃，由大學安全及環境事務處根據「辦公室及公眾場所室內空氣質素管理指引」，制定室內空氣質素監察的方法與測試標準。校方選定了科學實驗室專門大樓、何善衡工程學大樓、科學館和教研樓等樓宇，進行室內空氣質素監察調查，範圍包括接待處、辦公室、實驗室和工作坊。測量的室內空氣質素參數共十個，即室內溫度、相對濕度、空氣流動、二氧化碳、一氧化碳、揮發性有機化合物總量、二氧化氮、甲醛、可吸入懸浮粒子和氬。大學安全及環境事務處收集了二百四十三組數據，當中百分之九十六符合辦公室的室內空氣質素指標，屬於「良好」級別。這些數據將再予分析，以便進一步改善校內工作地點的室內空氣質素。校方短期內將於校園推行全面的室內空氣質素監察計劃。



## Radiation

Radioactive substances are being used in CUHK in research and in building service equipment. All purchases, storage, use and disposal of radioactive chemicals are controlled and monitored by the Departmental Radiation Safety Coordinators in user departments and by the USEO to ensure that all legal requirements are met. All radioisotope laboratories are regularly checked to ensure that high standards of laboratory practices are closely adhered to. All sealed radioactive sources in laboratory equipment and in lightning preventers are tested for leakage annually by the USEO.

In 2008, two radioisotope laboratories were closed. After all radioactive materials had been removed from the laboratories, USEO performed a safety clearance inspection, both by physical checking and radiation contamination tests, to ensure that the laboratories contained no contaminants such as radioactive chemicals before they were released for renovation.



## 輻射

放射性物質在中大用於研究項目和大樓服務設備。放射性化學物品的採購、貯存、使用和棄置，均由使用部門的放射性物料安全統籌員和大學安全及環境事務處控制與監察，確保符合所有法律規定。所有放射性同位素實驗室均定期檢查，確保按嚴格的實驗室實務標準操作。大學安全及環境事務處每年均檢查實驗室設備和避雷裝置內封存的放射源是否有滲漏。

兩個放射性同位素實驗室於2008年關閉。實驗室內所有放射性物質移走後，大學安全及環境事務處進行了安全檢查，透過實地檢查和放射污染測試，確保實驗室不含放射性化學品等污染物，然後才開放予裝修人員工作。

## GREEN BUILDING FEATURES

The Teaching Complex at Western Campus (TCWC) was completed in the fourth quarter of 2008. It comprises lecture theatres, classrooms, offices and language laboratories. The buildings' architecture and layout were designed to convey a bright, airy and out-reaching ambience. The overall emphasis is on responsiveness to natural surroundings, and a flexibility in the design of engineering services has been adopted to cater for future changes in layout and uses. To comply with the 'green building' concept, energy efficient and recycling features are in place. They include water cooled chillers, automatic demand control of air supply using carbon dioxide sensors, heat wheels for air handling units, energy efficient light fittings, light-emitting diode (LED) type exit signs, occupancy and daylight sensors for lighting control, automatic on-off switching of lighting and ventilation fan for lifts, good air quality objectives, prefabrication of engineering material/equipment, and cooling tower bleed-off water for flushing purposes. Efforts have also been made to enhance pedestrian linkage between the Central Campus and United College, with the supply and overall capacity expansion of public utility services.



Footbridge linking Central Campus and United College  
連接中央校園和聯合書院的行人天橋



High glass allowing natural light into the lobby, complete with photo sensors for light fittings

大堂玻璃窗引入天然光線，配備感光器控制燈光

## 綠色建築特色

校園西部綜合教學大樓於2008年第四季落成，設有演講廳、教室、辦公室和語言實驗室。大樓的建築設計和布局，予人明亮、空闊和開放之感。整體而言，強調與自然環境互相呼應，各項設備的工程設計力求靈活，方便日後改變布局與用途。為符合「綠色建築」的概念，大樓備有節能和回收再用的設施，包括安裝水冷式空調系統、以二氧化碳感應器控制自動送風、為風櫃安裝轉輪式熱交換器、安裝節能照明裝置和發光二極體出路燈箱、以人流及日光感應器控制燈光、裝設升降機照明及通風系統自動開關、訂立良好空氣質素指標、使用預製工程物料及設備，以及利用冷卻塔排放的水來沖廁。各方亦互相配合，加強中央校園和聯合書院之間的行人通道聯繫，以及提供和加強公用服務設施。



Variable air flow and energy-efficient light fittings in lecture theatres

演講廳配備可變氣流冷卻系統和節能照明裝置

## LANDSCAPE ENHANCEMENT

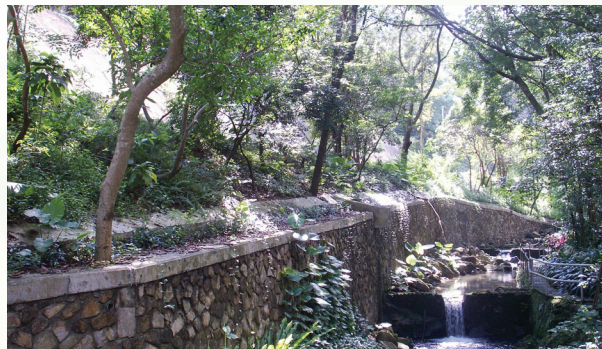
The Campus Landscaping Enhancement Committee (CLEC) is charged with the responsibility of vetting tree felling applications, improving general awareness and communication among students and staff on campus landscaping matters, assessing and reviewing all campus landscaping projects endorsed by the Campus Planning Committee, and improving the appearance of the campus. Members of the CLEC include staff from administrative offices and academic departments, student representatives and external experts.

### A Boulder Landmark

The boulder adjacent to the Central Avenue and New Asia Road on the University campus is a familiar landmark to all CUHK members. Prolonged exposure to the elements has led to weathering of the rock surface, and incidents of falling rock debris have been reported in recent years. To ensure campus safety, the University sought consultant opinion on how to carry out maintenance works. To meet the Government's geotechnical requirements and ensure balance between campus safety and environmental protection, the University turned down one stabilizing proposal which involved 6,000 rock dowels and soil nails, in favour of another which only used 100 rock dowels, with wire meshing and buttress walls, in order to reduce the dust and the noise pollution. Also, following the CLEC's suggestion, the treeless surface of the boulder was retained so as not to change this landmark which has been there since the University laid its first cornerstone. Plants will be grown at selected peripheral areas, with consideration to pedestrian sight line. There would also be shrubs and climbers along the slope toe, and climbing creepers at the slope crest.

### Green Slopes

There are about 300 registered slopes and a large number of natural slopes on campus. In the late 1990s, landslips always occurred after heavy rains. Efforts of the Standing Committee on Campus Geotechnical Matters have resulted in the stabilizing of many slopes and a tremendous enhancement in slope safety. No landslips have been recorded after stabilizing works, not even under the most inclement weather of rainstorms and landslide warnings.



Landscaped slope with tree rings and greening

設有樹環和種有植物的綠化斜坡

In earlier days, a cheaper method of shotcreting, which applies concrete through a hose onto a surface, was widely used in Hong Kong. As the shotcreted slopes look lifeless and incongruous with nearby vegetated areas, the University has adopted many techniques to mitigate the visual impact by planting ornamental shrubs and climbers on slopes. Soil nailing is also used to stabilize cut-slopes in order to reduce disturbance to trees. Other tree retention methods include tree rings and toe walls.

## 景觀美化

校園景觀美化委員會負責審核砍伐樹木的申請，促進教職員和學生對校園景觀美化的認識和意見交流，評審所有經校園計劃委員會通過的校園景觀美化項目，並改進校園的外觀。校園景觀美化委員會成員包括行政部門和教學部門的人員、學生代表和校外專家。

### 大石地標

中央道和新亞道旁邊的石坡，是所有中大師生熟悉的地標。風吹雨打經年，大石表面已有風化現象，近年還有碎石脫落。為保校園安全，大學徵詢了顧問該如何保養。為符合政府的地質技術要求，並在校園安全和環境保護之間取得平衡，中大否決了一項牽涉六千顆石釘和泥釘的穩固工程建議，而接受了另一項只使用一百顆石釘，配合鐵網和扶壁的建議，以減少塵埃和噪音污染。此外，校方應校園景觀美化委員會的建議，保留石塊表面無樹的外觀，好保留這個自中大奠基以來就已存在的地標的外觀。周邊的一些地區會栽種植物，綠化範圍將考慮行人的視線。斜坡邊緣也會有灌木和攀緣植物，斜坡頂端則種植匍伏植物。

### 綠化斜坡

校園內共有約三百幅登記斜坡和大量天然斜坡。上世紀九十年代末，大雨後往往有山泥傾瀉。在大學校園岩土事務委員會努力下，許多斜坡得以鞏固，安全大大加強。完成鞏固工程後，即使遇上狂風暴雨和山泥傾瀉警告的惡劣天氣，也再沒有崩塌紀錄。

早期香港的斜坡鞏固工程，廣泛採用較廉宜的噴漿法，以喉管把混凝土噴注到斜坡表面。有見以這種方式鞏固的斜坡了無生氣，與鄰近有植物的地區格格不入，中大採用了多種技術，改善視覺效果，例如在斜坡上種植裝飾性的灌木和攀緣植物，也使用泥釘鞏固削土斜坡，以減少對樹木的干擾。其他保留樹木的方法，包括樹環和矮牆。

## CAMPUS ECOLOGY

With a total area of 134 hectares, the University campus is the largest among local tertiary institutions. About 60% of the campus is greenery comprising natural slopes, landscaped areas and roof gardens, which is home to about 189 tree species, including pine, willow, orchid and bauhinia, as well as a range of wildlife. To maximize the greenery, a total of 73 trees, 6,832 shrubs, 3,803 floral plants, 2,539 ground cover and 13,265 sq. m<sup>2</sup> of grass were planted on campus in 2008. Pursuant to the felling of 212 trees in the construction projects, 278 trees were planted as compensation. Additionally, 93 tree seedlings were planted on campus and 3,300 seedlings were planted on Grassy Hill. For safety reasons, 9 trees were removed after they were diagnosed as no longer in robust health.

Table 6. Number of Flora Planted in the Past Three Years

表 6. 過去三年種植的植物

Year 年份	Trees (No.) 樹木 (棵)	Shrubs (No.) 灌木 (棵)	Flowering Herbs (No.) 花卉植物 (株)	Ground Cover (No.) 地被植物 (株)	Lawn (m2) 草地 (平方米)
2006	414	26,255	10,684	15,400	5,665
2007	106	8,344	5,275	3,285	27,508
2008	351	6,832	3,803	2,539	13,265

## 校園生態

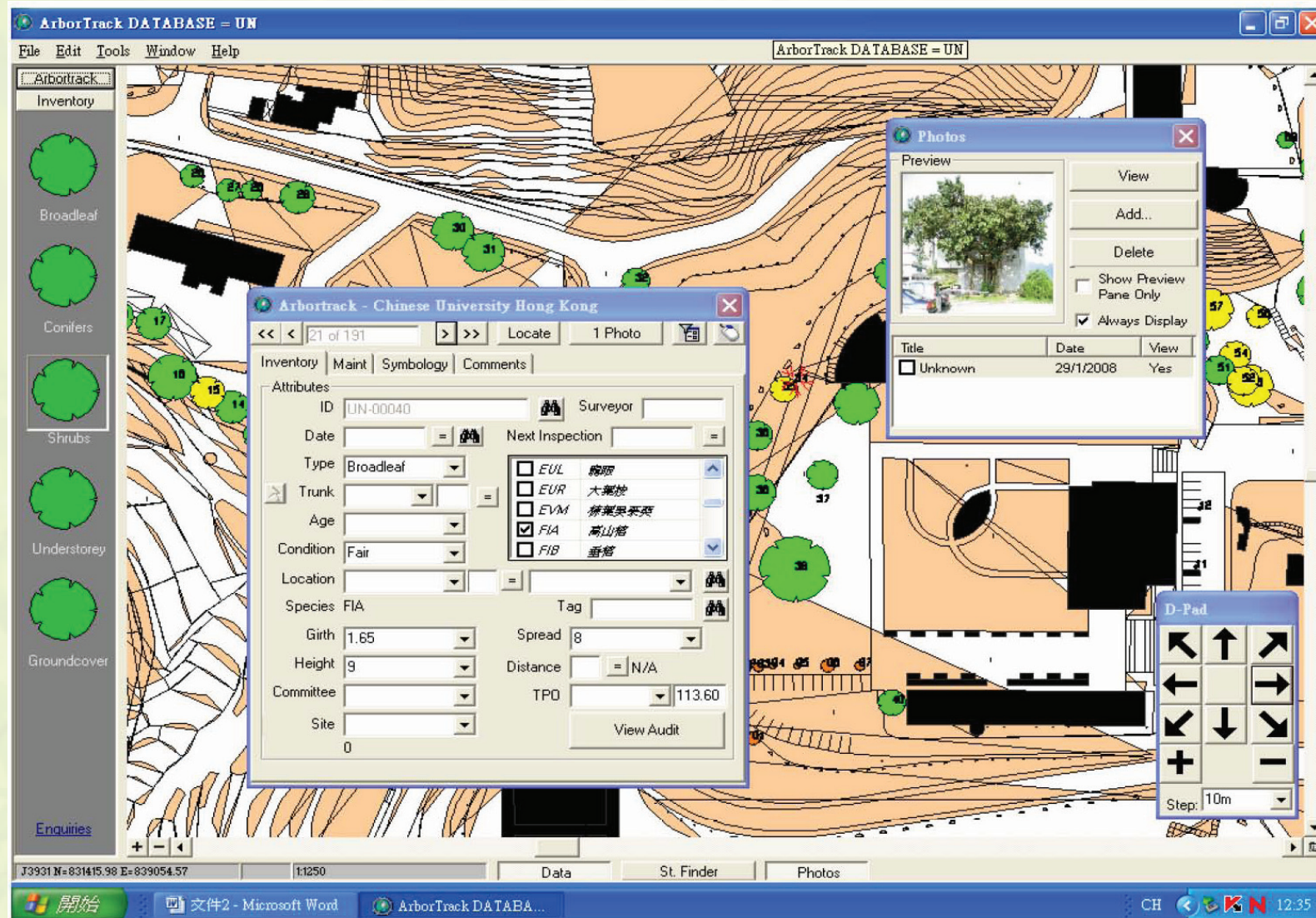
中大校園總面積134公頃，是本地大專院校之冠，當中約六成是綠化地帶，包括天然斜坡、園景美化區和天台花園，共有約189個樹種，包括松樹、柳樹、蘭花和洋紫荊，也有多種野生生物。為擴大綠化地帶，2008年校園內共種植73棵樹、6,832棵灌木、3,803株花卉植物、2,539處地被植物和13,265平方米青草。因建造工程砍伐212棵樹後，我們另行種植278棵樹，以作補償。此外，中大分別在校園和草山種植93和3,300株樹苗。為安全起見，中大移除了九棵經診斷為有欠健康的樹木。

## Plotting a Habitat Map

Under the direction of the CLEC, the EMO began conducting a tree survey about two years ago. Trees with a diameter of at least 500 mm were measured and assessed. The data, together with their visual images and location maps, were input into a sophisticated computerized database system, the ArborTrack. The trees' physical measurements will be updated every three years and their conditions will be assessed every one to two years. There are 475 trees in the database, including rare and precious species and trees of historical value to the University. Tree tags in Chinese and Latin have been attached to the trees by EMO. The tree survey is part of the tree preservation policy which exists to protect and conserve trees on campus.

## 繪製樹木地圖

在校園景觀美化委員會指示下，物業管理處約於兩年前開始普查校園內的樹木，量度和評估直徑為500毫米或以上的樹木，把其數據、影像和位置圖，輸入精密的電腦數據庫ArborTrack內。樹木尺寸紀錄每三年更新一次，狀況每一至兩年評估一次。數據庫內共有475棵樹的資料，包括珍稀品種和對中大有歷史價值的樹木。物業管理處在樹身繫上中文和拉丁文名稱標籤。樹木普查是樹木保育政策的一部分，目的是保護校園內的樹木。



The ArborTrack System

ArborTrack系統

## Ecological Survey

About 131 species of birds currently reside on the University campus. Among all resident birds, the House Swift, *Apus nipalensis*, is probably the most familiar species to CUHK members. The concrete, cliff-like walls of the University Library, where over 500 House Swifts have built their nests, are home to the largest swift colony in Hong Kong. The first comprehensive study on House Swift ecology at the University Library was conducted between June 2007 and October 2008. The population size, breeding ecology, brood-feeding rate, area utilization rate, nest and nest clusters counts, and preferences for selection of nesting sites were studied. It was found that the House Swift population on campus was steady with a slight growth. The qualitative and quantitative results will be useful references for assessing the ecological impact of the library extension works on these birds.

An ecologist was hired by the EMO to study terrestrial wildlife ecology on campus. The Phase 1 Monitoring Programme, conducted on a monthly basis, was carried out from October 2008 through September 2009. In this study, the existing terrestrial wildlife population was counted to build up an inventory and database of wildlife including butterflies, dragonflies and birds on campus. In addition, important sites for breeding, day and night roosting, and foraging of surveyed wildlife were identified.

## 生態調查

目前在中大校園內棲息的鳥類約有131種。在留鳥當中，大抵以小白腰雨燕最為中大師生熟悉。大學圖書館如懸崖似的混凝土外牆上，共有五百多只小白腰雨燕築巢，形成香港最大的小白腰雨燕群落。2007年6月至2008年10月間，中大首度全面研究大學圖書館的小白腰雨燕生態，包括其數目、繁殖生態、哺育率、面積使用率、鳥巢和鳥巢群數目、選擇築巢位置的模式等。結果發現校園的小白腰雨燕數目穩定，有輕微增長。所得的資料和數據，可提供有用的參考資料，有助評估圖書館擴建工程對這些鳥類的生態影響。

物業管理處聘請了生態學家，研究校園陸上野生生物的生態。第一階段監察計劃於2008年10月展開，每月進行一次監察調查，至2009年9月止。調查內容包括統計現有的陸上野生生物，包括蝴蝶、蜻蜓和雀鳥，並建立數據庫，亦會找出這些野生生物繁殖、日間和夜間棲息、獵食的重要地點。



House Swift nests on the walls of the University Library  
大學圖書館外牆上的小白腰雨燕巢

## GREEN PURCHASING

The University adopts a 'green purchasing' policy, which encourages staff to choose products and services that have less impact on the environment. For example, the Business Office uses recycled copying paper, the Estates Management Office purchases toilet paper made of recycled pulp for use on campus, and the roads on campus have been repaved with eco-glass blocks made from glass, fly ash and recycled aggregate. Other favoured practices include using electrical appliances with the energy label as approved by EMSD, and using environmentally friendly cleaning agents for daily cleaning. Some canteens use recycled materials for lunch boxes or make it a mandatory practice to use re-usable boxes.

Through the decentralization of purchasing, such 'green purchasing' is delegated to individual departments / units.

## 環保採購

中大實施「環保採購」政策，鼓勵職員選擇對環境影響較小的產品及服務。例如商務組使用循環再造的影印紙；物業管理處採購以循環再造紙張製成的衛生紙，供校園內使用；而校園內的道路，均重新鋪上以玻璃沙、粉煤炭和循環物料製成的環保地磚。其他實踐包括使用有機電工程署認可能源標籤的電器、使用環保清潔劑作日常清潔之用，有些飯堂則使用以可循環再造物料製成的飯盒，或強制使用可回收再用的飯盒。

採購工作分散至各部門後，環保採購亦下放至個別部門 / 單位。



Electrical appliances with EMSD energy label are purchased



Staff and students visit the Hong Kong International Airport to learn about the Airport Authority's practices in pollution control and ecology management.

中大師生參觀香港國際機場，了解機場管理局的控制污染和生態管理措施



Mr. Yau Tang-wah Edward, Secretary for the Environment, delivers a speech in the Environmental Week Assembly at Chung Chi College.

環境局局長邱騰華先生在崇基學院的環保周揭幕禮上致辭



University staff and students on an ecotour to Tung Ping Chau

中大師生參加東平洲生態遊



Green World's marine ecotour at Sai Kung

綠色天地的西貢海上生態遊

## ENVIRONMENTAL AWARENESS

Apart from offering formal undergraduate and postgraduate programmes leading to an environmental degree, general education is provided for all undergraduate students on environmental awareness. Forums and seminars featuring expert speakers from all over the world are organized to shed light on relevant topics. The University and the green groups also organize a wide range of activities such as tree planting and visits to enhance environmental awareness within the community.

In support, each College also organizes activities such as ecotours, organic farming, energy saving competitions and environmental week for their students.

In 2008, Green World, a student group with fifteen years of history in CUHK, organized ecotours, marine tours, bird-watching, organic farming and Environmental Week.

## 環保意識

中大開辦正規本科和研究生課程，頒授環境學學位，並為所有本科生提供通識教育，提升他們的環保意識；又舉辦論壇和研討會，邀請世界各地的專家分享相關議題。校方和綠色組織也安排多種活動，例如植樹和探訪，以提升市民的環保意識。

各書院也為學生舉辦配合活動，例如生態遊、有機耕種、節能比賽、環保周等。

有十五年歷史的中大學生組織綠色天地，在2008年舉辦了生態遊、海上遊、觀鳥、有機耕種和環保周等活動。



## Hang Seng Tree Labelling Project

The CU Tree Project sponsored by the Hang Seng Bank was launched in mid-2008, with the goal to promote nature education among students and to enhance bonding among staff, students and alumni. It will leverage on the natural asset of the campus by turning its rich, natural elements into a botanical garden. Specifically, the project will include the labeling of 100 species of trees and plants on campus with interpretation plates or tree tags, and the publication of a guidebook to the plants of CUHK.

Fieldwork and photo-taking have been underway since then to catch the flowering seasons of different types of flora on campus. With the help of the Landscaping Section, a tree-tagging volunteer exercise was launched in November 2008, which involved 30 alumni, staff and students. Working together with the Alumni Affairs Office and the Landscaping Section, the CU Tree Group organized a tree talk and three tree walks for more than a hundred alumni and staff on 7 December 2008. Feedback from participants has been favourable and encouraging.



More than 30 alumni, staff, and students tag the trees in December 2008

三十多名校友、教職員和學生在2008年12月為樹木加上標籤

## 恒生樹木標籤計劃

「中大樹木計劃」，由恒生銀行贊助，於2008年中推出，目的是向學生推廣自然教育，並加強教職員、學生與校友之間的聯繫。計劃利用校園的天然資源，把當中豐富的天然元素，轉化為植物公園。具體而言，計劃內容包括以資料板或標籤方式，標示中大校園內一百種樹木和植物的名字，並出版中大植物指南，加深學生、教職員、校友和公眾人士對這些植物的認識。

計劃推行以來，工作人員已展開田野工作和攝影紀錄，捕捉一年內各種花卉的不同開花季節。在園藝組協助下，2008年11月展開了樹木標籤義工計劃，有三十名校友、教職員和學生參加。中大樹木組亦與校友事務處和園藝組合作，在2008年12月7日為百多名校友和教職員舉行了一個樹木講座和三個樹木遊，參加者反應熱烈，令人鼓舞。



Students on the Taiwan Ecotour in December

學生在12月參加生態遊前往台灣

## Taiwan Ecotour

Sponsored by the Hang Seng Bank, Green World organized 'Green Pioneer – Taiwan Ecotour'. This activity aimed at enhancing green concepts by visiting sites with ecological value. While on their Taiwan tour, the participants met with a local green organization for a highly inspiring experience-sharing session.

## 台灣生態遊

綠色天地舉行了「綠色先鋒——台灣生態遊」，由恒生銀行贊助，活動目的是透過遊覽具生態價值的地點，加強環保意識。遊台期間，參加者與當地環保組織會面，彼此交流經驗，獲益良多。

## CAMPUS MASTER PLANNING

In 2008, the University continued to engage its stakeholders – staff members, students, alumni, environmental groups, professional groups, contractors and suppliers – by means of meetings, visits, workshops, consultation activities, etc., in its goal to build a sustainable campus for the future.

### Building a Sustainable Campus

In February 2008, the University announced the appointment of Aedas Limited and its overseas partner, Edward Cullinan Architects (ECA), as the professional consultants for the Campus Master Plan (CMP). Aedas and ECA are very experienced in international campus planning and design, and their proposal demonstrated a keen understanding of the University's characteristics, respect for the University's traditions and the unique college system, and competence to come up with suggestions that suit the development needs. More importantly, the team was selected because it shares CUHK's vision of building a sustainable campus. Soon after the appointment, the consultant team began conducting surveys, technical and planning assessments, and holding a series of workshops in order to understand the concerns of all stakeholders. The first stage of the Stakeholders Engagement Programme was also launched, which included meetings, workshops and a forum to engage teachers and student before the term ended in mid-April. These activities saw attendance figures of as high as 180 by different stakeholder groups, from students, staff, and representatives of Colleges and faculties, to alumni. Views collected are available on the CMP website ([www.cuhk.edu.hk/cmp/en/](http://www.cuhk.edu.hk/cmp/en/)). All University members are welcome to visit the website for updates on the CMP and to express their opinions. There is consensus over some issues such as the need for more public space and preservation of the natural landscape, while other issues sparked interesting forums of discussions.



Stage 1 Briefing session  
第一階段簡介會



Stage 1 Workshop  
第一階段工作坊



Stage 1 Engagement meeting  
第一階段交流會議

## 校園發展計劃

2008年，中大繼續透過會議、實地視察、工作坊、諮詢活動等，加強與教職員、學生、校友、環保團體、專業組織、承建商和供應商溝通，以達到建立可持續發展校園的目標。

### 建設可持續發展校園

2008年2月，中大宣布委任凱達環球有限公司(凱達)及其海外夥伴葛艾活建築師事務所(葛艾活)為校園發展計劃的專業顧問。凱達和葛艾活在校園策劃與發展方面，有豐富的國際經驗，其建議書顯示對中大的特質認識深厚、對中大的傳統和獨特的書院制度十分尊重，亦有能力提出符合發展需要的建議。該兩公司獲選的最重要原因，是有意建設可持續發展的校園，與中大的理念一致。委任後不久，顧問展開調查、進行技術和策劃評估，並舉辦一系列工作坊，以了解各相關人士關注的事項。第一階段的活動已經展開，包括會議、工作坊和論壇，與師生交流，在四月中學期結束前舉行。參與這些活動的，有多達一百八十名來自不同組別的人士，由學生、教職員、書院及學院代表，以至舊生等。所收集的意見，均上載至校園發展計劃網頁([www.cuhk.edu.hk/cmp/en/](http://www.cuhk.edu.hk/cmp/en/))。歡迎中大師生瀏覽該網頁，了解校園發展計劃的最新消息，並發表意見。若干議題已有共識，例如需要更多公共空間、保育天然景觀等；別的議題則仍討論熱烈。

Following the release of the Stage 1 Stakeholder Engagement Report at the end of August 2008, Stage 2 Stakeholder Engagement Activities commenced on 1 October 2008. The Conceptual Planning Proposal depicts the consultant's planning visions of the campus for 2021 and the key planning issues. A poster exhibition was held at six venues on campus. Four engagement meetings, three workshops and a forum were held in October during which the consultant introduced the conceptual plans and exchanged views with stakeholders. A video of the consultant's presentation of the Conceptual Planning Proposal and the Stage 2 Engagement Report have been uploaded to the CMP web site ([www.cuhk.edu.hk/cmp/en/](http://www.cuhk.edu.hk/cmp/en/)).

Between November 2008 and early January 2009, the CMP consulting team carried out Stage 3 studies which included detailed studies of the campus and analyses of views collected. The team will also start preparing specific proposals for presentation to University members.

2008年8月底發表《首階段持份者交流活動報告書》後，校園發展計劃的第二階段持份者交流活動於2008年10月1日展開。《校園規劃概念建議》描繪了顧問對2021年校園規劃的理念，以及主要的規劃議題。顧問在校園的六個地點舉行海報展覽，10月舉行四個交流會議、三個工作坊和一個論壇，由顧問介紹規劃概念，並與持份者交流意見。顧問簡介《校園規劃概念建議》的錄像，以及《持份者交流活動報告書（第二階段）》，已上載至校園發展計劃網頁([www.cuhk.edu.hk/cmp/en/](http://www.cuhk.edu.hk/cmp/en/))。

2008年11月至2009年1月初，校園發展計劃顧問團隊進行了第三階段研究，包括對校園的具體研究，以及分析收集所得的意見。顧問亦將開始準備具體建議，向中大師生介紹。



Stage 2 Workshop  
第二階段工作坊



Stage 2 Conceptual plan poster display  
第二階段規劃概念海報展覽



Stage 2 Forum  
第二階段論壇



Targets  
Targets  
目標 目標

## Long Term

### *Building a Sustainable Campus*

To draft the Campus Master Plan (CMP) in building a sustainable campus, an extensive consultation process comprising meetings, workshops and a forum was launched in 2008, and will be carried over to 2009.

### *Corporate Afforestation Scheme*

To plant 10,000 trees of different species and manage the site on Grassy Hill, Tai Po, up to 2011.

### *Carbon Audit*

To conduct carbon audits in buildings/offices, and later throughout the campus.

## 長遠目標

### *建設可持續發展校園*

草擬校園發展計劃，建設可持續發展校園。在2008年已展開廣泛諮詢，例如舉行會議、工作坊和論壇，諮詢工作將持續至2009年。

### *企業植林計劃*

於草山種植一萬株不同品種的樹苗，並管理該地點，直至2011年。

### *碳審計*

在個別樓宇／部門進行碳審計，日後將推廣至整個校園。



The CUHK Community Afforestation Scheme on Grassy Hill  
中大草山社區植林計劃



Wind turbine at the Water Sports Centre

水上活動中心的風力發電機

## Short Term

### *Habitat Mapping*

To complete the tree survey to study and map out trees on campus in 2008 and 2009.

### *Surveys on Birds, Butterflies and Dragonflies*

To conduct surveys to study birds, butterflies and dragonflies on the campus in 2008 and 2009.

### *Environmental Sustainability Ambassador Programme*

To train a group of Environmental Sustainability Ambassadors to help with the carbon audit in 2009.

### *Tree Management Training Programme*

To provide a series of tree training for staff and the community in 2009.

### *Wind Energy Study*

To study the feasibility of using medium or small wind turbines to generate energy on campus in 2009.

## 短期目標

### *繪製樹木地圖*

在2008和2009年完成樹木普查，研究校園的樹木，繪製成地圖。

### *普查雀鳥、蝴蝶和蜻蜓*

在2008和2009年進行普查，研究校園的雀鳥、蝴蝶和蜻蜓。

### *環境可持續發展大使計劃*

培訓一群環保大使，在2009年協助進行碳審核。

### *樹木管理培訓計劃*

在2009年為職員和社區提供樹木保育培訓。

### *風力發電研究*

探討在2009年在校園使用中型或小型風力發電機發電的可行性。

## Feedback

This *Sustainability Report* represents the University's commitment to building a green campus and outlines the University's plans to seek continual improvement. We have incorporated the basic elements of the Global Reporting Initiative (GRI) G3 Guidelines into this report. To help us improve our performance, please let us have your comments and suggestions. You are most welcome to contact us via our hotline, email or website.

## 回應

本《可持續發展報告》，顯示了中大致力建設綠色校園的努力，並概括說明中大持續改善環境的計劃。在報告中，我們採納了「全球報告倡議組織：G3指南」的基本元素。為使本校的環保工作更臻完善，請不吝惠賜意見和建議，幫助我們提升環保表現。歡迎透過熱線、電郵或網頁聯絡我們。

University Safety & Environment Office / 大學安全及環境事務處

Phone / 電話: 2609 7958

Email / 電郵: [uls@cuhk.edu.hk](mailto:uls@cuhk.edu.hk)

Environmental Hotline / 環保熱線: 2609 8666

Web site / 網址: <http://www.cuhk.edu.hk/useo/>