
Editorial

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Biographical notes: Paul Mulley is currently enrolled in a PhD at the University of Western Sydney, funded by the Cooperative Research Centre for Irrigation Futures. He is trying to determine whether the development of sustainable alternative water source irrigation is possible through the use of structured decision frameworks and processes. He completed Bachelor of Applied Science (Environmental Health) at the University of Western Sydney in 2004 and Master of Environmental Management at Wageningen University, The Netherlands and the University of Western Sydney in 2005. He worked in local government for three years focusing on environmental issues at a local and regional scale and gaining an insight to governmental decisions and the associated influences.

Chunhua Li is a PhD student from University of Sydney, supervised by Prof. Ivan R. Kennedy. She graduated from Shenyang Agricultural University, China in 1984. From 1986 to 2000, she worked in Soil and Fertiliser Institute, Chinese Academy of Agricultural Sciences as an Agronomist in Beijing, China. Her research mainly focuses on diagnoses of trace element deficiency in crops, suitable technology for application of trace elements, and comprehensive technology to increase the fertiliser efficiency and grain nutrition quality. In 2001, she came to Australia and got her Masters from Sydney University. She did research on the toxicity from gene-modified cotton to Collembolan. In 2005, she started as a PhD candidate at the University of Sydney.

Viola Devasirvatham is doing postgraduate research at the University of Western Sydney. Her previous work experience includes weed management, irrigation management and nursery management. She has specialised in agronomy with a sound knowledge of field crops. Her current research focuses on subsurface drip irrigation management in vegetable production in the Sydney Basin area which includes soil moisture monitoring, improving water

use efficiency and drip system management under various soil types and climatic conditions.

Chin Hong Cheah is a Research Student currently pursuing his PhD at the University of New South Wales under the supervision of James E. Ball. His research interests are hydrology and urban stormwater modelling. Since undergraduate level, he has been working with different models and now undertakes his research at the University's Water Research Laboratory, a leading international research and consulting laboratory at Manly Vale, Sydney.

Sam Cook completed his undergraduate studies at the University of Melbourne in 2004; graduating with a Bachelor of Engineering (Chemical and Biomolecular Engineering with Honours) and a Bachelor of Science (Microbiology). Currently, in the second year of his PhD at the University of Melbourne, he is developing an on-site wastewater treatment process for the selective recovery of metals from hot-dip galvanising effluent streams.

Amgad Elmahdi is a Research Scientist with CSIRO land and water, Adelaide lab. His PhD research may change the way water resources are managed – a topic of increasing importance in Australia and throughout the world about underground dams – the new water-storage solution. He has more than 11 years' experience in various aspects of hydrology and water management and holds three Masters Degrees (Water ecological studies, environmental conservation and land and water management). In 2003, his latest thesis was named Best Master Thesis in Water Resources Management by the Egyptian Ministry of Water Resources and Irrigation. In addition to his ground-breaking research, he is very active in social life. In July of 2006, he was named Australian Harmony Hero awarded from the SBS and DIMIA for his work promoting cross-cultural understanding and dissolving cultural barriers.

Nichanan Tadkaew is a PhD student with the School of Civil, Mining and Environmental Engineering at the University of Wollongong, Australia. She studies the removal of trace organics using membrane bioreactors for wastewater treatment and reuse.

Michael Smith undertook an undergraduate course in biological sciences majoring in Microbiology and Genetics at La Trobe University. In 2004, he completed an honours year in Microbiology in the microbial genetics laboratory of Dr. Christian Barth at La Trobe University. In September 2005, he commenced a PhD under the supervision of Dr. Glen Shaw at Griffith University in Queensland on a scholarship provided by the Cooperative Research Centre for Water Quality and Treatment to investigate the health effects of disinfection by-products in drinking water.

Nga Thi Thu Pham is a final year PhD student with the Department of Environmental Sciences, Faculty of Science, University of Technology, Sydney. Her PhD thesis topic is "Studies on impacts of heavy metals on aquatic organisms exploited in West Lake Hanoi, and evaluation of ecological risks for humans". She got a Master's degree in 1999 and a Bachelor's degree in 1996 from the Department of Ecology, Faculty of Biology in Hanoi National University in Vietnam. She was a Lecturer of Biology in Hanoi College of Pharmacy in Vietnam for six years.

Climate variability, population growth and polluted discharges, resulting in lower catchment yields, greater demand and more detrimental environmental outcomes, are the greatest water concerns facing decision makers, planners and the community. It could be suggested that water supply is at critically low levels and the efficient use of water is one of the highest priorities facing Australians. Accordingly, it is important that the planning, monitoring, reporting and use of water resources be investigated to determine the most effective and sustainable practices associated with this vital resource.

The nine papers represented in this Special Issue of the *International Journal of Water* were selected from papers presented at the 10th Environmental Research Event (ERE), Sydney, 10–13 December 2006. The theme of the 2006 ERE was *Environment – Working Together*, promoting collaborative research and a multidisciplinary approach to environmental management; recognising that we all have to work together to address the most pressing environmental issues.

The papers in this Special Issue represent important research relating to water, investigating and discussing a diverse range of disciplines ranging from Disinfection By-Products (DBPs) and Natural Organic Matter (NOM) to decision processes and modelling associated with water systems.

The first paper in this issue considers ‘Sustaining public open spaces through water recycling for irrigation: developing decision support tools and framework’, by Mulley et al. The authors discuss the potential benefits associated with the introduction of appropriate decision processes to local government in Australia to assist in evaluating whether irrigating alternative water sources on public open spaces is sustainable.

The second paper in this issue ‘Optimisation of analytical method for estrogens in surface water and primary risk assessment in South Creek’, by Li et al. discusses the possible contribution of wastewater treatment plant discharges as a source of estrogens and the possible effects of these chemicals on the environment and the community.

The third paper in this issue looks at ‘Precision application of water for peri-urban horticulture’, by Devasirvatham et al. The authors discuss the potential benefits associated with the introduction of Subsurface Drip Irrigation (SDI), with particular reference to water consumption, crop yields and environmental benefits. The potential negative impacts of SDI are also presented.

The fourth paper is ‘An alternative approach to modelling stormwater runoff from small urban catchments’, by Cheah et al. The authors investigate improving the accuracy of stormwater runoff predictions through the adoption of a process-based modelling approach. The authors suggest that this information will assist in the design of stormwater systems and discuss potential inclusions in the modelling process.

The fifth paper is entitled ‘Selective recovery of heavy metals from hot-dip galvanising effluent streams by membrane-based solvent extraction’, by Cook et al. In the paper, the authors discuss the development of a membrane-based solvent extraction process for the selective recovery of zinc and iron. It is suggested that the recovery of saleable by-products is economically and environmentally beneficial, by reducing environmentally harmful by-products in the effluent and increasing the saleable products of the enterprise.

The sixth paper in this issue is ‘Two-way calibration and system dynamics framework for NSM model: Murrumbidgee River’, by Elmahdi et al. In the paper, the authors discuss two different calibration methods associated with a Network Simulation

Model (NSM) to measure and identify changes in economic output and environmental impacts of various irrigation allocations and demand scenarios, to achieve improved seasonality of flows.

The seventh paper in this issue is 'Membrane bioreactor technology for decentralised wastewater treatment and reuse', by Tadkaew et al. In the paper, the authors review and discuss the potential and limitations of Membrane Bioreactors (MBRs) for small scale applications. It is suggested that MBRs are largely restricted to centralised large scale applications, although there is scope for introducing MBRs on smaller scales, such as individual households.

The eighth paper is entitled 'Health effects of disinfection by-products in Australian drinking waters', by Michael Smith. He discusses DBPs of drinking water treatment and their potential health effects on the water consumers. It is suggested that DBPs of drinking water are associated with bladder, rectal and colon cancers; although there are deficiencies in the current knowledge associated with the health effects of such DBPs.

The ninth paper, by Nga Thi Thu Pham et al., discusses the speciation patterns of Cd, Cr, Cu, Mn, Pb and Zn in 24 sediment samples from West Lake, Vietnam that were investigated using a sequential extraction scheme modified from Tessier et al. (1979).

We would like to thank all of the authors who submitted papers for this Special Issue of the *International Journal of Water* and the academic and professional reviewers for their invaluable contributions to the review process. We hope that you enjoy reading the diverse selection of papers represented in this issue. Finally, we would like to thank Dr. Dorgham, Editor-in-Chief of Inderscience Publishers, for the opportunity to publish this Special Issue.