



# 收成的季節：中大樹木計劃成果豐碩

## A Time of Harvest: CUHK Tree Project Bears Fruit

「我」在1986年開始跟着胡秀英博士去爬山和觀察植物。我對植物的興趣就是這樣產生，而我和胡博士的友誼也是從那時開始。在過去二十四年，植物成了我的嗜好。我當時問自己：『我對樹木有甚麼認識？』答案是：幾乎一無所知。後來我對植物了解愈多，就愈着迷，愈愛惜。」英語教學單位的左治強先生說。左先生和恩師胡秀英博士發起中大樹木計劃。計劃的資訊科技顧問李焯焯小姐調侃說：「現在他一有機會就爬到樹上去。你隨便找來一棵樹，他都會爬給你看。」李小姐負責開發計劃的網上系統。

為期三年的計劃製作了首個校園樹木立體互動地圖、網上校園樹木數據庫和樹木網頁，還有流動應用程式，如podcast和以iPad、iPhone、iPodtouch或其他流動裝置收聽收看的影音資料。該計劃還舉辦了十五場樹木講座及由專家帶領的樹木導賞團，共有超過一千六百名中大員工、學生和公眾人士參加。計劃的目的是保護校園樹木、提高中大師生的環保意識和推廣綠色生活方式。

胡博士和左先生在2004年向恒生銀行的「綠色銀行」活動提交計劃建議書，2008年獲得贊助。其後兩年，左先生利用公餘時間開展龐大的工作，胡博士和生物系名譽高級研究員李賢祉博士則擔任顧問。

計劃成果豐碩，為慶祝這項繁複但意義重大的工作圓滿結束，大學在10月5至15日舉行「中大樹木之科學與藝術展及綠色活動雙周」。展覽呈現中大樹木之美，把本校與別不同的健康綠色校園展現於人前。多種樹木資料，如樹木互動地圖和圖片數據庫，內容充實、使用方便，適合公眾觀賞，也是環保教育的好素材。

(續下頁)



I started hiking and observing plants with Dr. Hu Shiu-ying in 1986. That was how my interest in plants began, as was our friendship. Plants have been my favourite pastime for the last 24 years. I asked myself, "What do I know about trees?" The answer then was next to nothing. Since then the more I learn about plants, the more I am fascinated, and I care about trees,' remarked Mr. George Jor of the English Language Teaching Unit (ELTU) who, together with his mentor Dr. Hu, initiated the CU Tree Project. 'Now

he climbs trees whenever he gets the chance. Give him a tree and he'll climb it for you,' quipped Ms. Tess Li, the project's IT consultant, who helped to develop the project's online resources. The three-year project produced the first-ever 3D interactive map of campus trees, an online campus tree database, a tree website, mobile applications such as podcasts, audios and videos that can be accessed by iPad, iPhone, iPodtouch, and other mobile devices. It has so far organized 15 tree talks and guided tree walks by tree experts that have benefitted over 1,600 CUHK

staff, students and members of the public. The aspirations of the project are to preserve campus trees, to raise eco-awareness among CUHK staff and students, and to encourage green living. Dr. Hu and Mr. Jor submitted a joint proposal in 2004 and succeeded in securing funding from

(上圖) 閉幕典禮的特別節目包括展出寫有原創歌曲《樹之讚歌》歌詞的布條。這首歌由指揮家蔣慧民校友、兒童合唱團團長張深浚小姐和鋼琴家兼資深中國民謠歌手董丹斌小姐合唱。(Above) Highlights of the closing ceremony included the hanging of colourful banners seen here, which carry the lyrics of an original piece of work 'Tree Praises' by Mr. Tony Chiang, alumnus and conductor. It was performed by children's choir leader Ms. June Zhang, accompanied by a pianist and veteran Chinese folk song singer, Ms. Maria Tung.

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香港特別行政區政府環境局局長邱騰華先生(左四)、中大校長沈祖堯教授(右四)、恒生銀行高級企業責任經理何卓惠女士(左三)、中大協理副校長及校園景觀美化委員會主席馮通教授(左二)、世界知名植物學家及中大中醫藥榮譽講座教授胡秀英博士(前排坐者)、中大校園環境委員會主席朱利民教授(右二)為展覽揭幕

Officiating at the opening ceremony were the Honourable Edward Yau Tang-wah (4th left), Secretary for the Environment, HKSAR; Prof. Joseph J.Y. Sung (4th right), Vice-Chancellor, CUHK; Ms. Alison Ho (3rd left), senior corporate responsibility manager, Hang Seng Bank; Prof. Fung Tung (2nd left), Associate Pro-Vice-Chancellor and Chairman of the Campus Landscaping Enhancement Committee, CUHK; Dr. Hu Shiu-ying (seated), world-renowned botanist and Honorary Professor of Chinese Medicine, CUHK; and Prof. Chu Lee-man (2nd right), chairman of the Committee on Campus Environment, CUHK.





### 中大樹木計劃詳情

面積廣達一百三十七公頃的中大校園，超過七成土地為植被覆蓋，樹木品種多達一百九十二種，是全港校園之冠，佔全港樹木品種超過三分之一，其中九十一種是本地品種。

詳細的校園樹木地圖，把近二百種樹木的所在一一標示。只須點擊樹木符號，便會顯示樹木名稱，點擊名稱即可看到該品種的詳細資料。此外，還載有校園花卉的精美照片和聲音解說檔案，內容豐富，是有關香港樹木的互動教材。這些圖片和聲音檔案亦上載至YouTube及iTunes U兩個多媒體平台，方便年輕人使用，促進知識傳播。地圖上展示了專為觀察樹木而設計的中大樹木徑，訪客只要利用流動傳輸裝置，就可讀取立體互動地圖和影音介紹，隨時獲得該處樹木的資訊。

計劃還包括中大樹木數據庫。這是個簡便的搜尋器，可讓人輕鬆快捷地尋找校園樹木和其他植物的資料。數據庫現有校園樹木、校園植物、校園珍稀植物和校內本地品種樹木四個名錄。另外，為加深公眾對樹木的認識，特設二維碼樹木標籤，除列明樹木名稱及品種科目外，更附有二維碼，方便以手提電話讀取樹木數據庫資料。標籤工作正分階段進行，預計2011年6月完成。

中大樹木計劃的各種網上資源皆載於網頁 ([www.greeneducationcuhk.net](http://www.greeneducationcuhk.net))。



### 樹木計劃的幕後英雄 Unsung Heroes of the Project

- 植物研究者劉振彪先生  
Mr. C.P. Lau, plant researcher
- 環保教育顧問葉熾文先生  
Mr. Jasper Ip, environmental education consultant
- 物業管理處園藝組職員：  
From the Landscaping Section,  
Estates Management Office:
  - 經理黃秉雄先生  
Mr. Billy Wong, manager
  - 監工鄭兆斌先生  
Mr. Steward Cheng, works supervisor
  - 前經理游中驥先生  
Mr. Yau Chong Kei, former manager

Hang Seng Bank—Green Bank four years later in 2008, kicking off the project. This was followed by two years of painstaking work conducted after office hours by Mr. Jor who was advised by Dr. Hu and Dr. Eric Lee, honorary senior research fellow in the Department of Biology.

Eventually the project bore fruit and to celebrate the completion of a staggering but meaningful undertaking, the Science and Art of Trees of CUHK Exhibition and Green Education Fortnight was held from 5 to 15 October. The exhibition showcased the beauty of trees at CUHK. The project created a rich, user-friendly collection of tree resources such as interactive tree maps and a tree photo database for green education and public interest.

### Project Details

Home to over a third of all tree species in Hong Kong, the 137-hectare CUHK campus is the largest tree habitat among all university campuses in Hong Kong. Over 70% of the area is covered with vegetation, which includes 192 species of trees. Of these, 91 are local species.

The project developed detailed **tree maps** for the campus that plot the locations of just under 200 species of campus trees. Moving the cursor over a tree icon reveals the tree's name and clicking on the latter unveils detailed information about that species. In addition, the project updated photographs and audio descriptions of flowers on campus, which together make a comprehensive set of interactive teaching material for green education in Hong Kong. These photos and audio resources are also uploaded to YouTube and CUHK on iTunes U to facilitate knowledge transfer and dissemination among students. The **CU Tree Trail**, a pedestrian route designed to enable users to observe trees on campus, is plotted with a 3D interactive map; audio-visual descriptions of trees are also made available along the route for mobile learning 'just in time'.

The project comprises a CUHK tree database, equipped with a user-friendly search engine developed for searching information on trees and other plants on campus, four checklists including a list of 25 rare and protected plants on campus, a list of 91 local tree species, a list of 192 campus trees, and a list of 355 plants on campus. And to enhance public understanding of trees on campus, there is work in progress for a **QR code tree catalogue system** with tags detailing names and species tagged to selected trees. Each label will contain a QR code to give mobile phone users easy access to the tree database. The tree-tagging system will be implemented in phases and is scheduled for completion by June 2011.

All online resources are available to the public on the CU Tree Project website ([www.greeneducationcuhk.net](http://www.greeneducationcuhk.net)).





# 接力建設可持續校園：可持續發展委員會

## Carrying on the Baton of Campus Sustainability: Committee on Campus Sustainability

校園發展計劃的諮詢階段已經結束，該計劃為遠至2021年的校園可持續發展定下了目標。最近，大學在校園計劃委員會之下成立可持續發展委員會，負責達成這些目標。

副校長程伯中教授是委員會主席，他說委員會的使命是「依據校園發展計劃提出的六大規劃原則，制訂和建議政策，引導我們校園的未來發展方向。它會制訂方案把校園發展計劃的願景和建議付諸實踐，並權衡緩急輕重，協調各方努力，加強校園環保意識。」

程教授說，新的委員會的迫切工作包括：確保交通、教學和休閒設施能配合大學成長的需要，尤其須容納2012年額外增加的三千名學生；為締建低碳校園制訂建築規格和政策；並向學生和教職員宣導環保和節能措施。委員會還會協調所有大學層面的綠色活動。

既然委員會正全力以赴，校園是否就可永保綠水青山，我們只要袖手旁觀即能坐享其成？程教授說：「怎樣一方面保持我們的校園美麗如昔，甚至更加蒼翠，一方面滿足我們的發展需要，絕非小事，不是

一個人或一個委員會能獨力做到，而是有賴全體中大人持續關注和參與。」

Following the completion of the consultancy stage of Campus Master Planning (CMP), the University has established the Committee on Campus Sustainability as a subcommittee of the Campus Planning Committee to continue campus sustainability goals identified in the CMP and adopted by the University for the years leading to 2021 and beyond.

Prof. Ching Pak-chung, Pro-Vice-Chancellor and chairman of the committee, explains the missions of the committee, 'The committee will formulate and propose policies to guide the future course of growth of our campus based on the six development precepts of the CMP. It will formulate a plan to action the visions and recommendations of CMP, set priorities and coordinate efforts to promote environmental awareness on campus.'



Professor Ching said that some of the more immediate tasks of the committee include ensuring transport, teaching and recreational facilities complement the University's growth, in particular, the need to accommodate 3,000 more students in 2012, working out building specifications and policies for a low-carbon campus, and educating students and staff about environmental protection and energy saving measures. The committee will also coordinate all University-level green initiatives. With the committee getting into gear, can we rest assured that we will enjoy an evergreen campus from now on? Professor Ching says, 'How to preserve and enhance our beautiful campus while keeping up with our developmental needs is not a trivial matter. No single person or committee can do that. Nothing less than continued interest and engagement of the entire University community is required.' \*

## 新法造綠坡

### A New Method of Slope Greening

校園岩土事務委員會最近就在斜坡上栽種植被的事宜，徵詢侯智恆博士的專業意見。侯博士是生物多樣性和保育專家，曾協助香港特區政府，為斜坡綠化項目負責研究工作。大學按照侯博士的意見，在一幅經鞏固的斜坡試行新的綠化方法。

侯博士建議的方法是在工程開始前，先移除斜坡的表層泥土，再鋪上新泥，刺激原有的植物重生；另一個做法是在斜坡鄰近的地區收集由天然植物形成的腐殖土，待斜坡鞏固後，把腐殖土覆蓋在斜坡上。這種方法已在靠近鐵路沿線的環迴東路一幅鞏固斜坡上試行。大學在第三、第四苑附近的一幅有天然植被的斜坡收集腐殖土，用來綠化環迴東路的斜坡，之後再覆上防侵蝕的保護墊，現正觀察植物生長情況。

校園發展處土力工程師馬維德解釋：「那幅斜坡是中大校園三百幅人造斜坡之一。這幅不合規格的填土坡，之前曾以填石方式鞏固，工程完成後，最近在表層覆蓋泥土讓植物生長。馬先生說：「日本已在斜坡鞏固工程完成後，採用這簡單經濟的方法恢復植被。我們會在灌木叢生長的地方收集腐殖土，而避開樹木密集的地方，因為如果有樹木生長在陡峭的斜坡上，可能會危害斜坡下方區域的安全。」



馬維德先生  
Mr. Arthur Ma

The Standing Committee on Campus Geotechnical Matters recently sought the professional advice of Dr. Billy C.H. Hau on growing vegetation on stabilized slopes. Dr. Hau is an expert in biodiversity and conservation who is involved in conducting research and studies for government projects on slope greening. Dr. Hau's advice was tested out on a stabilized slope.

Dr. Hau recommended a method that involves removing the top layer of soil before construction works and replacing it afterwards to regenerate the original vegetation; or collecting humus from natural vegetation in areas neighbouring the slope in question and subsequently pouring it over the slope after it has been stabilized. This method was implemented on a stabilized slope on Campus Circuit East near the railway, with the humus for slope greening having been collected from a natural vegetated slope near Residence



工程前 Before works



工程後 After works

3 and 4. The slope was then covered with erosion control mats and is now being monitored for vegetation growth.

Mr. Arthur Ma, geotechnical engineer at the University's Campus Development Office, explains, 'The slope is one of 300 man-made slopes situated within the campus. It is a sub-standard fill slope formed during the construction of Campus Circuit many years before and had been stabilized with rock fill and covered with top soil for vegetation growth after works recently. Mr. Ma continues, 'This method has been used in Japan for rehabilitation of slope greenery after stabilization works. It is simple and economical. When collecting the humus, we prefer places with shrubs but avoid areas with many trees, because we do not want to have trees growing on steep slopes as they may pose a risk to the downslope area.' \*



# 確保樹木安全和健康

## Ensuring Trees are Safe and Healthy

近年香港發生多起樹木倒塌事件，導致人命傷亡，引起公眾關注。諷刺的是，這些塌下的樹木往往是人類無知的受害者——急速的都市發展，缺乏知識，不當修剪和移植，是罪魁禍首。

有見及此，生命科學學院趙紹惠教授與物業管理處園藝組和香港園藝專業學會攜手，探討本港樹木健康狀況，指出問題所在，提出解決方案，冀令樹木得到更好的照顧。該研究團隊認為，政府缺乏可持續的樹木管理策略，沒有培養專業的樹木護理人員，不懂治理樹木蟲害，沒有讓樹木專家監督基建項目，樹木的保存、砍伐和移植又無準則可依。

他們認為香港亟需目光長遠的樹木管理策略，而正確選擇樹種是第一步。儘管世界各地已着力保護本地物種，但香港仍以種植外來樹種為主。生命科學學院與園藝組合作，探討原生樟樹和常見於公園和住宅區的外來樹種異葉南洋杉的生長狀況，最終目標是建立有關香港樹木健康的數據庫，建成後將有助於提供訊息和監察。

以不同方法探測樹木的密度，評估樹幹的空心程度：

Using different methods to assess the density of a tree in order to determine the extent of internal decay:



敲擊法 Mallet method



阻力器 Resistograph



聲納探測器 Sonic tomograph

此外，該研究也建議當局在檢驗樹木健康時，除採用目測法外，亦應以木槌敲診。綠化不光是種樹，種了以後怎樣保持它們翠綠健康，才是大學問。

There has been growing public concern over falling trees in Hong Kong, which have claimed a few lives. Yet ironically, falling trees are often the victims of man—rapid urban development coupled with lack of knowledge, and improper pruning and transplanting.

In view of this, Prof. Chiu Siu-wai of the School of Life Sciences, with researchers from the Institute of Horticulture Science of Hong Kong and the Landscaping Section of the Estates Management Office, carried out a study on tree health in Hong Kong. Problems are identified and solutions are



proposed to improve tree care. The team pointed out that currently the government has no strategy for the sustainable management of trees, no training of expertise in this area, and little knowledge of how to deal with pests. Infrastructural projects are not being monitored by tree professionals, and there are no criteria for preserving, felling or transplanting trees.

They believe that Hong Kong urgently needs a long-term vision on tree management, and such a strategy should start from species selection. Hong Kong still depends heavily on the growing of exotic species, despite the global trend of conserving native species. With the eventual aim of contributing to the building of a Hong Kong tree health database, the Landscaping Section and the School of Life Sciences conducted a study to examine the growth of two species of trees, namely, the exotic *Araucaria heterophylla* commonly found in parks and residential compounds, and the native

*Cinnamomum camphora*. If it materializes, the database will serve as an information and monitoring system.

The study has also proposed the use of a mallet method for preliminary tree examination. Currently the method adopted is visual assessment. Going green is not enough. The question is how do we stay green? \*

### 要聞快訊 Newsbreak

#### 校園節水措施 Water Saving Initiatives

物業管理處最新的一項環保措施，是在崇基學院未圓湖畔興建淨水場，以淨化湖水水質，使之能供作不同用途。淨水場在2011年底竣工後，預計每天能淨化一千二百立方米的水，將是校園最大的淨水設施。

未圓湖是人工湖，但湖水來自天然溪流，含有大量沉積物。淨水場建成後，會抽取湖水過濾到適合使用的水平。例如，優質的淨化水會用作水冷式空調系統的冷卻水。在炎熱的夏季，這可每天為我們節省四百至五百立方米的食水。此外，處理過的水也可代替食水，用於室外清潔和澆灌花草，估計每年可因此節省一百萬港元，尤其是再過兩三年，淨化水輸送系統的鋪設更為完善後，效果會更為顯著。

日後崇基校園會用海水沖廁，而不再用湖水，預計每天可為我們節省五百立方米的珍貴水資源。

One of the latest green initiatives of the Estates Management Office (EMO) is to build a water treatment facility near Lake Ad Excellentiam in Chung Chi College so water from the lake can be made suitable for use on campus. The plant is expected to produce 1200 m<sup>3</sup> of treated water everyday. Its scheduled date of completion is end of 2011. When completed, it will be the largest water treatment facility on campus.

Lake Ad Excellentiam is an artificial lake but the water comes from natural streams nearby. As lake water contains a lot of sediment, it will be pumped into the facility and filtered to levels fit for use. For example, high quality treated water will be used for cooling in water chiller plants for air-conditioning. In hot summer days, this may save up to 400 m<sup>3</sup> to 500 m<sup>3</sup> potable water per day. Besides, treated water will also replace potable water for external

cleansing and irrigation purposes. This is estimated to lead to annual saving of over HK\$1 million per year especially when the treated water distribution system is enhanced in two to three years' time.

Lake water will no longer be supplied as flushing water on Chung Chi campus. Instead, the system will be converted to using seawater for flushing, which will save up to 500 m<sup>3</sup> per day of our valuable lake water resources.



一紙在手，感覺踏實。然而，為減少大量印刷對環境造成的損害，請與朋友分享本通訊，或上網 ([www.cuhk.edu.hk/iso/sus](http://www.cuhk.edu.hk/iso/sus)) 閱覽。謝謝您愛護環境。  
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