



Preface

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Conventional and advanced technologies in treating water, wastewater and groundwater

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“Challenges in Environmental Science & Engineering”, CESE International Conference Series is an annual event initiated by Dr Jega V. Jegatheesan and Dr Li Shu both of whom are currently working at the Deakin University, Australia. Researchers, policy-makers, academics, students and the broader community active in contributing solutions to the myriad of environmental questions posed by the challenges facing environmental sustainability are the consistent participants of CESE series. CESE Series aim at making significant contribution to “Sustainable Growth” by bringing scientists and engineers together which in turn will pave way for further interactions with other major stakeholders.

CESE-2008 was the first of the series that was held at James Cook University, Townsville, Australia with a core group of international researchers some of whom were research collaborators and had come to participate in a workshop for a project funded to Jegatheesan and Shu by the Sugar Research and Development Corporation. Emeritus Professor Roger Ben Aim who was one of the research collaborators of the above mentioned project was instrumental in the initiation of CESE series and was made Honorary Chairman of the series.

CESE-2011 had four themes namely Sustainable Catchments, Wetland Ecosystems, Sustainable Energy & Green Chemistry and Membrane & Advanced Oxi-

dation Processes. There were 170 delegates from 17 countries participated in this event. In this special issue, various advanced and conventional technologies in treating water, wastewater and groundwater using physical, chemical and biological treatments have been highlighted through some of their specific applications. This special issue has been dedicated to the following themes:

- (1) *Adsorption and ion exchange* (seven articles on the application of adsorbents such as red mud, puro-lite, bamboo charcoal, bark powder, shells, and melon seed oil activated carbon to remove various water contaminants have been included).
- (2) *Membrane technology* (five articles covering research on membrane treatment for smart water grid, surface modification of polyethersulfone ultrafiltration (UF), micellar enhanced UF and activated carbon hybrid system, zeolite membrane for gaseous separation, fouling mitigation in membrane bioreactor have been included).
- (3) *Biological treatment* (four articles covering the development of an upflow anaerobic sludge blanket reactor, an anoxic–oxic treatment system and a biological aerated filter, anaerobic/oxic sequencing batch reactor, combination of microalgae biodiesel production and wastewater treatment processes and removal of cyanobacteria by an *Aeromonas sp.* have been included).

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- (4) *Oxidation* (four articles on the applications of various advanced oxidation processes (AOPs) such as UV and UV/H₂O₂ AOPs, chlorination using Neuro-fuzzy PID controller, ultrasound-assisted oxidative desulfurization and electro-Fenton and Fenton systems have been included).
- (5) *Water quality* (four articles on the water quality monitoring in coal mine drainage, Chaohu lake in China, sustainable water quality management strategies and assimilable organic carbon concentrations in a water distribution system have been included).
- (6) *Separation and recovery* (two articles on the recovery of palladium (II) from acidic chloride solution

and cupric oxide from copper-containing wastewater sludge have been included).

The Guest Editors of this special issue are thankful to the Editor of *Desalination and Water Treatment*, Professor Miriam Balaban for providing an opportunity to publish selected papers that were presented at CESE-2011 after peer review. Our sincere appreciation to all the reviewers who did an excellent job in reviewing the manuscripts submitted for the special issue critically. We look forward to many more participants for CESE-2012 which will be held from the 9th to the 13th of September in Melbourne, Australia.