

**MEDA WATER International Conference on Sustainable
Water Management, Rational Water Use,
Wastewater Treatment and Reuse
8–10 June 2006, Marrakech, Morocco**

The Mediterranean countries, especially those located in the North Africa and Middle East region, are characterized by a severe water imbalance, mainly in the summer months. This imbalance in water demand versus supply is due mainly to the relatively and uneven distribution of precipitation, high temperatures, increased demands for irrigation water and the impacts of tourism. To alleviate water shortages serious consideration must be given to wastewater reclamation and reuse. The sustainable wastewater treatment and reuse is a continuous challenge. In the Mediterranean countries, wastewater, at different level of treatment (raw, secondary or tertiary) is used alone or mixed with fresh water, mostly on forage and cereals but also sometimes on fruit trees and even vegetables, depending on national legislation and its enforcement. Concern for human health and the environment are the most important constraints in the reuse of wastewater. In several cases the wastewater is not properly treated due to the fact that the construction cost of efficient treatment systems is very high, especially for small and medium size communities. Of course many alternative solutions have been developed with the scientific and technological progress during the last years. However, the selection of the appropriate treatment technique that is tailored to the needs of each community means in several cases the involvement of qualified specialists. Moreover, in several cases the outflow of the wastewater treatment systems does not have a standard quality either because standard operating procedures are not followed, or because there is no qualified personnel able to overcome usual problems and to control/monitor the whole treatment procedure. In general, the main problem that can create significant obstacles in the safe reuse of the treated wastewater in agriculture is the lack of information among the stakeholders. For example, governmental authorities do not apply the necessary legislation and guidelines on the reuse of treated wastewater, and farmers do not possess the information required in regards to the health risks that are related to the use of treated wastewater and the appropriate management procedures. In this context, two MEDA Water projects, i.e. MEDAWARE and Zero-M projects (funded by the Euro-Mediterranean partnership and more specifically by its Regional Program for Local Water Management), co-organised a conference under the title “WaT3R: International Conference on Sustainable Water Management, Rational Water Use, Wastewater Treatment and Reuse”, in Marrakech, Morocco between 8 and 10 of June of 2006. The conference aimed at addressing the significant issue of sustainable urban wastewater treatment and reuse through the promotion of effective technologies and safe practices. The conference provided a significant opportunity to bring together scientists, engineers and professionals from governmental departments, private institutions, consultants, research, education and training institutions, being a forum for the exchange of recent ideas, techniques and experiences in all areas of water and wastewater management that could contribute to the more sustainable use and management of water.

80 papers were presented at the conference which was attended by 200 participants from all over the world. In this special issue 25 papers are included after peer evaluation. 21 papers have been presented at the conference and 4 papers are invited contributions. The latter aim to inspire the researchers towards new fields that need to be investigated further in regards to water and wastewater quality, treatment and reuse.

The papers peer-reviewed by two experts included in this issue present recent scientific information and findings on the following:

1. Water, wastewater and sludge treatment technologies
2. Wastewater treatment experimental platforms and other case studies on wastewater reuse in the Mediterranean area
3. Software tools and GIS systems in the field of wastewater treatment and reuse
4. Health risks associated with the wastewater management
5. Possibilities of rainwater utilisation in densely populated areas
6. Description of the objectives, activities and results of the three MEDA Water projects: MEDAWARE, EMWater and Zero-M

The issue also includes papers either presented at the conference or invited, which deal with emerging issues related to the water and wastewater management as follows:

1. Occurrence of Endocrine Disrupting Compounds (EDCs) in urban wastewater and removal of EDCs by the advanced oxidation methods such as photocatalysis and ultrasound processes
2. Disinfection by products formation during wastewater treatment
3. Xenobiotics in stormwater
4. Aerobic microbial mineralization of Linear Alkylbenzene Sulfonates
5. The environmental significance of uncharacterized substances like for example Quaternary Ammonium Compounds
6. Pesticides, volatile and semivolatile organic compounds in inland surface waters

The authors and the guest editors expect that this issue will serve as a platform for disseminating information and recent data in the specific field of wastewater treatment and reuse and also in the field of occurrence and removal of emerging compounds and other persistent organic compounds from waters and wastewaters. The Guest Editors would like to thank all the authors and co-authors, and also to extend their appreciation to the Editor of *Desalination*, Miriam Balaban for providing this unique opportunity. The contribution of the evaluators to the peer review process is gratefully acknowledged.

Guest Editors

Despo Fatta received her first degree from the National Technical University of Athens in 1993, (Diploma in Chemical Engineering), her M.Sc. in Environmental Management from the European Association for Environmental Management and Education in 1995, (University of Athens, JRC Ispra), and her Ph.D. from the National Technical University of Athens in 1999. She has been a Lecturer at the Department of Civil and Environmental Engineering at the University of Cyprus since 2003. Prior to this appointment, she worked as a researcher at the National Technical University of Athens, School of Chemical Engineering. From 2000 until 2004 she was also an inner circle expert of the European Topic

Center of Waste and Material Flows of the European Environment Agency. Her principal research interests are in the field of environmental pollution monitoring techniques (water quality, xenobiotics in water and wastewater), wastewater treatment (e.g. anaerobic digestion, advanced chemical oxidation), environmental hazard analysis and risk assessment, and life cycle analysis of products and processes. She has authored or co-authored a number of refereed papers, technical manuals and reports. She has participated in more than 40 research projects so far.

Sureyya Meriç holds BS, MSc and PhD degrees in Environmental Engineering from Istanbul Technical University (Istanbul, Turkey). She has been working in this field for 19 years. Her post-doc studies were in ecotoxicology with the collaboration of Italian Cancer Research Center and Naples University “Federico II” in Naples, Italy. She has been collaborating with Environmental Engineering Group of Salerno University for the last 3 years. She has developed expertise in chemical and biological treatment of wastewater, reuse, water treatment and disinfection-disinfection by-products toxicity, activated sludge modelling, inhibition, industrial pollution control, water quality and management, aquatic and sediment toxicity monitoring (particularly *Daphnia magna*, micro algae, *Vibrio fisheri*, *Artemia salina*, sea urchin), impact assessment of priority-emerging pollutants, xenobiotics and their removal by advanced oxidation processes, groundwater remediation. She has been investigator or co-ordinator of many national and international projects, a member of various national and international environmental organizations and committees and Guest editor for the Desalination Journal.