



#wwr2013



Climate changes are affecting the Mediterranean region through recurrent water emergencies and pose serious risks to regional economies of the industrialized countries and to the survival of populations in developing countries.

In a context of water scarcity, the competition for freshwater, for drinking and sanitary uses, followed by the needs for industrial activities and for agriculture, tend to be exacerbated. In this regard, low intensive agriculture, for agroforestry and forestry for production of energy crops, is particularly interested to the use of urban waste water as possible sources to supplement the conventional sources of fresh water.

Waste water reuse have many environmental benefits. In addition to the reduction of polluted water released in the environment there are also increasingly important issues related to the reduction of energy consumption, to the recovery of organic matter and to the reduction of greenhouse gas emissions. However the main constrain and challenge to the use of treated waste water on large scale, is the need to guarantee safe and healthy conditions to the entire supply chain of treated waste water: from the treatment to the end products. Planning waste water reuse, combating new emerging pollutants, reducing energy consumptions and creating new sectors of use are engaging scientists and managers all over in the world.

Water resources are also key for the social development. For this purpose in 2012, FAO initiated project GCP/RAB/013/ITA, kindly funded for the first year by the Italian Ministry of Foreign Affairs to establish four demonstration sites in Algeria, Egypt, Morocco and Tunisia and demonstrate the environmental advantages of the safe use of treated waste water.

The present workshop will be an opportunity to review the progresses achieved on the safe use of treated waste water over the last ten years by the main Italian research groups but will also provide an opportunity to discuss the achievements of the FAO-Italian project together with specialists and decision makers representing the FAO-project recipient countries. Workshop results and recommendations will be submitted to donor countries and funding agencies.

# INTERNATIONAL WORKSHOP WASTE WATER REUSE

From research to knowledge and technology transfer in the Mediterranean region  
*Cooperation among Mediterranean countries on the use of treated waste water in agroforestry systems in the framework of the FAO-Italy project*

29-30 april POTENZA

Università degli Studi della Basilicata  
 Aula Magna  
 Via Nazario Sauro



Università degli Studi della Basilicata  
 Scuola di Ingegneria

# Monday 29 April

**8:30 – 9:00 hrs**  
Participants registration

**9:00 – 10:00 hrs**  
Opening Session, moderator: **Ignazio Mancini**, School of Engineering, University of Basilicata

Welcome speeches:

- **Mauro Fiorentino**, Rector, University of Basilicata
- **Douglas McGuire**, Forestry Department, FAO
- **Angelo Nardoza**, Commissary ATO- Integrated Water Service, Basilicata Region
- **Rosa Gentile**, President Acquedotto Lucano S.p.a.
- **Marco Arcieri**, Secretary General, ITAL-ICID

**10:00 – 12:00 hrs**  
Session 1. Problems and opportunities on waste water reuse, moderator: **Salvatore Masi**, Professor, School of Engineering, University of Basilicata

**Alfieri Pollice**, National Research Council of Italy- Water Research Institute, IRSA-CNR, Bari  
Technologies and experience on waste water re-use

**Giorgio Bertanza**, University of Brescia,  
Planning of waste water reuse: evaluation of technical and economic sustainability

**Donatella Caniani**, University of Basilicata:  
Environmental aspects of wastewater reuse: improvement of water quality in river systems

**Severino Romano**, School of Agriculture, University of Basilicata  
Availability of waste water and development of bioenergy chain

**Javier Mateo Sagasta**, Natural Resources Department, FAO  
FAO vision on water reuse in the world

**12:00 – 13:30 hrs**  
Session 2. Cooperation between Basilicata Region, Morocco and FAO in the framework of the FAO-Italy project, moderator: **Michele Vita** Department of Industry, Enterprise Policies, Technological Innovation, Basilicata Region

- **Giovanni Quaranta**, University of Basilicata, The cooperation project CapitalMed
- **Vito De Filippo**, Governor, Basilicata Region
- **Hassan Abouyoub**, Ambassador of Morocco in Italy
- **Douglas McGuire**, Forestry Department, FAO
- Video message from H.E. **Gianni Pittella**, Vice chair of the EU Parliament

**13:30 – 15:00 hrs, Lunch Break**

**15:00 – 17:00 hrs**

Session 3. moderator : **Giorgio Bertanza** , University of Brescia  
Presentation of the first year of activities of PRIN - Projects of the Italian Ministry of Research.  
Waste water reuse: operational problems and emerging pollutants

**Giorgio Bertanza**, University of Brescia  
Removal of micropollutants from wastewater using conventional and advanced treatments.

**Daniele Goi**, University of Brescia  
Testing of new technologies for water disinfection to be recovered

**Salvatore Masi**, School of Engineering, University of Basilicata  
Selective removal of pollutants from urban waste water for agricultural and forestry applications.

**Ezio Ranieri**, Polytechnic of Bari  
Phytodepuration Systems for removal of conventional and non-conventional pollutants

**Bartolo DiChio**, Department of Mediterranean cultures, University of Basilicata  
Agro-environmental sustainability of irrigation with treated urban wastewater of Olive tree: Long-term application effects

**Paolo Roccaro**, University of Catania  
Development and application of a decision support system for the evaluation of the feasibility and sustainability of wastewater reuse projects.

**17:00 hrs**  
Discussion, moderator: **Daniele Goi**, University of Udine  
Speakers of the previous session  
Regional authorities and technical of water management organs workshop participants

**15:00 – 17:00 hrs**  
Parallel Session FAO, (dedicated to project countries and project institutions), moderator: **Douglas McGuire**, Forestry Department, FAO

FAO Project: "Forest restoration in Algeria, Egypt, Morocco and Tunisia using treated wastewater to sustain smallholders' and farmers' livelihoods" GCP/RAB/013/ITA.  
Results, developments and follow up

# Tuesday 30 April

**9:00 – 13:00 hrs**  
Session 4. Waste water reuse in the Mediterranean region: developments and transfer of knowledge and technologies., moderator: **Mauro Centritto**, Institute for Plant Protection, National Research Council of Italy

**Sabrina Ait Ouakli-Rachedi (Ms.)**, Nasr Eddine Kazi Aoual,  
Direction Générale des Forêts, Alger, Algeria

Highlights of FAO-project in Algeria problems and future development

**Paolo De Angelis**, Forestry Department, University of Tuscia  
Phyto-technology to reduce water pollution and sustain forestry and agroforestry in the Mediterranean region

**Sayed Khalifa**, Undersecretariat for Afforestation and Environment, Cairo, Egypt  
**Ahmed Ali Amer El-Settawy**, Forestry and Wood Technology Department, University of Alexandria, Egypt  
Results of the first year of the FAO project in Egypt: recommendations and follow up

**Mohammed Issoual**, Haut Commissariat des Eaux et Forêts et à la Lutte contre la Désertification, Marrakech, Morocco  
**Naaila Ouazzani (Ms.)**, **Said Wahbi**, **Tawfik El Moussaoui** Université Cadi Ayyad, Marrakech, Morocco  
The fertirrigation plant for the green belt of Marrakech, constraints and future development

## Coffee break

**Mohamed Larbi Khouja**, Institut de Recherches en Génie Rural Eaux et Forêts, Ariana, Tunisia  
**Ridha Haddad**, Direction Générale des Forêts, Béja, Tunisia  
Experiences and problems for wastewater reuse in Tunisia

**Salvatore Masi**, **Rafet Ataoui**, School of Engineering, University of Basilicata  
Realization of fertirrigation pilot projects in Tunisia

**Severino Romano**, **Simone Targetti Ferri**, School of Agriculture, University of Basilicata  
The market of carbon credits: a useful tool to improve the economic value of bio-energetic cultures

**Alberto Del Lungo**, Forestry Department, FAO  
FAO Project achievements and follow up

Discussion

## 13:30 hrs, Lunch Break

**15:00 - 17:00 hrs**  
Improving cooperation and country capacity building between Italy and the Mediterranean countries on the use of treated waste water in forestry and agroforestry systems of arid zones  
moderator: **Douglas McGuire**, FAO Forestry Department

Delegations of Algeria, Egypt, Morocco and Tunisia  
University of Basilicata  
University of Tuscia  
National Council for Research  
Research Council for Agriculture  
Workshop participants  
FAO