



Centre for Coastal Reservoir Research

Faculty of Engineering and Information Sciences

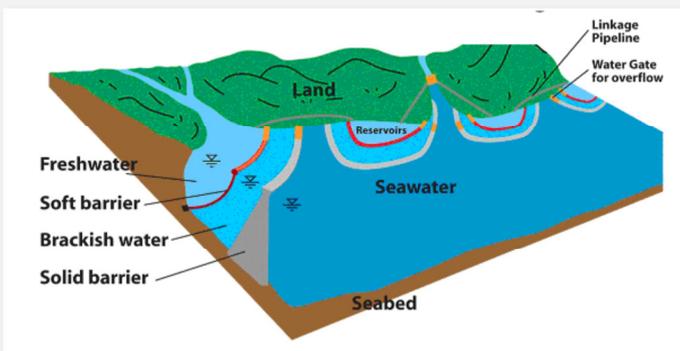
Overview

Securing sustainable water supplies to meet the needs of ever-growing coastal populations is a major challenge faced by water authorities across the world. The conventional approaches to dealing with this challenge are framed around the longstanding notion, 'shortage of water', which by its very nature limits the scope for exploring the feasibility of innovative solutions.

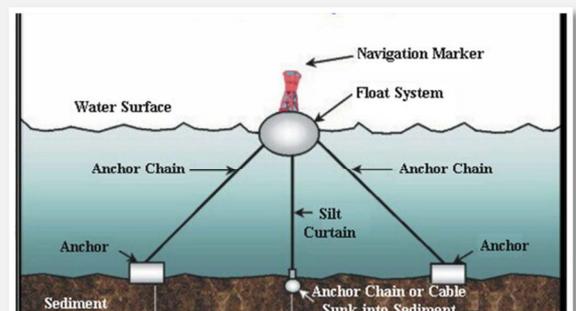
Research undertaken at the University of Wollongong (UOW) over the past decade has led to the development of a novel solution approach that shifts the focus of the world's water problem from 'water shortage' to 'water storage'. This solution approach involves an innovative coastal reservoir (CR) design that will harness flood water at sea, at a fraction of the cost of the desalination technologies currently being used. This innovative design of CRs also addresses most of the limitations associated with the first generation of CRs that have been adopted in several countries; for example, the *Marina Barrage* in Singapore, *Plover Cove* in Hong Kong and *Sihwa Lake* in South Korea.

Building on its pioneering work in this area, UOW's Faculty of Engineering and Information Sciences has taken a crucial step to expedite the development of CRs by setting up the world's first-of-its kind Centre for Coastal Reservoir Research (CCRR). Through this initiative, UOW has been able to assemble a strong multidisciplinary research team with vast experience and reputation in all requisite areas, including: water resources and coastal engineering, water quality and environmental engineering; geotechnical and structural engineering; and modelling and simulation. This has also meant that CCRR is now able to contribute to any future CR development efforts with the following capabilities.

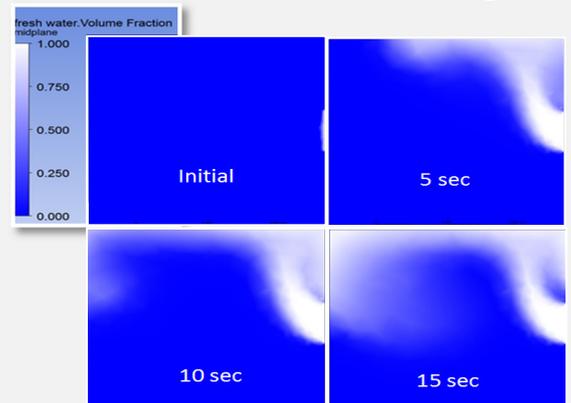
Second Generation Coastal Reservoir Concept



Silt Curtain System



Saline Water-Fresh Water Mixing



CCRR Capabilities:

- *Conceptual Development and Feasibility Studies*
- *Detail Design and Analysis*
- *Water Quality Assessment and Treatment*
- *Coastal Engineering*
- *Project Evaluation and Risk Assessment*
- *Modelling and Simulation*
- *Feasibility studies of Multi-purpose CRs*

CCRR Researcher Profiles

Assoc. Professor Shuqing Yang, BEng, MEng, PhD

Director, CCRR

Areas of Expertise

Water resources engineering; Sediment transport; Turbulent mixing; Physical modelling studies; Hydraulic structures



Assoc. Professor (Siva) Muttucumaru Sivakumar, BSc (Engg), MEng, PhD.

Areas of Expertise

Water quality monitoring, modelling and assessment; Water and wastewater treatment technologies; Contaminant transport and sustainability assessment



Professor Pascal Perez, MSc, PhD

Areas of Expertise

Hydrology; Water quality assessment; Infrastructure engineering; Coastal development



Dr Nicolas Flament, MSc, PhD

Areas of Expertise

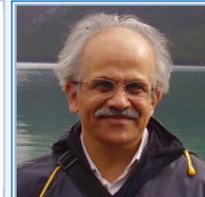
Geophysics; Geodynamics; Sea level change



Dr Ajit Godbole, BTech, MS, PhD

Areas of Expertise

Analytical, experimental and computational fluid dynamics; Heat transfer; Thermodynamics



Dr Jayan S. Vinod, PhD

Areas of Expertise

Discrete element modelling of geomaterials; Liquefaction and post liquefaction behaviour of soils; Ground improvement techniques and energy geotechnics



Dr Senevi Kiridena, PhD

Areas of Expertise

Asset management and systems engineering; Technology and innovation management; Decision analytics and risk management

