

# The Institute of Environment, Energy and Sustainability

How we *Preserve*  
and *Sustain*  
defines our *Tomorrow*



香港中文大學  
The Chinese University of Hong Kong

## Visions

- To be a leading research institute in environment, energy and sustainability in the region.
- To help build a sustainable future for Hong Kong, China and our region through rigorous advanced research, education and knowledge transfer programmes.
- To build an image of CUHK as an environmentally conscious and friendly campus.

## Missions

- To provide a platform for productive and innovative collaboration among scholars of different disciplines in pursuing world-class multi-disciplinary research in environment, energy and sustainability.
- To nurture gifted and budding scholars involved in environment, energy and sustainability studies.
- To actively engage in knowledge transfer in arousing awareness, guiding and leading the community in adopting sustainability initiatives for reducing carbon emission and ecological footprint.
- To educate the public, especially our future generations, on the importance of clean energy, environmental conservation and maintaining sustainability.



## Message from the Vice-Chancellor and President

CUHK cares.

Scientific evidence has increasingly alerted us to daunting environmental and energy problems that pose severe threat to our living environment. Our sustainability hinges upon measures which we must take to cope with problems including climate change, shrinking water resource, air pollution, food security, reduction in biodiversity, ecological degradation and energy deficiency. Different countries and cities have set targets to reduce carbon emission, improve energy efficiency and curb environmental pollution through a large array of technological, legal, fiscal and education measures. Meaningful and effective measures rely upon rigorous research and analysis from which scientists and engineers help unravel the mechanisms, model the impact and forecast the potential trend whilst social scientists can gauge the impact and vulnerability for better policy



formulation and plan implementation. Universities are obliged to conduct education and knowledge transfer programmes to tackle these global and local challenges.

As CUHK approaches its 50th anniversary in 2013, we take pride as a leading university in both the global and the regional context. Our future development is intertwined with the sustainability of Hong Kong, the Pearl River Delta, China and the world. The establishment of the Institute of Environment, Energy and Sustainability represents a pledge of CUHK to commit itself to leading our community in research, education and knowledge transfer in environment, energy and sustainability. This Institute promotes multidisciplinary research and builds synergy for strategic research programme development. It will also work closely with industrial, government and non-government organizations as well as different community stakeholders to build a better environment for our future generations.



A handwritten signature in black ink, appearing to read 'Joseph J Y Sung'.

Joseph J Y Sung  
Vice-Chancellor and President  
The Chinese University of Hong Kong



# Governance

The Institute will be guided by an Advisory Committee with international experts and a Steering Committee comprising community leaders, senior government officials and university officers. Day-to-day administrative matters of the Institute will be handled by an Executive Committee.

**Advisory Committee**

**Steering Committee**

## Executive Committee

Director	Professor LAM Kin Che
Associate Director —Research	Professor YU Chai Mei Jimmy
Associate Director —Research	Professor LEUNG Yee
Associate Director —Administration	Professor FUNG Tung
Programme Director	Professor XIAO Xudong
Programme Director	Professor XU Jianbin

## Experts and Innovators

### **Professor Lam Kin Che**

*Former Chairman of the Advisory Council on the Environment; Director, IEES*



Professor Lam Kin Che is an international expert on environmental policy, assessment and acoustics. He is currently professor at the Department of Geography and Resource Management and was formerly Director of the Centre of Strategic Environmental Assessment for China. He has served in a number of environment and sustainability related advisory committees of the HKSAR Government, including The Advisory Council of Environment of which he was the Chairman for 7 years. Professor Lam has led various environment related studies including noise modeling and soundscape design in dense cities, strategic environment assessment in China and strategies in the management and siting of locally unwanted land use and facilities. In recognition of his contribution to environmental protection in Hong Kong, Professor Lam was bestowed the Silver Bauhinia Star in 2006.



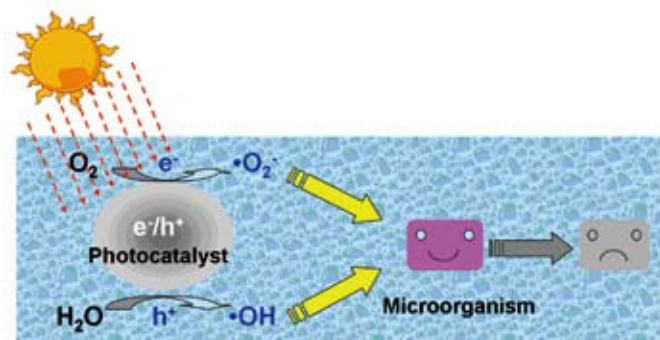
*Professor Lam's soundscape research has been useful for designing better urban parks and communal spaces*

### **Professor Yu Chai Mei Jimmy**

*Professor of Chemistry, CUHK; Associate Director—Research, IEES*



The photocatalysis research group in the Department of Chemistry under the leadership of Professor Yu has published many highly-cited papers and feature articles. Professor Yu shared a National Natural Science Award with his collaborators in 2005, and was appointed Chang Jiang Scholar Chair Professor by the Ministry of Education in 2009. He holds six patents on the fabrication and application of photocatalytic nanomaterials. Air and water treatment systems based on his inventions are commercially available. His research team has made this world a better place to live.



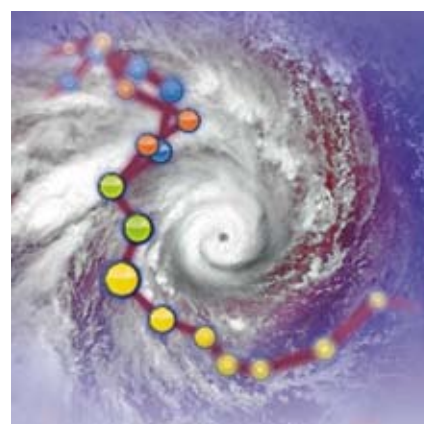
*Solar photocatalytic disinfection of water*

### **Professor Leung Yee**

*Professor of Geography, CUHK; Associate Director—Research, IEES*



Professor Leung has done pioneer and influential research on imprecision/uncertainty analysis in geography, intelligent spatial decision support systems, geocomputation, and spatial knowledge discovery and data mining. A focus of his research is on the modeling and analysis of environmental systems. He has obtained more than 30 research grants, published six books and over 160 papers in reputed international journals. Professor Leung received the State Natural Science Award with his collaborators in 2007 for achievements in modeling and analysis of geo-referenced and remote sensing information.



*Professor Leung has developed a novel web-based system for typhoon prediction and analysis*



## The Core Programmes

The Institute will be actively engaged in six major programmes of research and activities.

### Climate Change, Environmental Monitoring and Management

This programme will focus on investigating the impact of climate change on the environment on different scales as well as monitoring environmental changes using state-of-the-art remote sensing, geoinformation technologies and other innovative techniques. It will work closely with the Institute of Space and Earth Information Science, the Marine Science Laboratory and other units in the University to provide pertinent information for planning, policy-making and formulation of adaptation and management strategies in tackling daunting challenges of climate change.



*Prof. Xiao Xudong and the film solar cell*

### Energy Technology and Conservation

Built on the innovative work of the Departments of Chemistry, Physics, Electronic Engineering, and Mechanical and Automation Engineering, the programme will endeavour to further develop new energy technologies (e.g., high efficiency thin-film solar cells) and intelligent energy saving strategies. These are needed to help reduce carbon emission and promote energy efficiency. There are also opportunities to partner with international institutes such as UC Berkeley, Washington University in St. Louis and National Central University.

### Sustainable Urban Environment and Public Health

The Institute, through this programme, will become a centre of excellence in sustainable urban planning and design to provide a clean, safe and healthy environment for urban inhabitants. The programme will investigate the flow of heat, air, water, sound and wastes in cities, ascertain their impacts on human health and explore innovative solutions to problems arising through urban planning and design. The solid work undertaken by faculty members in the School of Architecture, the Department of Geography and Resource Management, the School of Life Sciences and the School of Public Health and Primary Care together with the network they have established with the government and professional bodies will facilitate the transfer of knowledge to industries and practitioners.

*The Institute of Space and Earth Information Science, CUHK*

## Environmental Policy and Governance

Recognizing the importance of political and distributive considerations in environmental policy-making, this programme, the first of its kind in Hong Kong, will draw on the expertise of faculty members from the Faculty of Social Science and the Faculty of Law to identify and remove hurdles in policy formulation and implementation. Particular attention will be given to issues which may enhance policy implementation and enhance social cohesion, such as strategies of public engagement, environmental and social movement in post-modern age and NIMBYism. The programme will also provide timely commentaries on environmental issues and controversies and advice to the government if and when requested.

## China Environment Programme

Given the close relationship between Hong Kong and the Pearl River Delta Region and the increasingly important role of China in shaping the global environment, this programme will build on the work of staff members in various Faculties and the Centre of Strategic Environmental Assessment in China. The programme will continue to:

- Provide policy advice on regional and national environmental and developmental strategies
- Assist capacity and institution building in environmental assessment and planning
- Promote sustainable rural development through agrobiotechnological research, and projects related to public health promotion and community infrastructure building (e.g., *Wu Zhi Qiao*)
- Explore business opportunities in pollution prevention, renewable energy and waste management technologies



*Under the Wu Zhi Qiao project, CUHK teachers and students have built over 20 bridges in various rural parts of China to help children commute to schools*

## Environmental and Sustainability Outreach Programme

The Institute, through this programme, will endeavor to:

- Assist the University in providing balanced and all-rounded formal and informal environmental education programmes to augment the existing curriculum
- Showcase CUHK as a sustainable campus through its environmental, energy saving and sustainable planning and management initiatives
- Reach out to the community to increase public environmental awareness through seminars, gallery and museum on climate change and global warming
- Through the Sustainability Partnership Programme assist schools and NGOs to develop their own environmental and/or carbon reduction programmes and carry out carbon audit plans



*CUHK held the Science and Art of Trees of CUHK Exhibition in October 2010 to showcase its rich collection of tree resources*



## Community Outreach Initiatives

In fulfilling its duties towards the transfer of knowledge to the community, the Institute will also pursue the following major initiatives that would reach far and deep into the community.



### Gallery and Museum on Climate Change and Global Warming

- Climate Change and Polar Museum (based on resources from Dr. Rebecca Lee)—Exhibition from Dr. Rebecca Lee, a renowned environmentalist and explorer on valuable collections through her lifelong field work in the three poles (North Pole, South Pole and Mt. Everest) and network with research institutes in China. This collection will vividly demonstrate to students and the community on global warming, climate change as well as their impact on humankind.
- “Think Global”—Exhibition of research works in the use of geoinformation science in air pollution monitoring and simulation, oil spill analysis, sustainable urban and housing design, virtual geographic environment, 3D simulation for environmental monitoring and fourth generation digital map in the form of virtual campus with user immersion.
- “Act Local”—Cutting-edge Research and Innovation in Environment, Energy and Sustainability. Research results in food production, biofuel, photovoltaic solar energy, photocatalytic oxidation, algae and carbon fixing, urban planning, etc., will be displayed in this exhibition. The aim is to educate the public about future potential in this area.





## Conferences, Seminars and Outreach Forums

- The year 2013 marks the 40th anniversary of environmental protection in China. The Institute plans to organize an international conference in late 2012 under the theme “Environmental Protection in China, a Prelude to 40th Anniversary and the Way Forward”. Internationally renowned scientists, social scientists, policy planners and makers will be invited to present their views on this theme. Other themes of “Energy Outlook” and “Sustainable Urban Design” will be considered for the international conference in 2013 and 2014, respectively.
- Seminar series will be organized to invite distinguished and internationally renowned environmental scientists, policy makers and NGO leaders to talk on environmental topics related to climate change, global warming, energy, social impact and sustainability issues.
- Regular outreach forums will be organized to arouse the public’s awareness and exchange views on different environmental issues in Hong Kong.



*CUHK is the first university in Hong Kong to instal solar-powered water heaters in student hostels*

## Sustainability Partnership Programme

In the initial phase (5 years) of the Sustainability Partnership Programme, highschoools and NGOs in Hong Kong will be invited to join the programme. CUHK will assist in designing and formulating sustainability plans which are suitable to the local environment. These sustainability partners will implement the plans accordingly and carry out their own carbon audit schemes. Schemes from different partners will be shared in workshops with an ultimate goal in setting a sustainability assessment standard that can be used in rating schools/NGOs in their performance. Activities involved in the programme can be a useful teaching platform for liberal studies.



## Partnerships and Collaborations


The Institute will facilitate and promote collaborative work with existing teaching and research units and centres in CUHK particularly in developing integrative research projects and transfer of knowledge and technology through its network.

With the sharpened focus and new institutional setup, the Institute will strengthen existing and new local, regional and international strategic partnerships. The following is a tentative list of potential strategic partners:

Programme	CUHK academic departments and research institutes	External and International Partners
Climate Change, Environmental Monitoring and Management	<ul style="list-style-type: none"> <li>Institute of Space and Earth Information Science</li> <li>Department of Geography and Resource Management</li> </ul>	<ul style="list-style-type: none"> <li>Chinese Academy of Science</li> <li>National Central University</li> <li>Nanjing University</li> <li>Beijing Normal University</li> <li>Tsinghua University</li> </ul>
Energy Technology and Conservation	<ul style="list-style-type: none"> <li>Department of Chemistry</li> <li>Department of Physics</li> <li>Department of Electronic Engineering</li> <li>Department of Mechanical and Automation Engineering</li> </ul>	<ul style="list-style-type: none"> <li>UC Berkeley</li> <li>Washington University in St. Louis</li> <li>National Central University</li> <li>Nanjing University</li> </ul>
Sustainable Urban Environment and Public Health	<ul style="list-style-type: none"> <li>School of Architecture</li> <li>Department of Geography and Resource Management</li> <li>School of Life Sciences</li> <li>School of Public Health and Primary Care</li> </ul>	<ul style="list-style-type: none"> <li>University of Utrecht</li> <li>Griffith University</li> </ul>
Environmental Policy and Governance	<ul style="list-style-type: none"> <li>Department of Geography and Resource Management</li> <li>School of Architecture</li> <li>Faculty of Law</li> </ul>	<ul style="list-style-type: none"> <li>Environment Bureau, HKSAR Government</li> <li>Environmental Protection Department, HKSAR Government</li> <li>Central Policy Unit, Hong Kong SAR Government</li> </ul>
China Environment Programme	<ul style="list-style-type: none"> <li>Centre of Strategic Environmental Assessment in China</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Environmental Protection, PRC</li> <li>Tsinghua University</li> <li>Nankai University</li> <li>World Bank (Beijing Office)</li> <li>Asian Development Bank</li> </ul>
Environment and Sustainability Outreach Programme	<ul style="list-style-type: none"> <li>Campus Planning and Sustainability Office</li> <li>Estates Management Office</li> <li>Centre for Environmental Policy and Resource Management</li> </ul>	<ul style="list-style-type: none"> <li>National Central University</li> <li>Hong Kong Sustainable Campus Consortium</li> </ul>



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