

Programme Leaders



Professor Peng Yinghong (above left) is the Programme Director of E2S2-CREATE. He is an expert in material deformation and mechatronic design. He is also the Assistant President for SJTU and the Chairman of SJTU Enterprise. Professor Tong Yen Wah (above right) is the co-Programme Director. He is well-known for his work on materials for biological applications. He is a faculty member of Chemical Engineering at NUS and is also the Assistant Dean for Research at the Faculty of Engineering.

The E2S2 programme started in February 2012 and is a research programme funded by the National Research Foundation (NRF), under its Campus for Research Excellence and Technological Enterprise (CREATE) programme. This is a joint research programme between Shanghai Jiao Tong University (SJTU) and the National University of Singapore (NUS).

Research

E2S2-CREATE, hosted under NUS Environmental Research Institute, aims to develop a platform to facilitate the understanding, design, and implementation of infrastructure and sustainability solutions for coupled problems in future cities. It will start with two sites of different sizes and complexities, in this case a megacity like Shanghai and a land-scarce city like Singapore. It also proposes to develop capabilities needed in solving coupled problems

characteristic of complex city systems. These include sensing, modeling, data mining, systems modeling, carefully designed test bedding systems and adaption, and scalability of coupled solutions to a variety of environments. This will then allow us to adapt solutions to other cities with different complexities and sizes based on a calibrated modeling platform and through subsequent smaller-scale test-bedding. The programme consists of four parts:

Coupled System A (CS-A): Waste management in megacities for sustainability and energy recovery;
Coupled System B (CS-B): Challenges of emerging contaminants on environmental sustainability in megacities;

Support Platform 1 (SP-1): Mission-oriented system model for megacity sustainability;

Support Platform 2 (SP-2): Scientific Data Sensing and Data and Workflow Sharing Infrastructure for Sustainability Solutions.

Researchers

There are currently a total of 65 researchers in E2S2, consisting of post-doctoral fellows, research assistants, and PhD students. So far the programme has published 70 papers and filed 2 patents. Leading the research teams are 10 Principal Investigators (PIs), 5 of whom hold appointments at SJTU and 5 at NUS. These include Professors Dai Yanjun, He Yiliang, Liu Xiao, Chen Haibo and Zhang Ya from SJTU; and Professors Karina Gin, Stephane Bressan, Tham Chen Khong, Tang Loon Ching and Tong Yen Wah from NUS. Their combined expertise are very broad, ranging from detection of environmental contaminants to bioenergy, from systems modelling to cloud computing.

Highlights

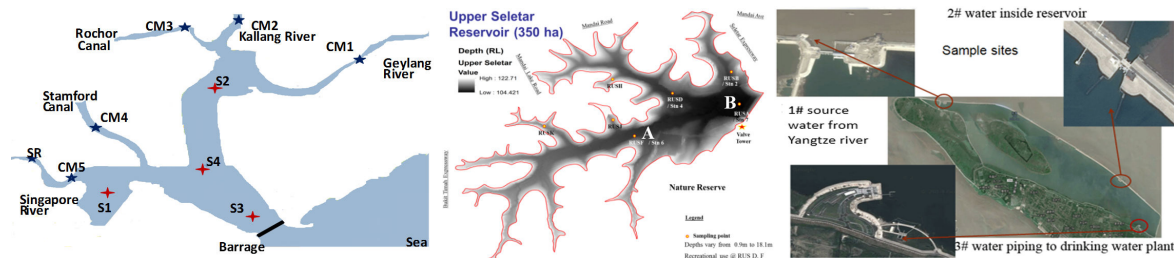


Fig. 1 Water sampling locations in the Marina catchment and reservoir (above left), Upper Seletar Reservoir (above middle), Qingcaosha reservoir (above right)

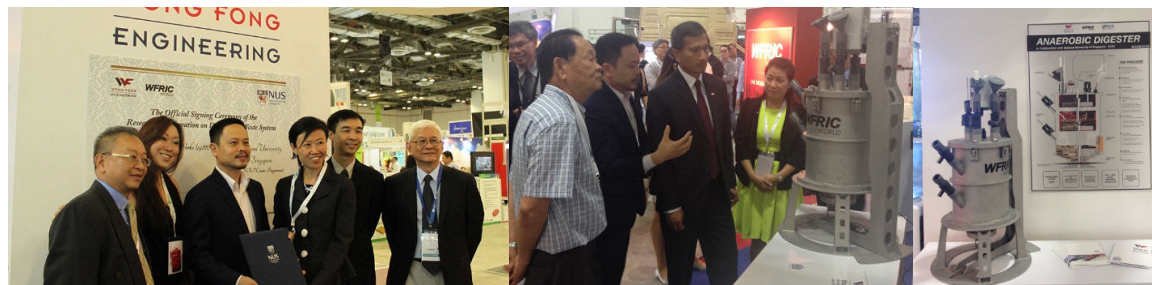


Figure 2. Collaboration with Wong Fong Engineering (above left). Dr Vivian Balakrishnan (Minister for the Environment and Water Resources) visiting the digester at the booth (above middle). The 3-stage anaerobic digester engineered by Wong Fong Engineering (above right).



Figure 3. A sample collection trip for collecting water samples at the Marina Reservoir (above left). Researcher working with gasifier (above middle). Researcher taking faecal sample in zoo (above right).

For more information about the E2S2 programme, please contact:

TONG Yen Wah, Co-Programme Director
Tel: (+65) 6516 8467 Email: chetyw@nus.edu.sg

Updated: March 2018

CREATE
Campus for Research Excellence And Technological Enterprise

NATIONAL RESEARCH FOUNDATION
PRIME MINISTER'S OFFICE
SINGAPORE

1 CREATE Way, #12-02
CREATE Tower
Singapore 138602
Tel: (+65) 6684 2900
Fax: (+65) 6684 0384
Website: www.nrf.gov.sg
Email: communications@nrf.gov.sg