
# The University of Hong Kong Campus Sustainability Report 2021

MARCH 2022

# Contents



# Overview

Founded in 1911, The University of Hong Kong ("The University") is the territory's oldest institute of higher learning and an internationally recognised institution which ranked 22nd in the Quacquarelli Symonds (QS) World University Rankings 2022 and 3rd in the QS Asia University Rankings 2022.

As a leading centennial educational institution striving for academic excellence, the University is also committed to protecting the environment, reducing its ecological footprint, and providing a sustainable campus to advance teaching, learning and research for another hundred years to come.

To provide a quality and sustainable built environment, the University is dedicated to developing and implementing a robust sustainability framework, incorporating green elements and best practices in campus development, building construction, and facilities management.

This report will outline the University's sustainability performance over a 12-month period (September 2020 to August 2021) and discuss the many initiatives taken by numerous parties for the wellbeing of campus users, its surrounding natural environment, and the society at large.

# Targets

The University is committed to developing and managing its activities in a manner that protects the environment, reduces its ecological footprint, and supports the transition to sustainable development.

Besides setting sustainability goals, we also consider targets set for Hong Kong SAR. In October 2021, the Hong Kong SAR Government announced its Climate Action Plan 2050, outlining the strategies and targets to reduce carbon emissions by 50% before 2035 as compared to 2005 levels, and to achieve carbon neutrality before 2050.

To achieve these goals, a range of specific initiatives have been introduced to reduce energy and resource consumption and enhance environmental protection. Amid higher societal expectations towards organisations around Environmental, Social and Governance (ESG), the University has made a greater effort to promote social responsibility and raise awareness of sustainability on campus.

FIGURE 1
**Sustainability Targets**

## Energy & Resources Consumption

- Reducing the use of non-renewable energy through energy saving measures and the increased use of renewable energy
- Minimising environmental degradation through conservation of natural resources
- Avoiding waste and pollution in all forms
- Advancing waste management and expanding recycling systems and using, wherever possible, only goods and services from sustainable and recycled sources

## Environment Protection

- Adopting environmentally conscious principles in the design, construction, and operation of buildings and the surrounding landscape
- Selecting and using substances, articles and processes which cause the least damage to the environment
- Developing an environmentally sound transport policy
- Protecting natural habitats and local wildlife and preserving biological diversity

## Social Responsibility

- Ensuring the Lung Fu Shan Environmental Education Centre operates in a socially responsible manner
- Empowering and promoting inclusion and diversity
- Offering equal employment opportunities

## Raise Awareness

- Encouraging awareness of all aspects of conservation within the University and wider community
- Promoting environmental awareness and conservation amongst members of the University through curricula, research and staff training
- Promoting a disposable plastic free campus policy
- Promoting recycling and food waste collection

# Sustainability Performance

# 2020/21 Highlights

## Carbon Emissions

↓ 1.2%

compared to pre-COVID levels in 2018/19

## Carbon Emissions per Capita

↓ 7.8%

compared to pre-COVID levels in 2018/19

## Electricity Consumption

↓ 1.0%

compared to pre-COVID levels in 2018/19

## Renewable Energy Generation

↑ 2.3%

compared to 2019/20

## Water Consumption

↓ 10%

compared to pre-COVID levels in 2018/19

## Recycled Waste

↑ 5.8%

For wastepaper, plastics, metal and glass, compared to 2019/20

## Sustainability Initiatives

- Medical Complex Extension attained **Provisional Platinum** for BEAM Plus New Buildings V2.0 Pilot Scheme
- Upgraded water-cooled district chiller plant to **Centennial Chiller Plant System**
- **Upgraded 12 lifts** for energy efficiency
- **Managed 1,960+ trees**
- **Operated 41 EV chargers**
- **Enhanced air-conditioning systems in 17 buildings**
- **Implemented plastic-free campus policy**

# Carbon Emissions

Owing to the campus re-opening and resumption of face-to-face classes, 2020/21's carbon net emissions slightly rebounded by 0.6% y-o-y to 119,800 tonnes. However, the successful implementation of resource-saving and other green practices secured a downward trend in emissions, reflected in a 1.2% drop from pre-COVID levels and a 2.6% decline from the peak in 2017/18.

The incremental growth of students and staff over the last five years did not translate into proportional increase to carbon emissions. On the contrary, net emissions per capita kept falling at a rate of 3.1% y-o-y, or a total of 11.2% decrease from the peak year 2017/18 to 2.96 tonnes per capita.

Electricity consumption (i.e. energy indirect emissions, Scope 2) accounted for 95% of annual carbon emissions in 2020/21. The remainder are direct emissions from combustion sources (Scope 1) and other energy indirect emissions (Scope 3), accounting for 3% and 2%, respectively, of annual carbon emissions.

As the Hong Kong Government strives to reach carbon neutrality, the carbon intensity of the city's electricity grid is reducing, thanks to the increasing use of natural gas in power generation. This emission factor measured by Hong Kong Electric declined by 13.4% from 0.82 kg CO2e/kWh in 2019 to 0.71 kg CO2e /kWh in 2020.

*Note: Emissions can be classified into three scopes: Scope 1 – Direct emissions from operations that are owned or controlled by the University; Scope 2 - "Energy indirect" emissions resulting from the generation of purchased or acquired electricity, heating, cooling and steam consumed within the University; and Scope 3 – All other indirect emissions that occur outside the University, including both upstream and downstream emissions. Reference period for 2020/21 is revised into 1st September 2020 to 31st August 2021.

FIGURE 2

**Annual Carbon Net Emissions**

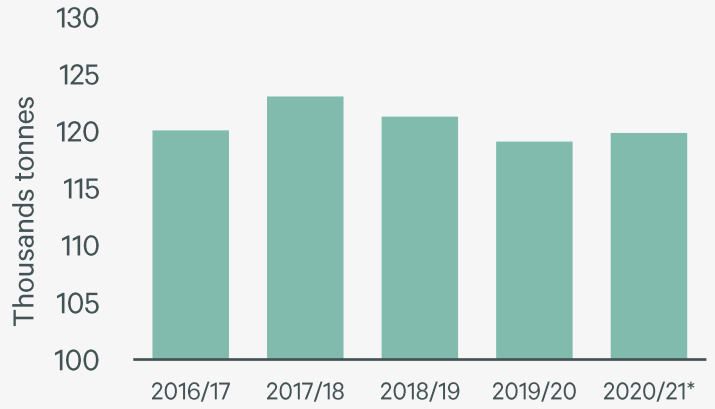



FIGURE 3

**Annual Carbon Net Emissions per Students and Staff**

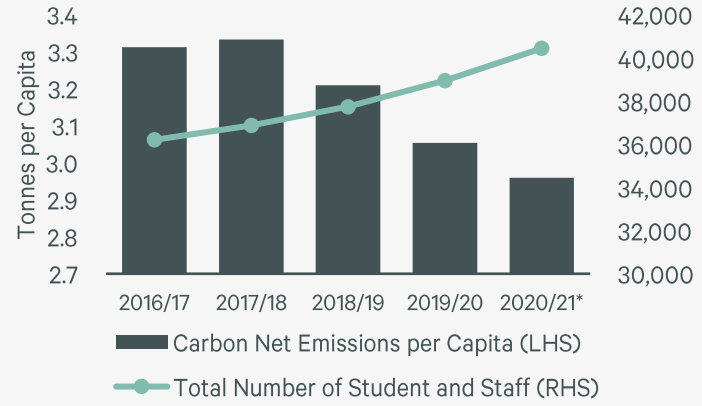



TABLE 1

**2020/21* Y-o-Y Percentage Change in Annual Carbon Net Emissions**

| As Compared with | % Change |
|---|---|
| Pre-COVID (2018/19) | ▼1.2% |
| 2019/20 | ▲0.6% |

TABLE 2

**2020/21* Y-o-Y Percentage Change of Annual Carbon Net Emissions per Students and Staff**

| As Compared with | % Change |
|---|---|
| Pre-COVID (2018/19) | ▼7.8% |
| 2019/20 | ▼3.1% |

# Electricity

Efficient and sustainable energy sources are crucial for the long-term sustainability and resilience of the campus and the buildings located within it.

Despite the resumption of face-to-face learning from September 2020, and the increasing number of students and staff over the year, annual electricity consumption increased by just 1.0% y-o-y from 2019/20's five-year low. Per-capita consumption continued to slide for five consecutive years by 2.8% y-o-y to 3,550 kWh.

Consumption insights further entails that laboratory units consumed the most electricity, accounting for 45% of the annual sum. Offices and classrooms followed with 29% and 13% respectively.

To further promote green energy, the University installed photovoltaic (PV) solar panels on ten rooftops around the campus. 375,000 kWh of electricity was generated during the reporting period. Around 60% of those generated are used for hot water supply in sports centre and residential halls.

FIGURE 4

**Annual Electricity Consumption (Total and per Capita)**

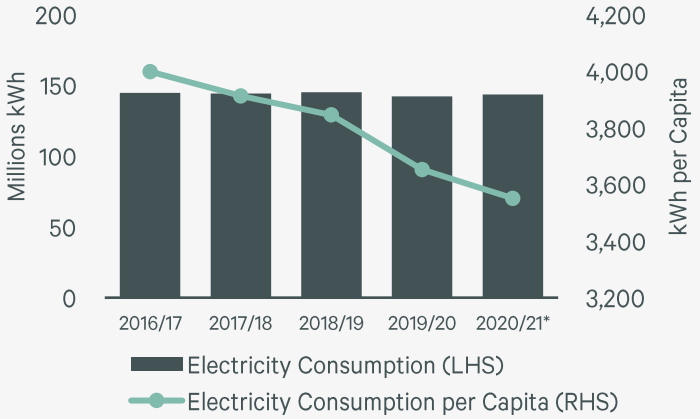



FIGURE 5

**Annual Renewable Energy Production**

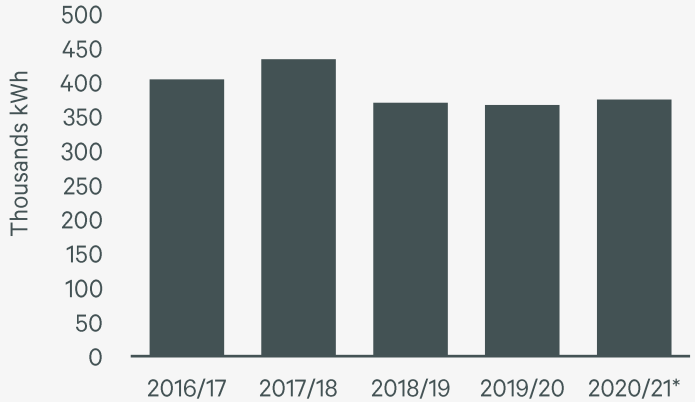



TABLE 3

**2020/21* Y-o-Y Percentage Change in Annual Electricity Consumption**

| As Compared with | % Change |
|---|---|
| Pre-COVID (2018/19) | ▼1.0% |
| 2019/20 | ▲1.0% |

TABLE 4

**2020/21* Y-o-Y Percentage Change in Annual Renewable Energy Production**

| As Compared with | % Change |
|---|---|
| Pre-COVID (2018/19) | ▲1.3% |
| 2019/20 | ▲2.3% |

*Note: Reference period for 2020/21 is revised into 1st September 2020 to 31st August 2021.

# Detailed Data on Electricity Consumption

FIGURE 6

**Electricity Consumption and Consumption Rate by Facility Type**

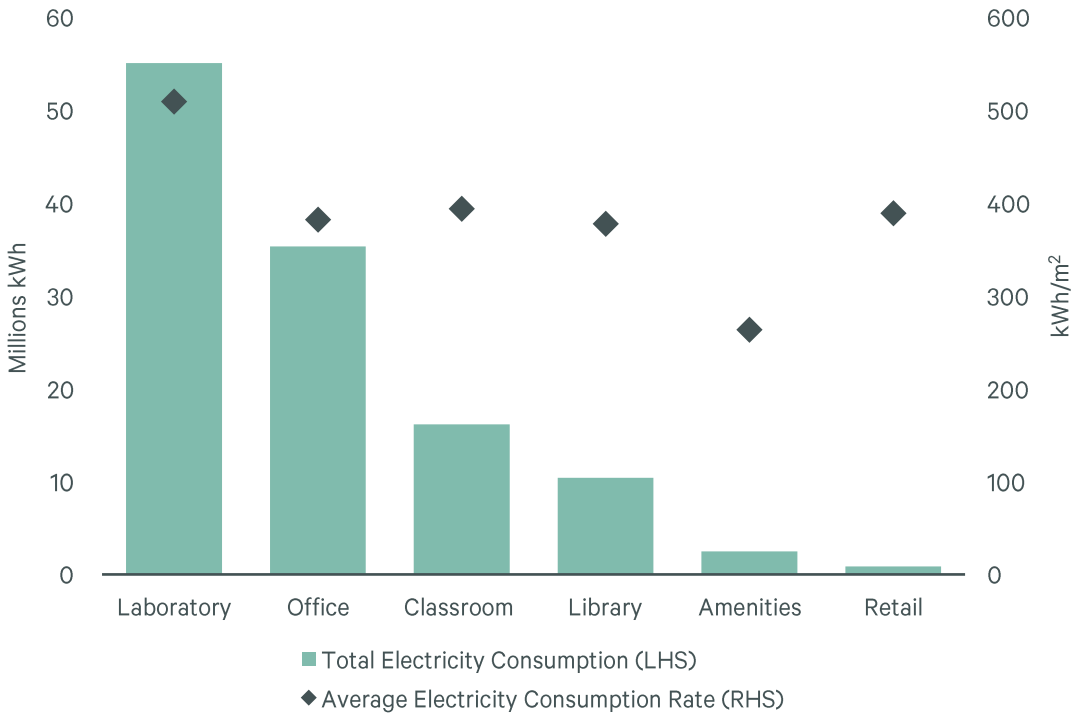



TABLE 5

**Top Five Buildings with Highest Electricity Consumption**

| Building Name | Main Facility Use | Total Electricity Consumption (kWh) |
|---|---|---|
| Faculty of Medicine Building - Laboratory Block | Laboratory | 18,259,740 |
| Faculty of Medicine Building - William M.W. Mong Block | Classroom, Library & Office | 10,050,790 |
| Centennial Campus - Central Podium Levels | Classroom & Retail | 9,359,420 |
| Jockey Club Building for Interdisciplinary Research | Laboratory & Office | 7,893,150 |
| Kadoorie Biological Sciences Bldg | Laboratory | 7,459,350 |

Reference period for 2020/21 is revised into 1st September 2020 to 31st August 2021.

# Water

Although water consumption rebounded in 2020/21 along with the reopening of the campus, consumption levels fell 10% and consumption per capita dropped 16.1% when compared to pre-pandemic levels in 2018/19.

General offices and amenities was accounted for about 70% of the total 630,100 cu. m. of water consumption over the period. While the re-opening of the Henry Fok Swimming Pool increased water usage, the impact on overall consumption was insignificant owing to the introduction of session breaks as precautionary measures to contain the spread of COVID-19.

To further improve water efficiency, additional measures, both proven and innovative, were adopted at the Centennial Campus, including the installation of low-flow taps and irrigation pipes; the recycling of condensate water from air-conditioning systems; and greywater and stormwater treatment.

The University would continue to monitor and review its water consumption to identify areas for improvement; and evaluate other measures and new technologies that aims at effective reduction in water consumption, wastage, and pollution.

FIGURE 7

**Annual Water Consumption**

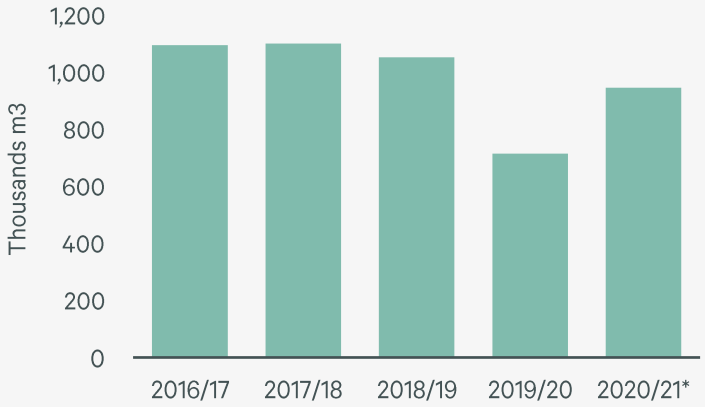



FIGURE 8

**Annual Water Consumption per Capita**

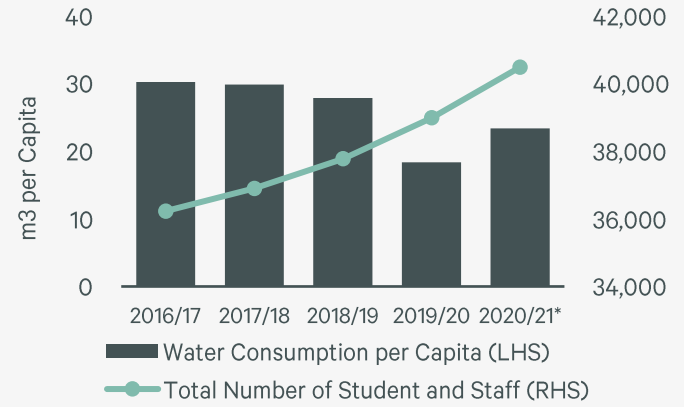



TABLE 6

**2020/21* Y-o-Y Percentage Change in Annual Water Consumption**

| As Compared with | % Change |
|---|---|
| Pre-COVID (2018/19) | ▼10.0% |
| 2019/20 | ▲32.4% |

TABLE 7

**2020/21* Y-o-Y Percentage Change in Annual Water Consumption per Students and staff**

| As Compared with | % Change |
|---|---|
| Pre-COVID (2018/19) | ▼16.1% |
| 2019/20 | ▲27.5% |

*Note: Reference period for 2020/21 is revised into 1st September 2020 to 31st August 2021.

# Detailed Data on Water Consumption

FIGURE 9

**Water Consumption and Consumption Rate by Facility Type**

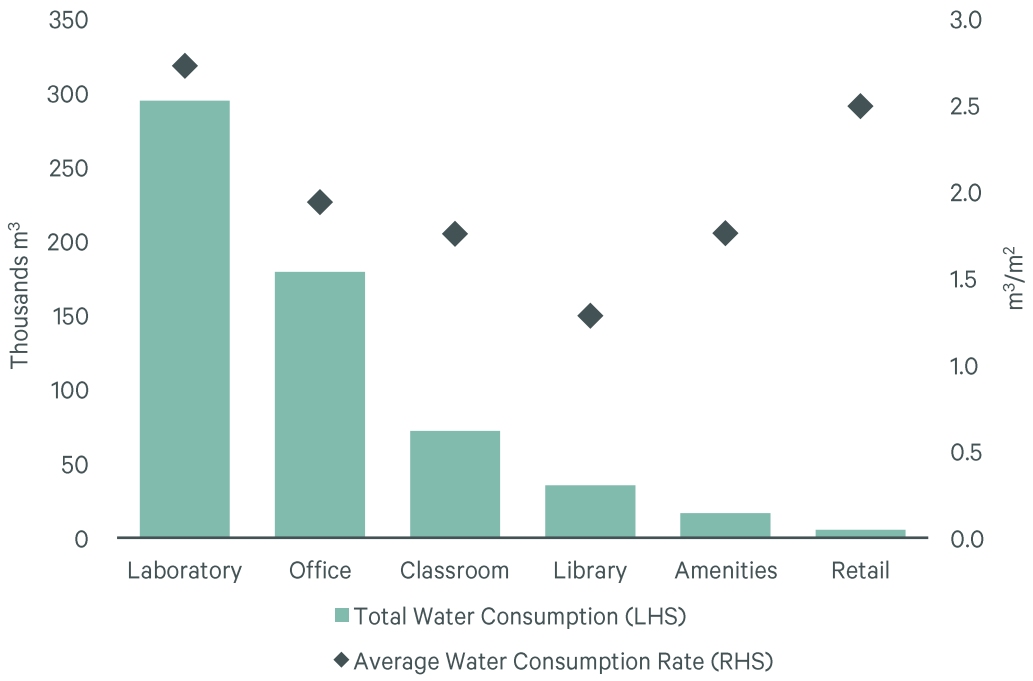



TABLE 8

**Top Five Buildings with Highest Water Consumption**

| Building Name | Main Facility Use | Total Water Consumption ($m^3$) |
|---|---|---|
| Centennial Campus - Central Podium Levels | Classroom & Retail | 52,730 |
| Faculty of Medicine Building - Laboratory Block | Laboratory | 51,310 |
| Knowles Building | Library & Office | 47,900 |
| Laboratory Animal Unit | Laboratory | 39,529 |
| Haking Wong Building | Library & Office | 38,560 |

Reference period for 2020/21 is revised into 1st September 2020 to 31st August 2021.

# Waste

The Estates Office aims to reduce the waste at source and increase the percentage of recycling materials in total waste generation. This includes sourcing the right facilities management provider and recycling contractors for the collection of various types of recyclables.

With the campus re-opening and resumption of classes, total general refuse increased 6.5% from 2019/20's all time low but was still 6.5% lower than pre-COVID levels in 2018/19. To reduce waste at source, the University implemented a Plastic Free Campus Policy in September 2020 [Page 21] and participated in the Government's Food Waste Collection Pilot Scheme in September 2021 [Page 29].

The period also saw an increase in recycled wastes. The volume of the four major recyclable wastes including wastepaper (confidential & non-confidential), metal, plastics, and glass, increased by 9.4% from 2019/20. Moreover, to promote more types of recyclables and recycling habits to campus users as well as visitors, a new recycling kiosk which collects six categories of recyclables near the greenery and scenic Lily Pond was in the works with the full support of the facilities management provider [Page 30].

In order to better monitor the amount of general waste disposed on campus, the University's facilities management provider has increased the frequency at which it weighs waste from a bi-monthly basis to monthly basis. It had also liaised with various faculties and departments to provide and maintain food waste collection points for canteen operators to support food waste recycling initiatives.

To promote general waste awareness, a series of video features showcasing the University's sustainability programmes have been produced for broadcast on U-Vision and other channels. Waste management and food waste reduction campaigns have also been organised in collaboration with different stakeholders.

*Note: Reference period for 2020/21 is revised into 1st September 2020 to 31st August 2021.

FIGURE 10

**General Refuse per Capita per Day**

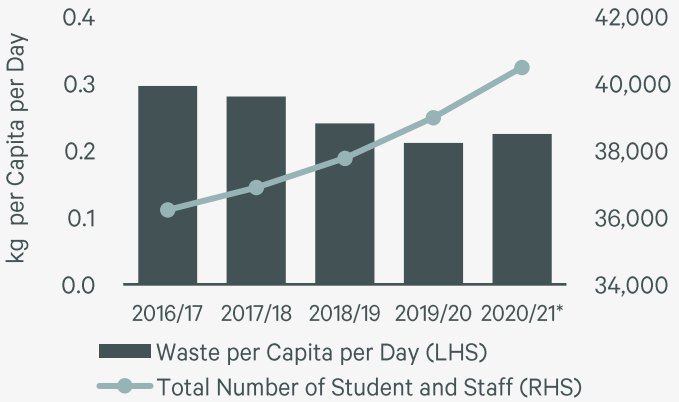



TABLE 9

**2020/21* Y-o-Y Percentage Change In General Refuse per Capita per day**

| As Compared with | % Change |
|---|---|
| Pre-COVID (2018/19) | ▼6.5% |
| 2019/20 | ▲6.5% |

TABLE 10

**Annual General and Recycled Waste**

| Item | 2019/20 | 2020/21* | % Change |
|---|---|---|---|
| **Waste to Landfill** | | | |
| General Refuse, kg | 3,002,000 | 3,319,000 | ▲10.6% |
| **Waste to Recycle** | | | |
| Waste Paper (Confidential & Non-confidential), kg | 195,420 | 215,335 | ▲10.2% |
| Metal, kg | 913 | 1,040 | ▲13.8% |
| Plastic, kg | 3,131 | 3,247 | ▲3.7% |
| Glass, kg | 1,669 | 424 | ▼74.6% |
| **Total, kg** | **201,133** | **220,046** | **▲9.4%** |

# Sustainability & Wellness Initiatives

# Sustainability and Well-being Initiatives

## Green Campus

With the aim of ensuring the campus meets sustainability requirements, new buildings will be developed according to the latest environmental standards in the construction industry.

## Chiller Plant Upgrade

The ageing water-cooled district chiller plant in the Main Campus is in the process of being upgraded to an interconnected and centennial air-cooled chiller plant system.

## Efficient Lifts and Escalators

Lift and escalator systems are progressively being modernised, particularly those more than 30 years old, to improve energy efficiency, reliability and passenger experience.

## Green Landscape

To maintain a green environment, the Estates Office manages around 1,600 trees within the estates, with green space now accounting for 9.5% of the campus.

## Electric Vehicle Usage

The University supports the development of green transport by providing EV chargers and discounts on car parking for electric vehicles.

## Air Conditioning

Enhancement works on air-conditioning systems are underway by adding customised control algorithms and metering devices.

## Plastic Free Campus

A policy restricting single-use plastics is now in force. Plastic food wares, drinking bottles, and event banners cannot be sold or distributed at events held by the University or its affiliated units.

### Projects completed in the past 12 months

New extension of the medical complex completed in May 2021 achieved Provisional Platinum, the highest possible grading under the BEAM Plus New Buildings V2.0 Pilot Scheme.

Replaced chiller plants at Kadoorie Biological Science Building, Faculty of Medicine Building, and Dexter H.C. Man Building (Laboratory Animal Unit).

Performance upgrade and modernisation works on twelve lifts in K.K. Leung Building and Meng Wah Complex.

Completed greenery enhancements on booths and flowerbeds along University Street, adding more than 100 sq. m. of extra green area.

Installed four fast chargers in the Faculty of Medicine Building on the Sassoon Road Campus.

Completed enhancement works on 17 buildings, resulting in annual energy savings of around 132,300 kWh.

Implemented plastic free campus policy.

**Sustainability Target:** Energy & Resources Consumption
Environment Protection

# Green Campus

The new extension of the medical complex completed in May 2021 achieved Provisional Platinum, the highest possible grading, under the BEAM Plus New Buildings V2.0 Pilot Scheme.

## Green Features

a) Sustainable Site
- Over 60% of existing trees on the site were retained to preserve ecological value
- The combined tree canopies of newly planted and existing trees provide shading to over 35% of the site area, mitigating the urban heat effect

b) Energy Use
- Adopted passive designs including optimised orientation and space planning, as well as innovative façade design to reduce heat gain at air-conditioned spaces and enhance daylight utilisation
- Installed high-performance air-conditioning and lighting systems, and solar panels to save energy as well as to reduce carbon emissions

c) Water Use
- Procured water efficient sanitary fixtures to save potable water and control municipal effluent discharge
- Placed leakage sensors in water tanks to prevent water wastage arising from leakages and enhance facility management

d) Health and Well-being
- Installed hydrogen sulfide sensors at discharge areas in refuse rooms for real-time monitoring and control
- Designed HVAC systems to control relative humidity for mould prevention according to the new IAQ certification scheme

FIGURE 11

**Annex of Medical Complex Extension at 21 Sassoon Road**

FIGURE 12

**BEAM Plus V2.0 Pilot Provisional Platinum**

**Sustainability Target:** Energy & Resources Consumption

# Chiller Plant Upgrade

The chiller plants serving the Main Campus and Sassoon Road Campus have been in operation for more than two decades. In recent years, there was the emergence of a range of operational challenges including refrigerant phasing out, insufficient cooling capacity, general ageing, energy inefficiency, and high maintenance costs.

To address these issues, the University devised and launched a district cooling project that distributes cooling capacity in the form of chilled water from a central source to multiple buildings through a network of pipes for space and process cooling. The first milestone of construction for the Sassoon Road Campus Main Chiller Plant was completed in June 2021.

This ongoing project is scheduled to be completed by 2023, after which an estimated annual electricity saving of 4,290,000 kWh will be achieved, equivalent to 3,358 tonnes of carbon emission reductions per year. Other benefits of the replacement and upgrading of chiller plants include:

- Reduced installed chiller capacity due to diversified standby capacity
- Reduced maintenance costs due to fewer chillers and equipment
- Eliminated noise from existing roof chiller plants
- Released roof space on existing chiller plants for other sustainable uses

The project also includes upgrading the Central Chiller Plant capacity in the Main Campus to 4,500 tonnes and linking this with the existing Centennial Campus Chiller Plant to form a District Cooling System (DCS), giving a total capacity of 9,000 tonnes. The chiller plants in the Faculty of Medicine Building, Dexter H.C. Man Building, and Laboratory Animal Unit in the Sassoon Road Campus have also been replaced.

FIGURE 13

**Chiller Plant Replacement Project for Main Campus**

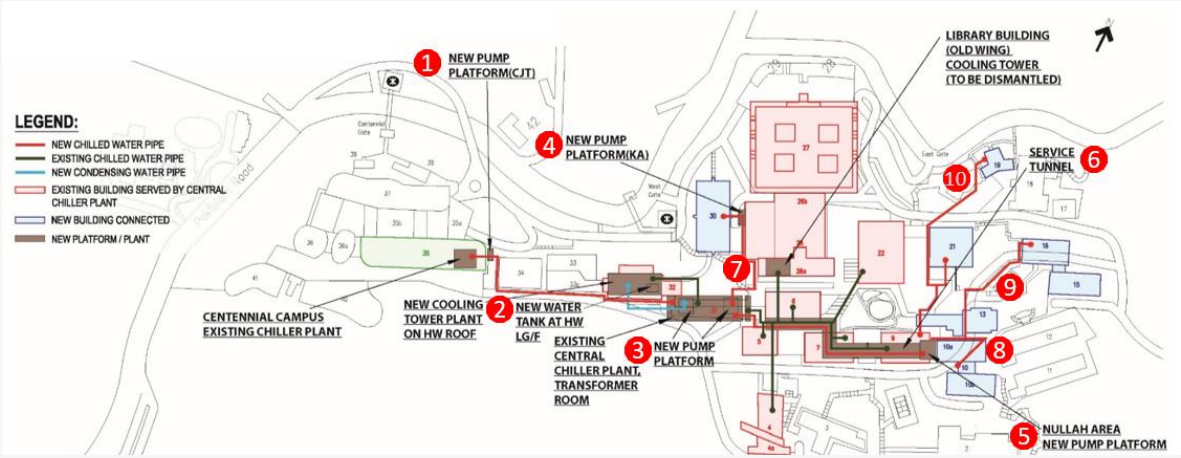



FIGURE 14

**Chiller Unit in Dexter H.C. Man Building**

# Efficient Lifts and Escalators

**Sustainability Target:** Energy & Resources Consumption

Smart and efficient lift and escalator systems can improve connectivity within buildings while also promoting energy saving. As most of the lift equipment has been operating since the late 1980s, a modernisation programme commenced in 2020.

Over the past twelve months, twelve lifts have been upgraded, seven of which are in K.K. Leung Building, and the remainder in Meng Wah Complex. Work included the replacement of components in the machine rooms, lift shafts and inside the lift cars. Benefits include:

- Enhanced energy savings
- Enhanced service reliability
- Improved riding comfort for passengers
- Enhanced accuracy and efficiency of levelling
- Enhanced safety

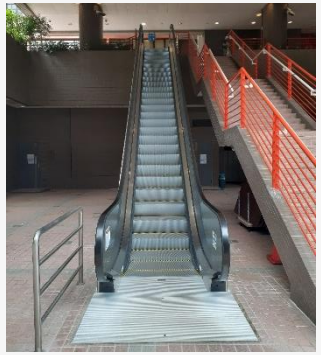
The escalator in Meng Wah Complex had also been replaced by a highly efficient and speed adjustable system to reduce energy consumption and running costs.

FIGURE 15

**Lift in KK Leung Building**


FIGURE 16

**Escalator in Meng Wah Complex**



**Sustainability Target:** Environment Protection

# Green Landscape

With the aim of building and maintaining a green campus, the University embarked upon a range of initiatives in 2020/2021 to improve landscaping.

Being an important link between existing buildings on the Main Campus and Centennial Campus, the University Street was chosen as the focus for a series of landscape enhancements. Green features were installed on both booth and flowerbed sides, converting an extra of 100 sq. m. into green area at the busiest pedestrian thoroughfare on campus.

As of the end of 2021, total green coverage on the Main and Centennial Campuses had reached 9.5%. The University has committed to further enhancing the campus landscape in the coming years by creating more places for public interactions, as well as leisure and academic activities.

To promote biodiversity, the Estates Office manages around 1,600 trees on campus, of which 142 are classified as large trees, being those with a diameter at breast height larger than 500 mm.

TABLE 11

**Greenery Information**

| Facilities | Greenery Coverage Area (sq. m.) | No. of Trees | No. of Tree Species Identified |
|---|---|---|---|
| Main and Centennial Campuses | 176,170 | 1,338 | 121 |
| Sassoon Road Campus | 222,174 | 249 | 41 |

FIGURE 17

**Greenery on Centennial Campus**

**Sustainability Target:** Energy & Resources Consumption
Environment Protection

# Electric Vehicle Usage

The University believes the development of green transport can play a key role in improving air quality and is vital to achieving zero carbon emissions in the transport sector.

According to the Hong Kong Roadmap on the Popularisation of Electric Vehicles announced in early 2021, the Government will cease new registration of fuel-propelled and hybrid private cars in 2035 or earlier. The University had therefore introduced initiatives to prepare for the greater adoption of electric vehicles.

The presence of electric vehicle charging stations is ever growing around the campus to boost convenience to EV users. In the past twelve months, four fast chargers with a maximum power output of over 20kW were installed at the Faculty of Medicine Building on the Sassoon Road Campus. These new additions bring the total coverage to 42 charging stations.

Furthermore, the University offers a 50% discount on annual parking fees for staff members whose registered vehicle for the University's parking facilities is of the pure electric type.

TABLE 12

**Total number of Electric Vehicle Charging Stations**

| Facilities | Charger Type | Total Number |
|---|---|---|
| Main and Centennial Campuses | Standard | 37 |
| Sassoon Road Campus | Quick (>20kW) | 4 |
| Composite Building (Under HKE) | Quick (>20kW) | 1 |

FIGURE 18

**Electric Vehicle Charging Station**

FIGURE 19

**Electric Vehicle Charging Station in Faculty of Medicine Building, Sassoon Road Campus**

**Sustainability Target:** Energy & Resources Consumption

# Air-conditioning

To improve the efficiency of air-conditioning systems at the Main Campus, the University has implemented green solutions enhancement work across 17 buildings.

Green solutions refer to enhancement works for existing air-conditioning systems at the Main Campus and related water and air components. The aim of the former is to reduce water usage and optimise operating efficiency by installing automatic valves and real-time monitoring devices, while the latter covers installation of carbon dioxide sensors and associated controls in existing air supply.

In 2020/2021, one of the major works included the full replacement of the Air Handling Unit (AHU) at the Kadoorie Biological Sciences Building. Further, by adding customised control algorithms and devices, system equipment was upgraded to operate at optimum states. This brought about an annual energy saving of around 132,300 kWh, equivalent to a reduction of 104 tons of carbon emissions.

FIGURE 20

**Full Replacement of Air Handling Unit (AHU) at Kadoorie Biological Sciences Building**

**Sustainability Target:** Environment Protection
Raise Awareness

# Plastic Free Campus

The policy was in hope to establish the University as a role model in the wider community to promote greater environmental sustainability. This would, and successfully did, limit the impact of single-use plastics by restricting their usage on campus.

From September 2020, the following items cannot be sold or distributed on campus or at events held by University affiliated units:

a) Plastic Food Service Wares
Includes straws, cups, cup lids, food containers, cutlery, drinks stirrers, plates, and bags

b) Plastic Drink Bottles
Includes all types of beverages sold in plastic bottles of one litre or less in volume

c) Plastic Event Banners
Includes plastic banners of any form used for event promotion, or banners used during a single one-off event

The University also encourages the recycling of different materials. A 're Campaign' website was dedicated (https://www.wastereduction.hku.hk/) to promoting solid waste reduction and educating the public of the materials that can be recycled at campus facilities. The results are also solid: between September 2020 and August 2021, around 3,250 kg of plastics were collected through recycling stations dotted around different public areas, representing a 3.7% rise from the previous year.

FIGURE 21
**Disposable Plastic Free Campus Campaign Poster**


# Social Responsibility

# Lung Fu Shan Environmental Education Centre

**Sustainability Target:**

Social Responsibility
Raise Awareness

Jointly established by the Environmental Protection Department (EPD) and The University, the Lung Fu Shan Environmental Education Centre opened in April 2008 and marks the first partnership of its kind between the Government and tertiary institutions in Hong Kong SAR.

The University's abundant research and educational insights introduced more elements of conservation to the Centre in order to promote a more rounded environmental education. The Centre seeks to build a community inclusive of nature as well as encourage the public to practice a sustainable lifestyle.

This centennial architectural complex sitting on the fringes of the University comprises three graded neo-classical style historical buildings dated as far back as 1890 and a garden. Apart from providing a place free-of-charge for learning more about the environment, visitors can experience their connection to nature through a series of thematic educational programmes.

The Centre served over 30,000 guests during the reporting period, of which over 14,000 were walk-in visitors. The Centre has also engaged the wider community through social media, and now possesses more than 27,000 followers and subscribers on its Facebook, Instagram, YouTube, and Mailchimp pages.

Lung Fu Shan Environmental Education Centre

Reception of Exhibition Gallery

# Lung Fu Shan Environmental Education Centre

## Outreach Exhibition – "Ecology in the Making"

"The Ecology in the Making" exhibition was a collaboration between the Centre's curation team and the University's scholars. 13 undergraduate and master's students participated in its research, design, and production.

The exhibition shared the stories of 12 passionate individuals spanning the period between 1816 and 1984 in discovering, collecting, identifying, conserving, and popularising nature. Rare books, animal specimens and paintings were borrowed or reproduced from the Royal Botanic Gardens in Kew in the UK, The Hong Kong Museum of Art, and the University's own libraries.

It toured at the Hong Kong Science Museum from 19 March 2021 to 14 April 2021 during the Hong Kong SciFest 2021. The enriched history section showcased the research of three of former and current scholars and the story of the late Geoffrey Herklots, the University's first reader in Biology. Over 8,000 visitors were recorded.

**"Ecology in the Making" @ Hong Kong Science Museum**


## Exhibition – "Face of Lung Fu Shan"

"The Face of Lung Fu Shan" exhibition was a programme of the Lung Fu Shan Citizen Science Festival funded by the Subventions for Biodiversity Education 2020 by the Agriculture, Fisheries and Conservation Department (AFCD). The exhibition was launched on 2 March 2021 and was extended until 5 September 2021. Over 4,000 visitors visited the exhibition during this period.

In addition to professional photographer Robert Ferguson, work from François Brassard, a former University researcher, was featured in the exhibition.

The design made use of recyclable paper boxes. To prolong the exhibits' lives, most of the displayed photography was given to registered visitors after the exhibition concluded.

**"Faces of Lung Fu Shan" – Use of Recyclable Paper Boxes**

# Lung Fu Shan Environmental Education Centre

## Educational and Experiential Activities

In order to minimise the risk of COVID-19 transmission and comply with the government's disease prevention measures, activities at the centre were moved online or conducted in small groups during 2021. Because of people's growing awareness of personal well-being and the health benefits of being surrounded by nature, the Centre strengthened its nature connection programmes over the course of the year, while expanding its professionalism in leading well-being experiences for the public.

## Meet the Ecologists

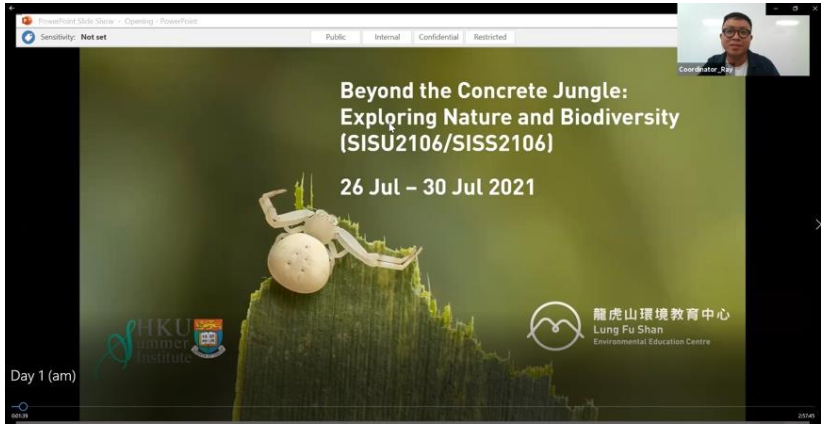
In the first half of 2021, the Centre launched an online Facebook live webinar series featuring six ecologists sharing their latest ecological research and topics of concern. Speakers included three experts from the University's School of Biological Sciences: Dr. Billy Hau (Principal Lecturer), Dr. Benoit Guénard (Associate Professor) and Dr. Caroline Dingle (Senior Lecturer). The series attracted more than 700 live views and 1,400 recorded views.

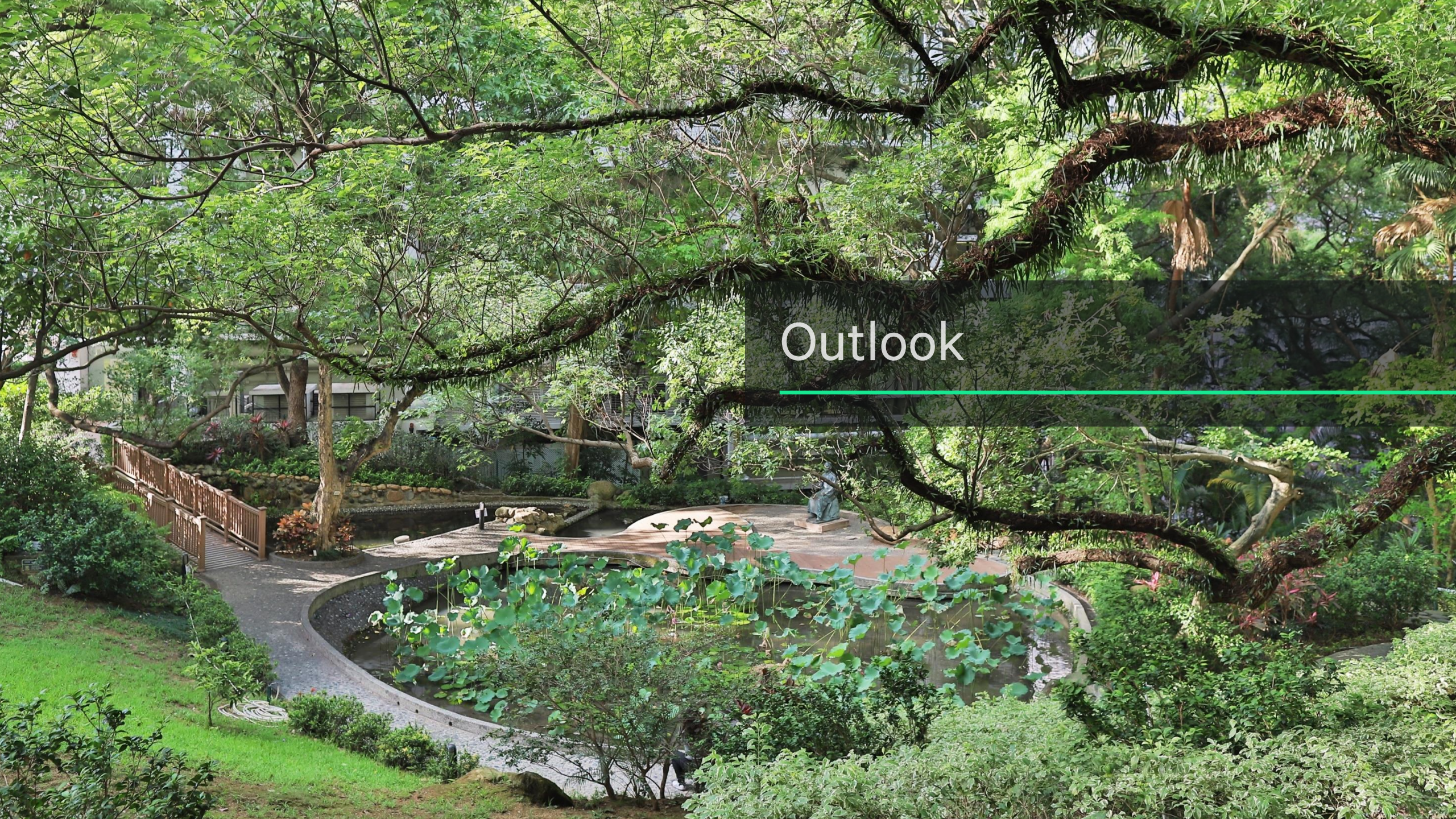
## Beyond the Concrete Jungle: Exploring Nature and Biodiversity

In July 2021, the Centre collaborated with the University's Summer Institute to organise a one-week online summer course in July 2021 for undergraduate and secondary school students. The course aimed at helping students to acquire a comprehensive understanding of nature and biodiversity in Hong Kong SAR through webinars, virtual tours, artistic workshops and other hands-on learning opportunities and experiences led by invited experts, professionals, and other partners.

**Promotional Poster for "Meet the Ecologists"**


**One-week Online Summer Course**





# Outlook

# Outlook

## Future Projects for a Greener University

Despite a year-long delay to COP26 due to the COVID-19 pandemic, many countries and regions continue to move towards carbon neutrality. Mainland China plans for its carbon emissions to peak by 2030 and intends to be carbon natural by 2060. Hong Kong SAR has a similar plan to be carbon neutral by 2050.

The University will continue to pursue a comprehensive set of sustainability initiatives in the years ahead. For its new Pokfield Campus development, local stakeholders were brought in as well to create a green landscape embedded with the community. In addition, a pilot scheme to establish food waste collection and recycling kiosks will be set up over the next 12 months to promote the saving or recycling of precious resources.

**Sustainability Target:** Energy & Resources Consumption
Environment Protection

# Pokfield Campus Development

Scheduled to be completed from 2023 to 2025, the regeneration of the Pokfield Road area into a contemporary campus will deliver an accessible and comfortable campus environment. The new campus will blend with its surroundings by utilising designs and materials of enduring quality.

## Green and Healthy Campus

The design of buildings in Pokfield Campus aspires to promote sustainability and improve the health and well-being of all future users through alignment with the United Nations' Sustainable Development Goals. Throughout the design process, elements related to user health such as daylight, surrounding environment, energy use sustainability, and comfort have all been carefully considered.

The development will adopt state-of-the-art, environmentally friendly construction methods, building materials, and innovative technologies. The entire project will meet the construction industry's latest environmental standards; The design provides a foundation for achieving BEAM Plus ratings and the WELL international standard on healthy buildings.

BEAM Plus is the most widely adopted green building standard in Hong Kong SAR. The standard covers the full life cycle of a building project and assesses a building according to criteria including integrated design and construction management, health and well-being, the sustainability of sites, material and waste management, energy use, water use, and innovation.

The WELL Building Standard (WELL) is an international assessment system for green buildings, which is used for measuring, certifying and monitoring features of the built environment that impact human's health and well-being in terms of air, water, nourishment, light fitness, thermal comfort, acoustic environment, materials, mind, community, and innovation.


# Food Waste Collection Pilot Scheme

**Sustainability Target:** Energy & Resources Consumption
Raise Awareness

In support of its commitment to environmental sustainability, the University had proudly participated in the Food Waste Collection Pilot Scheme operated by the Environmental Protection Department (EPD). One of the key aims of the scheme is to promote the proper recycling of food waste and achieve the target of turning waste to energy.

Commencing September 2021, sixteen waste collection bins were placed in the four refuse stations around the campus to collect food waste from catering outlets. On their first day of operations, the bins collected a total of 88 kg of food waste.

The bins are estimated to collect around 27,000 kg of food waste annually under the pilot scheme. Those collected would be delivered to the Environmental Protection Department's (EPDs) Organic Resources Recovery Centre Phase 1 (O•PARK1) at Siu Ho Wan, North Lantau for treatment. O•PARK1 can convert 200 tons of food waste to biogas per day as renewable energy as well as compost as by-products for landscaping and agricultural use.

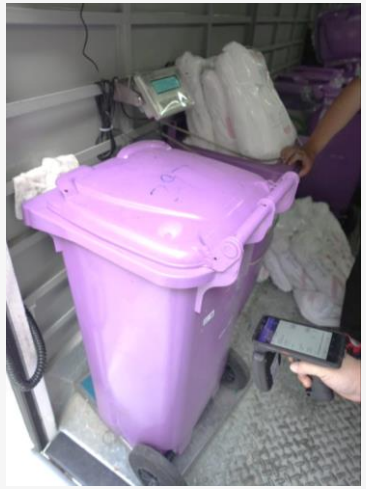
TABLE 13

**Location and Number of Newly Added Waste Collection Bins**

| | Location | Total Number |
|---|---|---|
| Main Campus | Chong Yuet Ming Amenities Centre Refuse Station | 4 |
| | Swire Building Refuse Station | 4 |
| | Composite Building Refuse Station | 4 |
| Centennial Campus | LG/F Refuse Station | 4 |

FIGURE 22

**EPD Contractor Collects Food Waste Daily**

**Sustainability Target:** Energy & Resources Consumption
Raise Awareness

# Recycling Kiosk

To strengthen support for waste reduction and recycling at the community level, a new recycling kiosk at a highly accessible area on the campus has been set up as a pilot scheme with a view to encouraging more University members and the general public to go green and change their recycling and waste disposal behaviour. The kiosk is to follow the Municipal Solid Waste Charging policy and support the vision of "Waste Blueprint for Hong Kong 2035" set out by the Government.

The new kiosk commenced operation in January 2022 and collects six categories of recyclables:

- Paper
- Plastics
- Metals
- Glass Bottles
- Rechargeable Batteries
- Tetra Pak

As well as serving as a visible emblem of the University's commitment to recycling and waste reduction, the kiosk showcased sustainable elements in its design and operations, such as a steam-baked corkboard and soil-less planter boxes that water themselves.

University members will be able to avail of this well-managed and user-friendly site to facilitate recycling. All collected recyclables will be handled properly and passed to registered recyclers for conversion into useful products.

FIGURE 23

**Recycling Kiosk**

# Conclusion

With mainland China and Hong Kong SAR having already outlined clear goals to achieve carbon neutrality by 2060 and 2050 respectively, it is recommended that could align its own sustainability masterplan with initiatives at the national level. Going forward, the University will be more proactive in benchmarking its sustainability performance against peer institutions.

Therefore, priorities are given to develop and implement a sustainability management system to control the usage of resources and incorporate green elements and best practices in campus development, building constructions and facilities management.

As part of its masterplan, all new buildings and retrofitted aged buildings will be BEAM Plus certified and in compliance with the latest green building standards. Amid rising awareness of safety protocols, achieving WELL building certifications can strengthen the health of building occupants. However, with some of the properties being declared monuments and graded historic buildings, historical and architectural preservations would precede retrofitting and redevelopment in these situations.

Energy audits can have a more direct and immediate impact. The University will conduct energy audits on the Estates' facilities to identify energy consumption patterns and seek energy management opportunities to reduce operational costs.

# Recommendation

## Green Buildings

- Develop green buildings with enhanced energy saving, recycling and renewable energy features
- Retrofit and redevelop aged buildings
- Enhance technology to control energy consumption

## WELL Buildings

- Advance health by setting performance standards for design interventions, operational protocols and policies

## Energy Audits

- Measure energy usage and access patterns
- Help occupants to achieve KPIs and disclosure

# Contacts


## The University of Hong Kong

Estates Office

Telephone: (852) 2816 8211

E-mail: estates@estates.hku.hk



All photos used in the report are courtesy of CPAO, The University of Hong Kong.

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