



LIFE ON LAND

Research



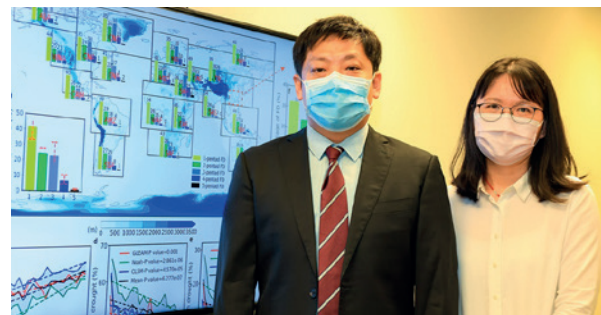
Smart Tree Management System

Professor Charles Wong Man-sing, Associate Dean of the Faculty of Construction and Environment and Professor of the Department of Land Surveying and Geo-Informatics, led the three-year “Jockey Club Smart City Tree Management Project” to develop the “Smart Monitoring System for Urban Tree Management”, with a grant of HK\$32.8 million from The Hong Kong Jockey Club Charities Trust and support from various government departments and other local academic

and NGO collaborators. During the pilot project, smart sensors attaching to approximately 8,000 trees in Hong Kong provided data to identify those that needed to be timely examined, thereby facilitating urban forestry management.

Illegal Dumping of Construction and Demolition Materials

A project led by Dr Zhu Xiaolin, Associate Professor of the Department of Land Surveying and Geo-Informatics has been awarded a funding of HK\$281,060 from the Hong Kong Government to investigate illegal dumping of construction and demolition materials. These materials can lead to destroyed wetland, landslide, clogging of waterways, breeding of germs and seizing of public lands. The project examines the scope of suspicious illegal dumping activities in Hong Kong and recommends an approach to deploying workforce for effective illegal dumping management. It not only contributes to the early detection of illegal activities but also to the assessment of recovery works after a site is damaged or destroyed.



Flash Droughts in South-East China

The research team led by Dr Wang Shuo, Associate Professor of the Department of Land Surveying and Geo-Informatics, has found that south-east China is at a higher risk of experiencing very rapid drying, with an increase of 18.67% from 2000 to 2020 in the proportion of flash droughts developing within five days. Based on the data using satellite soil moisture measurements, the study found that although flash droughts are generally not becoming more frequent, they are developing faster. Compared with more common and slowly developing droughts, flash droughts evolving with fast depletion of soil moisture may lead to an imbalance in ecosystems and agricultural systems.

Education

Subject: Ecotourism in the Community

The service-learning subject is offered by the School of Hotel and Tourism Management and involves students in promoting and enhancing ecotourism within local communities. Students are required to review potential resources for ecotourism development and maintenance, design promotional materials and branding, host activities to raise awareness of local cultures, and provide a comprehensive ecotourism marketing plan for the project site. Students also offer training to the local community in areas such as food safety and hygiene, basic English for communicating with tourists, nursing care for treating injuries, and service skills.

Subject: Understanding Ecocriticism through Environmental Movies

By means of watching Western wildlife films, Hollywood movie and animations, the subject, offered by the Department of Chinese and Bilingual Studies, aims to help students gain a deeper understanding of environmental issues; examine theories, concepts and major debates in ecocriticism; and develop their ecological awareness, sensitivity and core values towards animals, the environment, nature and society. It examines humankind's relationship with animals, plants and other living species and focuses on cases of human dominance over and mistreatment of nonhuman species.

Webinar on Wildlife in Lantau

The webinar was held during the 2021 Campus Sustainability Weeks to provide students and staff with an exclusive opportunity to virtually explore the wonders of wildlife on Lantau Island in Hong Kong. Dr Xoni Ma, Founder and Education Director of Outdoor Wildlife Learning Hong Kong, engaged the participants in a lively and informative sharing of ideas and views about the wide variety of habitats on Lantau and the island's conservation significance.

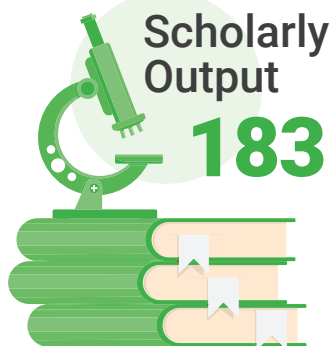
Engagement

International Webinar on Valorisation of Waste Incineration Residues in Construction

Since landfilling requires extensive land resources, the use of waste to energy (incineration) technology for managing non-recyclable solid waste has been gaining attention. In this regard, the webinar, organised by the PolyU Research Centre for Resources Engineering towards Carbon Neutrality and the International Society for Construction with Alternative Materials, was held in March 2022. Attracting **more than 100 participants** including worldwide renowned professionals and academics in the field of incineration residues management and featuring 13 presentations, it aimed to disseminate the latest state-of-the-art practice and relevant research studies.

Seminar on Wood Waste Conversion to Value-Added Products

At the seminar organised by the Department of Civil and Environmental Engineering (CEE) and the Hong Kong Institution of Engineers, Dr Leu Shao-yuan, Associate Professor of the CEE, explained the over-utilisation of woody products and generation of yard wastes that causes an environmental problem. Woody biomass can offer many physiochemical properties for valorisation, and Dr Leu introduced key characteristics of wood and some state-of-the-art techniques used to convert woody biomass into valuable products including construction materials, fuels and chemicals. With further recognition of wood's value, it was expected that further research can help ensure the future of the circular economy of this green material, which has been used throughout human history.



Policies and Operations

Greening the Campus

Outdoor space on the PolyU campus not only provides connection between buildings, but also creates a pleasant and relaxing ambience for the University community and visitors. Careful and visionary landscape planning is therefore important. To strategically develop a pleasant campus landscape, PolyU formulated a three-year "Landscape Master Plan" in 2019, whereby a number of enhancement works are executed, including introducing new plants that complement the existing brick-red campus, and optimising the irrigation system.



Biodiversity on Campus

Being committed to promoting biodiversity and strengthening ecosystems to benefit both the campus community and the natural world, the PolyU campus landscape features a mix of plant species, including seasonal flowers, shrubs and trees that enhance the environment and attract campus users. In order to improve campus user experience, TreeMap@PolyU and Fauna@PolyU serve as a web-based platform for mapping the locations of different tree and flower species. Users can also access pictures and basic information of each tree and flower species and some interesting stories behind them.

