



**Horizon 2020 Capacity Building/Mediterranean Environment Programme**  
**Study Visit**  
**“Reuse of treated waste water and sludge in agriculture”**  
**Bari, Italy, 26-29 September 2011**

**Introduction - The Horizon 2020 Initiative**

The “**Horizon 2020 Initiative**” aims to de-pollute the Mediterranean by the year 2020 by tackling the sources of pollution that account for around 80% of the overall pollution of the Mediterranean Sea: municipal waste, urban wastewater and industrial pollution.

Horizon 2020 was endorsed during the Environment Ministerial Conference held in Cairo in November 2006 and is one of the key initiatives run under the Union for the Mediterranean (UfM). The H2020 2007-2013 Road-Map focuses on the following four pillars:

- Identification of projects to reduce the most significant sources of pollution.
- Identification of capacity-building measures to help neighbouring countries create national environmental administrations that are able to develop and police environmental laws.
- Use of the EC’s research budget to develop greater knowledge of environmental issues relevant to the Mediterranean and ensure this is shared.
- Develop indicators to monitor the success of Horizon 2020.

H2020 is made up of the following components: monitoring, reporting and research (RMR); investment; and capacity building. Under each component, a project is currently being run. H2020 Capacity Building/Mediterranean Environment Programme (H2020 CB/MEP) is the project aiming at enhancing the capacities to address pollution problems at institutional and society level. In addition, through the H2020 MEP, a Hot Spot Investment Programme (HSIP) for the West Balkans and Turkey - as complementary to the Mediterranean HSIP (MeHSIP) – has been elaborated. The other two projects currently being carried out under the investment and RMR H2020 components are respectively the MeHSIP and the Mediterranean Shared Environmental Information System (Med SEIS).

**The framework - Horizon 2020 Capacity Building/Mediterranean Environment Programme**

Obviously pollution is expected to be substantially reduced through the installation and proper functioning of major infrastructures (e.g. sewage treatment plants), installing pollution reduction technologies in industries, etc. However, this won’t work if institutional and individual capacities are not in place. This is what the H2020 CB/MEP aims to enhance by operating within the existing and developing policy instruments, and supporting the implementation of the commitments undertaken in the framework of the ENP as well as other regional agreements e.g. of the Barcelona Convention, while cooperating, coordinating and synergising with all relevant (EU and other) programmes.

**Aims and objectives**

The main objective of this project is to support the implementation of Horizon 2020 with a special focus on environmental mainstreaming. It aims to address the following problems:

- low political priority given to the environment;
- insufficient integration of environment in the different sector policies (agriculture, tourism, transport or energy) and lack of inclusion of the different actors from local to international level;
- Insufficient capacities and resources at institutional and civil society level.





More specifically, the purpose is to support the implementation of the Horizon 2020 Initiative Road Map and Work Plan through capacity building and awareness raising activities, and to promote integration of environment issues in other sectors policies.

**Partners**

This project is funded by the European Union and implemented by the National and Kapodistrian University of Athens (NKUA) in consortium with: Mediterranean Action Plan of the United Nations Environment Programme and its Regional Activity Centres and Programmes (UNEP/MAP and its RACs), National Waste Management Agency (ANGed)/ Regional Solid Waste Exchange of Information and Expertise Network in Mashreq and Maghreb Countries (SWEEPNet), Umweltbundesamt GmbH – Austrian Environment Agency (AEA), Lebanese Ministry of Energy and Water - the General Directorate of Hydraulic and Electrical Resources (LMoEW), Hellenic Ministry for Environment, Energy and Climate Change, UNESCO-IHE Institute for Water Education (UNESCO-IHE), Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE), Arab Network for Environment and Development (RAED), WWF Mediterranean Programme Office (WWF MedPO), Association of Cities and Regions for Recycling and Sustainable Resource Management (ACR+), Arab Countries Water Utilities Association (ACWUA).

**Partner Countries**

The Partner countries are: Albania, Algeria, Bosnia- Herzegovina, Croatia, Egypt, Israel, Jordan, Lebanon, Montenegro, Morocco, Occupied Palestinian Territory, Syria, Tunisia, Turkey.

**Course Description – Reuse of treated waste water and sludge in agriculture**

**Introduction to the training course**

This four-day study visit is organised in the framework of the H2020 CB/MEP program **jointly with the Mediterranean Agronomic Institute of Bari and consortium members UNESCO IHE and ACWUA**. It will take place in Bari, Italy from 26-29 September 2011.

The working languages are English, French and Arabic.

**Target group**

The activity is specifically designed for: Ministries of Environment, Agriculture, Water, etc., Wastewater managers and decision-makers from municipalities, water and sewerage associations, water authorities, research institutes, farmers’ associations, etc.

This capacity building activity is directed to about 30 participants from Egypt and Tunisia.

**Learning objectives**

To promote integral thinking: e.g. interaction between marketed products and waste water and sludge production; to introduce wastewater and sludge reuse through integrated water resources management; to spread knowledge on relevant technologies, technology selection and innovation, address relevant institutional challenges, etc.

**Methodology and Structure**

The four-day course will be delivered combining presentations, case studies, exercises, interactive sessions and a field visit in the Apulia region.





**Learning outcomes of the training course**

- Informed trainees on the H2020 initiative
- To understand the global, EU and local status of water supply and sanitation within the context of coastal zones
- To differentiate between conventional and alternative water management technologies and approaches, including water demand management, sewerage, wastewater treatment, sludge treatment etc.
- To understand the concepts of reuse and cost-recovery in waste water and sludge management in coastal zones
- To apply technology selection methodologies and software
- To comprehend treated waste water and sludge marketing options
- To exchange experiences in treated waste water and sludge management in the Mediterranean

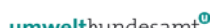
**An overview of the course is given below:**



UNEP/MAP  
and its RACs



ANGed/  
SWEEPNET



AEA



LMoEW



HMEEC



UNESCO-IHE



MIO-ECSDE



RAED



WWF  
MedPO



ACR+



ACWUA



<b>Course schedule/ curriculum</b>			
<b>26.09.2011</b>	<b>Description</b>	<b>Duration</b>	<b>Method/Speaker or Trainer</b>
	Registration	12:00 - 13:00	
<b>Lunch : 13:00 – 14:00</b>			
<b>AGRICULTURAL WASTEWATER REUSE</b>			
Session 1	<ul style="list-style-type: none"> <li>Welcome addresses and opening words</li> <li>ENPI Horizon 2020 Capacity Building/Mediterranean Environment Programme (H2020 CB/MEP)</li> <li>Presentation of the participants and their aspirations from the workshop</li> </ul>	14:00 – 14:30	C. Lacirignola/N. Lamaddalena, IAM Bari E. Adly, H2020 CB/MEP Deputy Team Leader  Participants
Session 2	Presentation of the Egyptian and Tunisian country case with regards to wastewater reuse and/or sludge management	14:30 – 15:30	Egypt: Amr Ibrahim Hefny Tunisia: Slim Ben Guiza
Session 3	Overview: How do regulations influence wastewater treatment for agricultural reuse around the world?	15:30 – 15:55	A. Lopez / IRSA- CNR
<b>Coffee (10 min)</b>			
Session 4	<ul style="list-style-type: none"> <li>Agricultural wastewater reuse in Apulia Region: Field experiences</li> </ul>	16:05-16:30	A. Pollice / IRSA-CNR
Session 5	<ul style="list-style-type: none"> <li>Microbial risks related to agricultural wastewater reuse: a quantitative assessment</li> <li>Features of irrigation systems related to the quality of reused wastewater</li> <li>The new paradigm: Are wastewaters really waste?</li> </ul>	16:30-17:00	A. Lonigro / University of Bari
		17:00-17:30	A. Hamdy - N. Lamaddalena / IAM Bari
		17:30-18:00	A. Lopez / IRSA-CNR
Session 6	Discussion	18:00-18:30	
<b>27.09.2011</b>	<b>Description</b>	<b>Duration</b>	
<b>SLUDGE MANAGEMENT AND USE IN AGRICULTURE</b>			
Session 1	<ul style="list-style-type: none"> <li>Overview of disposal/recovery options</li> <li>European Directive 86/278 (sludge utilization in agriculture) and trends, European Directive 2008/98 on waste, the concept of end of waste applied to sewage sludge</li> <li>View of Italian legislation on sludge use in agriculture, composting, landfill disposal, incineration. Problems of extreme values of pH and of presence of ZnO</li> </ul>	09:00-9:30	G. Mininni/IRSA-Cnr
		09:30-10:00	
		10:00-10:30	
<b>Coffee (15 min.)</b>			
Session 2	Interactive session: Horizon 2020 as a driver for institutional reforms in the Mediterranean – the case of sludge management	10:45-11:45	E. Adly, H2020 CB/MEP Deputy Team Leader – RAED and K. Quteishat/H2020 CB/MEP - ACWUA)
Session 3	<ul style="list-style-type: none"> <li>Agricultural sewage sludge reuse and marketing: direction for use and good agricultural practice. Production of compost and selling.</li> <li>Description of the Allevi S.r.l. experiences</li> </ul>	11:45-12:45	G. Allevi/ M. Allevi – Azienda Agricola Allevi S.r.l.
Session 4	Discussion	12:45-13:30	
<b>Lunch (1,5 hour)</b>			
Session 5	<ul style="list-style-type: none"> <li>Conventional sludge processing</li> </ul>	15:00-15:30	V. Lotito/IRSA-Cnr



	<ul style="list-style-type: none"> <li>Innovations in sludge processing</li> </ul>	15:30-16:00	
Session 6	Recovery of biogas and biopolymers, phosphorus recovery from inert ashes, energy balance in a thermal process	16:00-16:30	G. Mininni/IRSA-Cnr
Session 7	Discussion	16:30-17:00	
<b>28.09.2011</b>	<b>Description</b>	<b>Length</b>	
	<b>SLUDGE COMPOSITION AND SLUDGE USE IN LAND RECLAMATION, SILVICULTURE AND LANDSPREADING</b>		
Session 1	<ul style="list-style-type: none"> <li>Introduction on sewage sludge production and disposal routes in the EU</li> <li>Organic matter, N and P in sewage sludge</li> <li>Heavy metals in sewage sludge</li> </ul>	09:00-09:30 09:30-10:00 10:00-10:30	B. Nikosavic, UNESCO – IHE, Delft
		<b>Coffee (30 min.)</b>	
Session 2	<ul style="list-style-type: none"> <li>Pathogens and Persistent organic compounds in sewage sludge</li> <li>Environmental factors and decomposition of organic wastes in soils</li> <li>Landspreading of sludge, Code of Practice, Safe Sludge Matrix</li> </ul>	11:00-11:30 11:30-12:15 12:15-13:00	B. Nikosavic, UNESCO – IHE, Delft
Session 3	Discussion	13.00-13.30	
		<b>Lunch (1 hour)</b>	
Session 4	<ul style="list-style-type: none"> <li>Sludge use in silviculture and forests</li> <li>Sludge use in land-reclamation and green areas</li> </ul>	15:00-15:30 15:30-16:00	B. Nikosavic, UNESCO – IHE, Delft
Session 5	Discussion	16:00-17:30	
<b>29.09.2011</b>	<b>Description</b>	<b>Duration</b>	<b>Method/Speaker or Trainer</b>
	<b>FIELD VISIT TO A WASTE WATER AND SLUDGE TREATMENT PLANT IN THE APULIA REGION</b>		
	<ul style="list-style-type: none"> <li>Departure from IAMB</li> <li>Visit to the sludge analysis lab at AQP - Bari</li> <li>Departure from AQP and arrival to Ginosa (TA) village</li> <li>Visit to the compost plant ASECO (Ginosa, TA)</li> </ul>	9:00 9:30 -11:00 11:00-12:00 12:00-13:00	Site visit
		<b>Lunch (2 hours)</b>	
	Continuation of the visit	15:00-17:00	Site visit
	<ul style="list-style-type: none"> <li>Return to Bari</li> <li>Closing ceremony and certificates award</li> <li>Closing dinner at IAMB restaurant</li> </ul>	17:00 18:00 19:00	Closing and ceremony