

## Cleaning contaminated environment: a growing challenge

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Contaminated sites represent a growing challenge. The more than 3,000,000 potentially contaminated sites worldwide represent a lost economic opportunity and threat to the health and wellbeing of human and the environment. Contamination is the legacy of industrialization and insufficient environmental legislation and enforcement. Although site contamination was recognised some 40 years ago, less than a tenth of contaminated sites have been remediated due largely to the complex and challenging nature of contamination- of major challenge being ground water contamination. Common contaminants include petroleum hydrocarbons, pesticides, inorganics, heavy metals and *radioactive wastes*. In recognition of the growing challenge pose by contaminated sites, CleanUp conference series has been run in Adelaide since 1996 with the conference delegates increasing 3 fold since the first meeting.

This special issue of BIODEGRADATION includes a few selected papers presented at the highly successful Cleanup 2011 conference held in Adelaide (Australia) 11–15 September 2011. More than 600 delegates from across the globe attended and included

participations from world-leaders in the bioremediation field as plenary and keynote speakers. This included the opening plenary, the commemorative Brian Robinson Lecture, by Mr Dennis Mohan, a specialist in regulatory environmental management and Assoc Prof Brajesh Singh who delivered a closing plenary on emerging technologies in bioremediation. The conferences also included 18 highest quality keynote speeches covering topics such as innovative site characterisations and assessments, e-wastes, remediation of metals and metalloids in soils and ground waters, the effects of contaminants on human health, remediation case studies, plant and microbial based clean up technologies, nanotechnology, and risk based management and clean up approaches. Twelve high quality presentations in bioremediation and biodegradation fields were invited to submit full papers for this special issue of BIODEGRADATION.

This special issue covers papers from the biodegradation/bioremediation of farms (Karpozas et al.), mining spoils (Singh), to the exploitation of microbial technology in petroleum industries (Singh et al.). A new bacterium capable of arsenite oxidation is reported and its potential application in remediation is highlighted (Bahar et al.). Juhaasz et al. provides interesting comparison of indigenous and exogenous microbial populations for biodegradation of long-term hydrocarbon-contaminated soils. A comprehensive review on DDT remediation in soils by Sudharshan et al. describes recent developments and opportunities for bioremediation. Another interesting paper highlights

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the challenges and difficulties associated with decontamination of mixed pollutants. Megharaj et al. report degradation of PAH in the presence of heavy metals by a bacterial consortium. Naidu et al. evaluated the potential of natural attenuation of a long-term petroleum hydrocarbon site as remedial option for groundwater and argue that natural attenuation can be applied as management option for the reduction of contaminated in the source zone. Rayu et al. provide an overview of emerging technologies (metagenomics, nanotechnology and designer plants) in bioremediations and highlights limitations and opportunities for enzyme and plant based remediation options.

We would like to thank all our plenary, keynotes and other presenters and all participants for making

Cleanup 2011 a grand success. We would also like to acknowledge the greatest contribution made by local organising committee, scientific committee, and generous financial contributions from our industrial partners and CRC CARE. Authors of papers included in the special issue are thanked for preparing good quality manuscripts and responding to reviewers' comments on short notice. Reviewers and journal support staff Ms. Sindhuja Narayanasamy deserve special thanks for their critical comments and hard work. The next Cleanup conference is scheduled on 15–19 September 2012 and we look forward to welcoming you all in Adelaide, Australia to in order to continue our success story!