



NKUA

Horizon 2020 Capacity Building/Mediterranean Environment Programme

“Wastewater treatment and reuse”

11-14 April, Albania, 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) – is being 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, Tunisia, Turkey, Syria.

Course Description - Wastewater treatment and reuse

Introduction to the training course

The training course is organized within the framework of the Horizon 2020 CB/MEP project and in response to the capacity building needs identified earlier in the project. The course is organized by the UNESCO-IHE Institute for Water Education with the support of the Arab Countries Water Utilities Association (ACWUA).

Its duration is 4 days; the language of the course is English.

Twenty-five (25) to thirty (30) participants will attend from Albania.

Target group

The capacity building activity is of an intermediate/advanced level and is targeted to:

- Mid-career wastewater managers and decision-makers from municipalities, water and sewerage associations, water authorities
- University staff in fields related to waste water treatment

Learning objectives

The main objectives of the course are:

To promote integral thinking: e.g. interaction between drinking water consumption and waste water production; to introduce wastewater reuse through integrated water resources management as well as spread knowledge on wastewater treatment technologies and technology selection.

Methodology and Structure

The workshop is intended to be mostly in the form of lectures. The general structure of the course will be:

- Lectures
- Group- and plenary discussions





- Learning by doing exercises
- Video display
- Case study exercises
- Participant presentations
- Field-trip (possibly - to be confirmed)

Resources for participants

Resources that are intended to be provided to participants are:

- PPTs, reference documents
- Case study material
- WAWTTAR manual
- WAWTTAR calculation model

Learning outcomes of the training course

The key learning outcomes are:

1. To be familiarized with the EU approach as well as the main EU directives and with regard to sanitation within the context of coastal zones
2. To understand the global and local status of water supply and sanitation within the context of coastal zones
3. To implement the concept of objective oriented planning as a tool for better wastewater management in the coastal zones
4. To differentiate between conventional and alternative water management technologies and approaches, including water demand management, sewerage, wastewater treatment, sludge treatment etc.
5. To understand the concepts of reuse and cost-recovery in wastewater management in coastal zones
6. To apply technology selection methodologies and software
7. To exchange experiences in wastewater management in the Mediterranean

Preliminary course schedule/curriculum

The following possible subsequent modules will be addressed:

- EU acquis and approaches with regard to sanitation / linkages with sanitation related legislation as well as projects in the country
- Introduction: (global) status of sanitation
- Pollution of the marine environment
- Presentations by participants (to introduce themselves and describe local conditions)
- Problem analysis: introduction + exercise on local case
- Objectives analysis: introduction + exercise on local case
- Conventional wastewater treatment technologies (Up-to-date on activated sludge, anaerobic..)
- Emerging technologies (MBR, biofilm..)
- Natural systems for wastewater treatment
- Decentralized treatment
- Use of brackish and sea water in sanitation
- Financial aspects of wastewater management
- Introduction to reuse of wastewater and sludge
- WHO guidelines for reuse
- Options analysis: introduction + exercise on local case
- Technology selection methodologies and tools (WAWTTAR)
- Technology selection coastal area Spain: case study introduction
- Technology selection coastal area Spain: exercise using WAWTTAR
- Selection of most preferred option using WAWTTAR: exercise on local case
- Option presentations by participants



Training Course on Wastewater Treatment and Reuse

Course schedule/ curriculum

Date: April 11-14, 2011

Day 1				
11.04.2011	Topic	Description	Length	Method/Speaker or Trainer
Session 1		Registration	30 min 08:30 - 09:00	
	Official opening	Opening and introduction to the course	20 min 09:00 - 09:20	Opening Words. Dr. Emad Adly, Koussai Quteishat, Moustafa Moussa
	Introduction: (global) status of sanitation	Description of the status of sanitation and issues in water treatment	40 min 09:20– 10:00	Presentation Moustafa Moussa
	EU Water Projects	EU acquis and approach with regard to sanitation	45 min 10:00 – 10.45	Presentation Koussai Quteishat
		<i>Coffee</i>	15 min 10:45 – 11:00	
Session 2	Pollution of the marine environment	Some concepts of water quality, estuaries and coastal waters, marine pollution, examples for the Mediterranean Sea	45 min 11:00 - 11:45	Presentation Moustafa Moussa
	Coastal Zone Management	Integrated coastal zone management , issues and procedures	1.5 hr 11:45 - 13:15	Presentation Koussai Quteishat
		<i>Lunch</i>	45 min 13:15 - 14:00	
Session 3	Presentations by Participants	Presenters introduce themselves and describe local conditions	1.5 hr 14:00 - 15:30	Participants
		<i>Coffee</i>	15 min 15:30 - 15:45	
Session 4	Problem analysis	Introductory presentation followed by exercise on local case	1 hr 15 min 15:45 - 17:00	Participants Exercise Moustafa Moussa/Koussai Quteishat
Day 2				
12.04.2011	Topic	Description	Time	
Session 1	Wastewater Treatment Technologies Overview	Summary of on-site systems, Activated Sludge, Trickling Filters, Rotating Biological Contactors, MBR, Anaerobic Reactors	2 hr 08:45 - 10:45	Presentation Moustafa Moussa
		<i>Coffee</i>	15 min 10:45 - 11:00	
Session 2	Natural Systems and Decentralized Options	Natural Systems (ponds, wetlands) and Decentralized treatment	1.5 hr 11:00 - 12:30	Presentation Moustafa Moussa
		<i>Lunch</i>	1 hr 12:30 - 13:30	
Session 3	Reuse Concepts	Introduction to reuse of wastewater and sludge	1 hr 13:30 - 14:30	Presentation Koussai Quteishat
		<i>Coffee</i>	15 min 14:30 - 14:45	



Session 4	Objectives analysis	Introductory presentation followed by an exercise on local case	2 hr 15 min 14:45 - 17:00	Participants Exercise Moustafa Moussa/Koussai Quteishat
13.04.2011				
Day 3	Topic	Description	Time	
Session 1	WHO guidelines for reuse	WHO Guidelines 2006 for safe reuse of wastewater, excreta and gray water: description and explanation via examples	1 hr 08:30 - 09:30	Presentation Moustafa Moussa
	Financial aspects of wastewater projects	Financial aspects of wastewater projects	1 hr 09:30 – 10:30	Presentation Koussai Quteishat
		<i>Coffee</i>	15 min 10:30 – 10:45	
Session 2	Financial aspects of wastewater projects	Risks, mitigation and Financial models for Wastewater projects with case study	1 hr 10:45 - 11:45	Presentation Koussai Quteishat
	Options analysis	Introductory presentation followed by exercise on local case	45 min 11:45 - 12:30	Presentation Moustafa Moussa
		<i>Lunch</i>	1 hr 12:30 - 13:30	
Session 3	Technology Selection coastal area Spain	Technology selection methodologies and tools (WAWTTAR)	30 min 13:30 - 14:00	Presentation Moustafa Moussa
	Technology Selection coastal area Spain	Technology selection coastal area Spain: case study introduction	1 hr 14:00 - 15:00	Presentation Moustafa Moussa
		<i>Coffee</i>	15 min 15:00 - 15:15	
Session 4	Technology Selection coastal area Spain	Technology selection coastal area Spain: exercise using WAWTTAR	1hr 45 min 15:15 - 17:00	Presentation Moustafa Moussa
14.04.2011				
Day 4	Topic	Description	Time	
Session 1	Software solution for selecting most preferred option	Selection of most preferred option using WAWTTAR: exercise on local case	2 hr 08:30 – 10:30	Participant software exercise Moustafa Moussa
		<i>Coffee</i>	15 min 10:30 – 10:45	
Session 2	Software solution for selecting most preferred option	Selection of most preferred option using WAWTTAR: exercise on local case	1 hr 45 min 10:45 - 12:30	Participant exercise Moustafa Moussa/Koussai Quteishat
		<i>Lunch</i>	60 min 12:30 - 13:30	
Session 3	Final Presentation	Option presentations by participants	1.5 hr 13:30 - 15:00	Participant presentations
		<i>Coffee</i>	15 min 15:00 - 15:15	
Session 4	Evaluation	Course evaluation and closing remarks/Evaluation and Certificates Awards/Departure	1 hr 15:15 - 16:15	Participants