

Marine Environmental Research and Innovative Technology: An Area of Excellence in Hong Kong

Rudolf Wu

**Centre for Coastal Pollution and Conservation,
City University of Hong Kong**

Globally, the problems caused by eutrophication, waterborne pathogens and xenobiotics are likely to be exacerbated and to pose significant ecological and public health risks. This is particularly true in China which has very high population density and rapid industrialization.

Led by the City University, researchers from six local universities have teamed up and established the “Centre for Marine Environmental Research and Innovative Technology” (**MERIT**) as an Area of Excellence (AoE) in Hong Kong. The focus of this AoE is the development of innovative technologies for early detection, assessment, prediction and control of impacts arising from anthropogenic activities in the marine environment. An exceptionally high level of synergy is achievable through close collaboration between biologists, chemists, physicists, engineers and statisticians in the team. We will also work closely with our stakeholders on various projects, including technology transfer and commercialization of our novel technologies.

Research activities of **MERIT** are organized under four Task Teams, which are inter-related:

Task Team 1: Novel Technologies for Environmental Diagnosis: to develop various novel chemical, genomic and biomarker technologies for detection and monitoring of toxic chemicals, red tide toxins and waterborne disease causing agents.

Task Team 2: Field Studies and Validation: to validate the various novel technologies developed, and to study ecosystem recovery after pollution abatement.

Task Team 3: Impact and Risk Assessments: to develop models to estimate carrying capacity of water bodies in relation to pollutants; bioaccumulation of toxic chemicals, and assess the risk of toxic chemicals.

Task Team 4: Control and Bioremediation: to develop novel, cost-effective technologies for removal of nutrients and toxic chemicals in wastewater, bioremediation technologies and controlling red tides.

Through this AoE, a range of innovative and marketable technologies will be developed for monitoring, control and management of our marine environment, which will enable Hong Kong to capitalize on the rapidly growing commercial opportunities presented by the enormous world environmental market.