

# Press Release

Funding to ETH Zurich's Singapore-ETH Centre provided

## Future Cities Lab to continue

Zurich, May 22nd 2015

Singapore's National Research Foundation has awarded funding to the Singapore-ETH Centre for a second five-year phase of the Future Cities Laboratory. The second phase commences in September 2015 and addresses the challenges of sustainable urban development.

Three quarters of the Swiss population live in urban areas – with nearly 1.9 million in the greater Zurich area alone – but urban growth rates in the country are relatively low at 1%. Singapore, too, is predominantly urban now, with more than 5.3 million people living in urban areas. Sustainable urban development is a pressing issue not only for Asian megacities, but for big cities around the world.

### Funding renewed

ETH Zurich established the Future Cities Laboratory (FCL) at the Singapore-ETH Centre (SEC) in 2010 to tackle these challenges. The laboratory is based in Singapore and supported by funding from the country's National Research Foundation (NRF). Part of the CREATE Campus, the FCL programme at the Singapore-ETH Centre has received funding from the NRF for a second five-year phase.

In the past five years, the FCL has attracted researchers from Switzerland, Singapore, and 30 other countries, becoming a significant knowledge hub for international scholarship on urban forms, technologies, and processes. Professor Peter Edwards, Director of the Singapore-ETH Centre remarks, "By bringing together researchers with stakeholders from government and industry, the FCL has pioneered new ways of conducting research that provide practical answers to some of the world's most pressing problems."

The second phase of the FCL will bring together some 100 architects, designers, urban planners, transport planners, engineers, computer scientists, ecologists, psychologists, and urban historians. The research projects planned will be structured around three conceptual types of city: 1) The compact city (like Singapore, Amsterdam and Taipei), characterised by high density and mixed use; 2) The responsive, or "smart" city (like Zurich, Singapore and Copenhagen) that makes full use of modern

technologies to improve planning and management; and 3) The extended or horizontal mega-city (like Jakarta, Bangkok and Manila).

The programme comprises 12 individual projects on topics such as the development of sustainable energy systems that reduce electricity consumption and thus the carbon footprints of cities; the effective integration of green spaces in large-scale buildings to mitigate problems of high-density living such as: heat, poor air quality and noise; understanding the perception of space and human behaviour in the built environment; and the use of alternative building materials such as bamboo, grasses and waste for greater sustainability. Researchers in these projects aim to develop new technologies, planning approaches, and design scenarios that will promote sustainable urban development not only in Singapore, but also in other parts of Southeast Asia, India and China.

### **Developed in Zurich, tested in Singapore**

Researchers at ETH Zurich developed some of the new technologies that are now both studied at the FCL and applied to the special circumstances of the humid tropics. For example: The FCL's "3-for-2" project takes a low exergy approach to improving the efficiency of air cooling, while reducing the vertical space in a building needed for ductwork. As a result, three floors can be built within the same volume typically taken up by two floors in a conventional building. This collaborative research project, which embodies the meeting of science and design, was developed during the first phase of the FCL and is being implemented as a living laboratory on the campus of the United World College of Southeast Asia in Singapore.

Similarly, an agent-based transport simulation tool for urban and transport planning – developed at ETH Zurich together with TU Berlin – is now being implemented in Singapore. By providing a better understanding of the interactions between land use, travel demand, transport supply and travel behaviour, the MATSim Singapore digital tool will help planners improve the nation's transport systems.

### **Working closely with government agencies**

Dr Lim Khiang Wee, Executive Director of the CREATE Campus, congratulates the Future Cities Laboratory for the successful renewal. "The renewal process was a rigorous one. The team of principal investigators from ETH Zurich, École polytechnique fédérale de Lausanne, the National University of Singapore, Nanyang Technological University, Singapore, and the Singapore University of Technology and Design worked with stakeholders from public agencies to develop and refine a proposal that was well received at all stages of the review process," says Dr Lim. "We expect that the programme will provide Singapore with a generation of scientists trained in future city planning to provide scientific solutions that can be implemented by city planners in Singapore and around the world. I wish the Future Cities Laboratory every success for its second phase."

[www.fcl.ethz.ch](http://www.fcl.ethz.ch) →

## Further Information

ETH Zurich  
Media Relations  
Phone: +41 44 632 41 41  
mediarelations@hk.ethz.ch

ETH Zürich  
Singapore-ETH Centre (SEC)  
Geraldine Ee  
Phone: +65 9856 0166 (Mobile)  
ee@arch.ethz.ch

## About Future Cities Laboratory

The Future Cities Laboratory was established in 2010 as the first project of the Singapore-ETH Centre (SEC), a joint initiative of ETH Zurich – the Swiss Federal Institute of Technology in Zurich and Singapore's National Research Foundation. It is housed within the Campus for Research Excellence and Technological Enterprise (CREATE), and works closely with three Singaporean universities: Nanyang Technological University (NTU), the National University of Singapore (NUS), and the Singapore University of Technology and Design (SUTD), as well as government agencies and academic institutions in neighbouring countries. The second phase will continue on the basis of this institutional framework and will intensify academic relationships.

As designated project leader for the second phase of the FCL, Professor Stephen Cairns of the Singapore-ETH Centre will work closely with the project coordinators in Zurich: Professors Kees Christiaanse and Dirk Hebel. The principal investigators include professors from the ETH Zurich Departments of Architecture, Civil Engineering and Environmental Systems Science (D-ARCH, D-BAUG, and D-USYS); from the Swiss Federal Institute of Technology Lausanne (EPFL); and from NTU, NUS and SUTD.

## About CREATE

CREATE is an international collaboration in which top universities set up housing research centres. At CREATE, researchers from diverse disciplines and backgrounds work closely together to perform cutting-edge research in strategic areas of interest, for translation into practical applications leading to positive economic and societal outcomes for Singapore. The interdisciplinary research centres at CREATE focus on four areas of interdisciplinary thematic areas of research, namely human systems, energy systems, environmental systems and urban systems. More information on the CREATE programme can be obtained from [www.create.edu.sg](http://www.create.edu.sg).