

A Green Campus

The Chinese University of Hong Kong (CUHK)

ABSTRACT

Found in 1963, The Chinese University of Hong Kong (CUHK) has developed from a student population of about 3,000 to 21,000 in 2019. The campus looks like a small town / community whereabout 30,000 staff / students work, study and live. In the course of development, the Campus Master Plan (CMP) has provided an exemplary sustainable framework to balance the growth of the University in achieving teaching and research excellence under her unique college system and campus environment. The CMP consists of six key planning precepts:

- i) Making a Sustainable Campus
- ii) Places for Education and Research Activities
- iii) Enhancing College Life
- iv) A Pedestrian Friendly Campus
- v) Conserving Places of Value
- vi) A Landscape of Vital Importance



Keywords: Green Campus; Master Plan; Sustainable Neighbourhood

1. INTRODUCTION

The mission and vision of CUHK:-

- To assist in the preservation, creation, application and dissemination of knowledge by teaching, research and public service in a comprehensive range of disciplines, thereby serving the needs and enhancing the well-being of the citizens of Hong Kong, China as a whole, and the wider world community; and
- To be acknowledged locally, nationally and internationally as a first-class comprehensive research university whose bilingual and multicultural dimensions of student education, scholarly output and contribution to the community consistently meet standards of excellence.

Found in 1963, CUHK with a suburban campus of about 137 hectares has developed from a student population of some 3,000 to a population of about 21,000 in 2019. Following the initial development plan by W. Szeto & Partners, a master planning process is being carried out in response to the strategic objectives to address the increased student population and the changing requirements of the academic disciplines.

The CUHK Campus Master Plan (CMP) is an exemplary framework to balance the growth of the University in achieving teaching excellence and research achievements via CUHK's unique college system and campus environment. In the process, consultations and engagements are conducted with the stakeholders to gather their aspirations and feedbacks.



1970

Preserving the Campus
Landscape and Feature Towers

2019

Enriching the
Campus Greenery



1. CUHK CAMPUS MASTER PLAN

The vision of the Campus Master Plan (CMP) is to enable the University to be an exemplar of sustainable development by balancing the enhancement of its campus environment with the conservation of its natural heritage. The CMP is conceived as a living and continually developing document and it consists of six key planning precepts as detailed in the following sections:

2.1. Making a Sustainable Campus

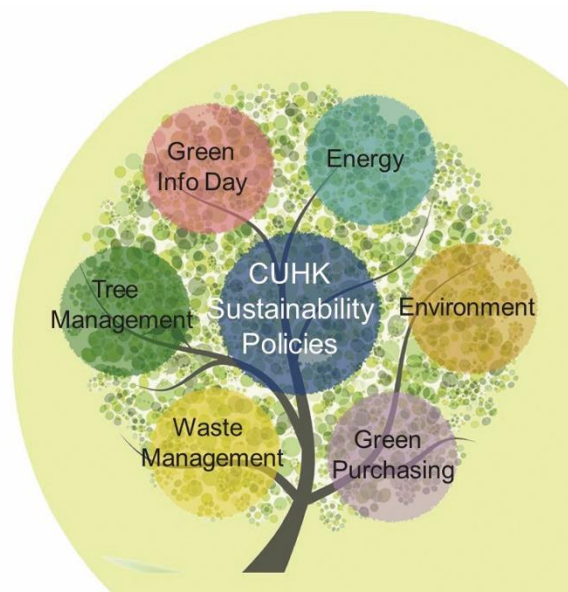
The University pledges its commitment to continuously improve the environmental quality of the campus, putting the principles of sustainable design at the heart of campus development, and has been acclaimed for her innovations and efforts, e.g. Green Building design excellence, measures for recycling, uses of renewable energy, energy conservation, wastes management, tree and ecology preservation, and carbon audit on existing buildings, etc.

Reporting to the Campus Planning Committee chaired by the Vice-Chancellor, the University’s dedicated offices such as the Campus Development Office, Campus Planning and Sustainability Office, and Estates Management Office collaborate to carry out the campus planning, building and infrastructure construction, sustainability education and operations including energy audit and incentive schemes, etc. Green Building design principles are implemented to ensure that the built environments are friendly, inclusive and sustainable.

With the concerted effort and the implementation of the Energy Saving and Conservation Plans, the University has reduced energy and general waste progressively in the past years.

Long Term Sustainability Targets (2005-2025)		
Energy (per capita)	↓	25%
Greenhouse Gas (per capita)	↓	20%
5 Years Sustainability Targets (2012-2017)		
Energy (per capita)	↓	8%
Greenhouse Gas (per capita)	↓	10%
Waste to Landfill (per capita)	↓	12%
Water Usage (per capita)	↓	15%
Paper Usage	↓	50%

Sustainable
 續
 綠
 中大
 Campus



The University has adopted many initiatives in reducing the overall carbon emission. Weiyuan Lake 未圓湖, a genius Loci for Chung Chi College at the foothill, is used as a storage tank of natural rainfall. It helps to regulate the micro-climatic of the surrounding built environment and reduce the energy used for cooling. It is also home to over 200 plant species including over a third of all tree species in Hong Kong. After purification and sedimentation, the grey water from this alternate source is used for irrigation, street cleaning, A/C cooling and contributes about 27% of the daily water consumption of the University. In the reduction of energy and water consumption, other initiatives such as installation of daylight/motion sensors to control lighting & AC, energy efficient LED lighting fittings, roof gardens, electric vehicles & charging points, wind turbines for street lighting, district cooling/water-cooled chiller system, solar water panel & photo-voltaic panels in student hostels, water-saving fixtures and reuse of used water collected are also adopted.



2.2. Places for Education and Research Activities

The CMP develops the concept of clustered and zoned development for disciplinary teaching and research activities with a view to strengthening connectivity between the existing and new facilities. While the academic facilities are zoned in proximity clusters to encourage social interaction and academic collaboration, dedicated landscape features, open spaces and vertical transportation devices were planned in parallel to enrich the Walking Campus experience. This enables the efficient use of resources, convenience of access and optimizes the land use.

In designing these facilities consideration such as natural day lighting, visual comfort, indoor environment quality, thermal comfort, acoustics, natural ventilation are implemented such as window wall/skylight to maximise natural day lighting, roof greening for enjoyment, acoustic windows, etc.

2.3. Enhancing College Life

Of all Hong Kong universities, CUHK is the only one that offers a college experience. College programmes and activities complement the formal curricula by delivering whole-person education and pastoral care. The college system also encourages intimate interaction among teachers, students and alumni.

CUHK was established in 1963 as a University with a federal constitution. To the constituent colleges of Chung Chi, New Asia, United and Shaw, Morningside, S.H.Ho, C.W.Chu, Wu Yee Sun and Lee Woo Sing have recently been added, bringing up the total number of colleges to nine. The spatial organization of the University and the colleges is expressed in terms of their facilities as well as the clustering and scale of buildings in association with the planning of open space and circulation spines.

While CUHK's administration and academic facilities are mostly located in the Central Campus along the axis of the University Mall, the colleges are planned in a satellite pattern, maintaining their identities with different culture, architectural expressions and building clusters. Scale of the colleges ranges from 300 to over 3,000 students. Apart from the hostel blocks, the college complexes provide a variety of indoor and outdoor amenities, activities and gathering spaces. In the design and operation of these facilities, Green Building and 'Eco-Habitat' design principles are adopted to encourage whole-person development and interactions outside the classrooms.

Year-End Hostel Check-out

- 2014 collected 6,394 kg
- 2015 collected 10,324 kg (+61.5%)
- 210 collection boxes for 34 hostels

Hostel Smart Meter

Energy Consciousness Living

- Students can understand their consumption pattern and plan their suitable usage better



回收物品：衣架 | 文具 | 電器 | 衣服 | 枕頭被單 | 廚具
Collecting Items: Hangers / Stationery / Electrical Appliances / Clothes / Pillow, bed sheets / Kitchenware

退宿回收

HOSTEL FREECYCLING

參與書院及宿舍：新亞(志文、學思)
崇基(明華、神學樓)
國際生宿舍第一、二、三座
Participated Hostel: New Asia (Greta Tian Hall / Xuesi Hall)
Chung Chi (Ming Hui Tang / Theology Building)
House 1 & 2 & 3

收集日期：即日起至退宿日
Collection Period: Until the last day of Hostel Check-out

聯絡 Contact: 倩婷 Alice (5160 9042)

主辦單位：CUHK Rubbish & Recycling Corner & 新亞學生會 NASU (協辦)

所收集的物資，將於下學年之學際初以時分交換形式，派發予中大學生。

All the collected items will be distributed to CUHK students using CU Time Credit to exchange.

—注意事項：(1) 請清潔乾淨所有物資 (2) 恕不接收食物、雜物及垃圾

—Reminders: (1) Please Make Sure the Stuff is CLEAN (2) Food is NOT accepted. Please SHARE with your friends or at the pantry

College Farms & Waste Recycling



College life is a vital part of student wellbeing and education in CUHK; dedicated programmes are conducted in Colleges to cultivate environmental awareness of the students and to achieve a green and energy conscious living style. In some new hostel blocks, 'Smart meter on Progressive rate Scale for Top-up' are installed for students to keep track of their electricity consumption for bedroom A/C, fridge, fan or heater, etc.

Campaigns in Colleges such as 'Love Food Hate Waste @ CUHK' guided students to reduce their Leftover Meal 剩宴 to more than 20% per year and trained more than 50 student ambassadors (有衣食達人) in the practice of 'Green Living'. 'Green Student Societies' are organized and 'Year-End Hostel Check-out Scheme' also recycles more than 10,000kg of clothes, paper glass, household ware, etc. from 34 hostels.

2.4. A Pedestrian Friendly Campus

The CUHK campus was found on a hilly terrain with a level difference measuring over 150m from the Mass Transit Railway along Tolo Harbour to the mountain top where two founding colleges and their iconic water towers are located. While vertical circulation poses a major challenge on campus, the CMP plans to reinforce the major pedestrian spines and connect the various campus terrains by creating a complete and desirable network through link bridges, covered walkways, grand steps and communal gathering spaces. This walkway infrastructure is further assisted by lifts and escalators in new buildings built along the major circulation routes.

Pedestrian-Friendly Campus

- Enhanced connectivity promote Walking Campus
- Vertical Links: lifts, bridges and escalators to increase mobility through CUHK's hilly campus



Linked Bridges

Green Transport

- Largest fleet of electrical vehicles in HK with Exhausted-free Electric Scooters, Electric Bus, Electric Medium Goods Vehicles & Electric Vans



Cycling Track

- 1400m cycling track from the Northern MTR exit to Area 39 as a green alternative of transport across campus



2.5. Conserving Places of Value

The CMP recommends the establishment of a methodology for identifying places with unique values that should be conserved; and assess the implication of any intervention to a 'Place with Culture Significance'. This helps to enhance and extend the identity of the University while maintaining coherence in the campus environment.

Preserving WeiYuan Lake 未圓湖 Genius Loci for Chung Chi College

The luxuriant campus is home to over 200 plant species including over a third of all tree species in Hong Kong



Preserving Habitats

CUHK is home to variety fauna 131 bird species are recorded on campus, representing about 30% of the 448 species in HK



喜鵲 Common Magpie

麻雀 Eurasian Tree Sparrow

Minimising Tree Removal

The Jubilee Garden had its design modified in 2013 to preserve existing trees in situ



2.6. A Landscape of Vital Importance

The CMP promotes a green and humanistic framework to promote the enjoyment of the landscape and visual amenity of the surroundings by creating a comprehensive open space network within the campus. The Landscape Strategy Plan recommends the treatment of different types of landscape zones, identifies new nature trails within the campus to enhance the greenery and to supplement hard landscape works.

Under the steering of the Campus Development Office and Campus Landscaping Enhancement Committee, a new round of Campus Landscape Master Plan studies is being carried out with consultants to review the landscape opportunities and constraints, and to refine the strategy and plan for sustainable development.



3. SUSTAINABILITY ACHIEVEMENTS AND AWARDS

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ACHIEVEMENTS

2017

- Energy Saving Championship Scheme 2016 (Hanson Supreme Grand Award, Hanson Grand Award - Top award in the post-secondary education institution category & Most Innovative Energy Saving Measures Award)

2016

- Green Building Award 2016, HKGBC (Merit Award - Green Building Leadership)
- FuturArc Green Leadership Award 2016 (Merit Award - Institutional for Library Extension)
- Recognised as Hong Kong Green Organisation, HKAEE

2015

- Green Building Awards 2014 for 4 CUHK projects
- 'U Green Awards 2014-15' from U Magazine

2014

- 2009 & 2014 Gold Awards for (Sectoral Award - Public Organization and Utilities), HKAEE (CUHK is the 1st public organisation that has won the gold award, and won it twice)
- 'U Green Awards 2013-14' from U Magazine

2013

- FuturArc Green Leadership Award 2013 (The WINNER - Institutional for An Integrated Teaching Bldg)

2012

- Merit Award of the Commendation Scheme on Source Separation of Commercial and Industrial Waste from EPD

Various years of Class of Excellence, WasteWiSe Label & EnergyWiSe Label, HKAEE

Platinum / Gold rating for 11 new building projects

Library Extension Building

- FuturArc Green Leadership Award 2016 – Merit Award
- Green Building Award 2014 – Merit Award
- HK-BEAM 2013 – Platinum
- Indoor Air Quality Certification 2014 – Excellent

An Integrated Teaching Building

- Green Building Award 2014 – Merit Award
- FuturArc Green Leadership Award 2013
- HK-BEAM Plus – Provisional Gold

Wu Ho Man Yuen Building & Yasumoto International Academic Park

- HK-BEAM 2015 – Platinum
- MIPIM Asia Gold Award - BEST Urban Regeneration

Student Hostel for Wu Yee Sun College

- Green Building Award 2014 – Finalist
- HK-BEAM 2014 – Platinum
- Indoor Air Quality Certification 2014 – Excellent

Student Hostels Block A3 & A4 in Area 39

- Green Building Award 2014 – Finalist
- BEAM Plus v1.1 for New Buildings – Provisional Platinum

Student Hostel for C.W. Chu College

- HK-BEAM 2015 – Platinum

Student Hostel for Lee Woo Sing College

- HK-BEAM 2013 – Platinum

Lo Kwee-seong Integrated Biomedical Sciences Building

- HK-BEAM 2013 – Platinum
- Indoor Air Quality Certification 2013 – Excellent

Pommerenke Student Centre

- HK-BEAM 2013 – Gold
- Indoor Air Quality Certification 2014 – Excellent