

MEDITERRANEAN EUWI/WFD JOINT PROCESS

MEDITERRANEAN GROUNDWATER WORKING GROUP (MED-EUWI GW WG) SECOND PHASE (2007-2009)

TERMS OF REFERENCE

(Draft Version 24/9/2007)

A. Introduction and Background

The Mediterranean Groundwater WG was set up in September 2004, as a thematic group of the Mediterranean EUWI/WFD Joint Process. In parallel, it was directly linked to the EU Common Implementation Strategy (CIS) of the Water Framework Directive (2000/60/EC), as a Drafting Group of the WG C (WG on Groundwater).

Its objective was the development of synergies and partnership between the EU and non EU countries of the Mediterranean region, aiming at the adoption of a common vision on groundwater resources management, based on the EU Water Framework Directive (WFD) approaches and principles and the regional specific conditions.

In this context, a report (*Mediterranean Groundwater Report*) was prepared by the members of the WG, which is available at the following web page: <http://www.semide.net/topics/groundwater>

This final report of the first phase of the Mediterranean Groundwater WG highlights that the widespread scarcity, gradual destruction and aggravated deterioration and pollution of groundwater resources in the region, along with the rapid population growth, urbanisation and socio-economic development, demand the promotion of specific and dynamic approaches/methodologies for the sustainable and rational utilization, protection, conservation and management of groundwater, within the framework of national economic development policies.

In light of the above, it was decided to continue the activities of the Mediterranean Groundwater WG during the second phase (2007-2009) of the Mediterranean EUWI/WFD Joint Process. The Mediterranean Groundwater WG, during the second phase (2007-2009), will be engaged mainly in the development and/or promotion of common approach methodologies and techniques for optimal groundwater exploitation and pollution control in the Mediterranean region, based on the experiences of the EU and non-EU countries of the region, existing best practices and the regional conditions. Although these methodologies and techniques may present expanded opportunities to manage groundwater, they would have to be applied strategically in circumstances that are amenable.

In parallel, groundwater management is still a priority for the European Commission. The WG on Groundwater (WG C) will continue to be one of the key activities during the next Work Programme (2007-2009) of the EU Common Implementation Strategy (CIS) of the Water Framework Directive, aiming both to clarify groundwater issues that are covered by the WFD and prepare the development of technical guidance documents in the frame of the orientations given by the new Groundwater Directive.

B. Objectives

The overall objective of the Mediterranean Groundwater WG, during the second phase of the Mediterranean EUWI/WFD Joint Process (2007-2009), is to promote the development of synergies and partnership between EU and non EU countries of the Mediterranean region and the adoption of a common vision on groundwater resources management.

In particular, it aims to:

- analyse the most significant challenges for the Mediterranean region, related to groundwater resources management, with an emphasis on groundwater over-exploitation and saline water intrusion,
- transfer, exchange and demonstration of know-how on criteria, methodologies and tools used in the Mediterranean region on various groundwater protection and conservation issues and evaluate best practices and “success stories” existing at international and EU level,
- develop common approach methodologies and techniques for optimal groundwater exploitation and pollution control in the Mediterranean region and formulate adequate recommendations and technical specifications,
- improve the awareness raising on issues related to the groundwater protection, conservation and sustainable management and create the basis for additional relative actions in the region.

C. Final output

The final output of the second phase (2007-2009) of the Mediterranean Groundwater WG will be a report which will include a description and analysis of the most significant problems and challenges for the Mediterranean as well as technical specifications and specific recommendations on various groundwater protection, conservation and management measures, methodologies and techniques for optimal groundwater exploitation and pollution control in the region.

More specifically, the main topics/key issues that will be dealt within the report, will be:

Approaches to Groundwater Management and Conservation

(General description of strategies, approaches, methodologies and techniques for sustainable groundwater use and assessment of their importance, with emphasis on the aquifer recharge enhancement techniques)

- **Water demand management strategies and water saving measures:** *Conjunctive use of surface and groundwater, infrastructures to reduce leaks in distribution networks, water metering, water intake measures, conservation tariffs encouraging less water use and penalizing consumers that consume more water, incentives for water saving, water recycling, consumer education to encourage behavior modification, efficient water appliances, water saving devices, etc.*
- **Water supply optimization strategies:** *use of desalinated water depending on cost, reuse of treated wastewater (this issue is being addressed by the “Waste Water Reuse” WG of the JP), other non-conventional water supply options, use of lower quality water for gardening, plans for water transportation, etc.*
- **Supply-side engineering measures:** *aquifer recharge enhancement techniques (water harvesting, in-channel structures, balancing reservoirs, reduction of water losses through evaporation, etc.), artificial groundwater recharge, manipulation of subsurface storage, subsurface dam development, etc.*

Approaches to Groundwater Quality Protection

(General description of strategies, approaches, methodologies and techniques for groundwater quality protection and assessment of their importance, with emphasis on the measures to control saline water intrusion)

- **Pollution hazard assessment:** *aquifer pollution vulnerability mapping, risk assessment, models of groundwater behavior, etc.*
- **Pollution protection:** *effluent discharge and waste disposal practices, groundwater protection zoning, protection areas near drinking water abstractions, etc.*
- **Remediation and rehabilitation actions:** *groundwater treatment technologies, **artificial recharge methodologies that could push seawater-freshwater interface seawards** or reduce the level of pollution on the principle of dilution, **measures to control salt water intrusion**, soil profile remediation methods (soil washing, etc.), “pump and treat” systems, containment systems, other technologies, etc.*

Groundwater Protection, Conservation and Management in the Mediterranean

(Further analysis of the groundwater management problems and challenges in the region, based on the conclusions of the Mediterranean Groundwater Report and description/assessment of existing approaches, strategies and methodologies in the region for sustainable groundwater use and pollution control, with emphasis on measures to aquifer recharge enhancement and control saline water intrusion)

- **Groundwater management problems and challenges in the Mediterranean:** *over-exploitation of groundwater resources, saline water intrusion, chemical pollution, conflicts between users, etc.*
- **Approaches to groundwater management and conservation in the Mediterranean:** *description and analysis of existing specific approaches, methodologies and techniques for groundwater management and conservation, assessment of the cost-effectiveness of these measures*
- **Approaches to groundwater quality protection in the Mediterranean:** *description and analysis of existing specific approaches, methodologies and techniques for groundwater quality protection, assessment of the cost-effectiveness of these measures*

Best Practices in EU and International Level

- **Best Practices in EU and International level:** *focusing mainly on methodologies and measures to aquifer recharge enhancement and control saline water intrusion*
- **The Water Framework Directive approach:** *description of approaches included in the WFD and the new Groundwater Directive, evaluation of the possibility to be adopted to the specific conditions of the Mediterranean*

D. Organisation of the work

The Mediterranean Groundwater WG is led by the European Commission (DG ENV) and Greece (Central Water Agency). The WG is open to all active participants, committed to supporting its activities and objectives through concrete contributions.

For each Chapter of the final report a “Lead Contributor” has been identified, after the discussions with the WG members. The “Lead Contributor” will coordinate the drafting of the respective Chapter, communicating with the WG members and collecting their contributions.

Chapters of the Final Report and Allocation of Tasks

	Chapter/Key Issues	Lead Contributor	Other Contributors
	Introduction Purpose, structure, scope of these guidelines with brief definition	DG Environment/ Spyros Tasoglou	
	Executive Summary A non-technical summary statement providing an overview of the main points from the whole report	DG Environment/ Spyros Tasoglou	
1	Chapter I: Approaches to Groundwater Management and Conservation <u>Part 1</u> <ul style="list-style-type: none"> • Water demand management strategies and water saving measures: Conjunctive use of surface and groundwater, infrastructures to reduce leaks in distribution networks, water metering, water intake measures, conservation tariffs encouraging less water use and penalizing consumers that consume more water, incentives for water saving, water recycling, consumer education to encourage behaviour modification, efficient water appliances, water saving devices, etc. • Water supply optimization strategies: use of desalinated water depending on cost, reuse of treated wastewater (this issue is being addressed by the “Waste Water Reuse” WG of the JP), other non-conventional water supply options, use of lower quality water for gardening, plans for water transportation, etc. • Supply-side engineering measures: aquifer recharge enhancement techniques (water harvesting, in-channel structures, balancing reservoirs, reduction of water losses through evaporation, etc.), artificial groundwater recharge, manipulation of subsurface storage, subsurface dam development, etc. <u>Part 2</u> <ul style="list-style-type: none"> • Pollution hazard assessment: aquifer pollution vulnerability mapping, risk assessment, models of groundwater behaviour, etc. • Pollution protection: effluent discharge and waste disposal practices, groundwater protection zoning, protection areas near drinking water abstractions, etc. • Remediation and rehabilitation actions: groundwater treatment technologies, artificial recharge methodologies that could push seawater-freshwater interface seawards or reduce the level of pollution on the principle of dilution, measures to control salt water intrusion, soil profile remediation methods (soil washing, etc.), “pump and treat” systems, containment systems, other technologies, etc. 	DG Environment/ Spyros Tasoglou	BGRM

	Chapter/Key Issues	Lead Contributor	Other Contributors
2	<p>Chapter II: Cross Cutting Issues (Description and analysis of the socio-economic and institutional aspects. Some of these issues have been covered in the 1st Phase Report and could be repeated in the chapter)</p>	BRGM	
3	<p>Chapter III: Groundwater Protection, Conservation and Management in the Mediterranean</p> <ul style="list-style-type: none"> • Groundwater management problems and challenges in the Mediterranean: over-exploitation of groundwater resources, saline water intrusion, chemical pollution, conflicts between users, etc. • Approaches to groundwater management and conservation in the Mediterranean: description and analysis of existing specific approaches, methodologies and techniques for groundwater management and conservation, assessment of the cost-effectiveness of these measures • Approaches to groundwater quality protection in the Mediterranean: description and analysis of existing specific approaches, methodologies and techniques for groundwater quality protection, assessment of the cost-effectiveness of these measures 	MENBO (Maria Sernequet)	Nizar Al-Halasa Idriss Hassani Samir Rhaouti Manuel Sapiano
4	<p>Chapter IV: Best Practices in EU and International Level</p> <ul style="list-style-type: none"> • Best Practices in EU and International level: focusing mainly on methodologies and measures to aquifer recharge enhancement and control saline water intrusion • The Water Framework Directive approach: description of approaches included in the WFD and the new Groundwater Directive, evaluation of the possibility to be adopted to the specific conditions of the Mediterranean 	BGRM	MENBO Nizar Al-Halasa Idriss Hassani Samir Rhaouti Manuel Sapiano
5	Chapter V: Lessons Learnt - Recommendations	DG Environment/ Spyros Tasoglou	
6	Appendix I: list of on-going regional and national processes, initiatives and projects developed to respond to groundwater issues in the region.	DG Environment/ Spyros Tasoglou	

E. Timetable

	2007						2008											
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Drafting of the final report																		
WG C meetings			X								X					X		
Mediterranean Groundwater WG specific meetings			1												2			
DELIVERABLES	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
D1								X										
D2												X						
D3																	X	

Deliverables:

D1: First report to be prepared until February 2007

D2: Second draft synthesis report to be prepared until June 2008

D3: Final report until November 2008 to be submitted to the Euro-Med WDs Forum

WG meetings:

- 20 September 2007:** kick-off meeting in Lisbon. The meeting will be held at the IAH International Conference on "Groundwater and Ecosystems" (<http://www.iah-2007.com>).
- September 2008** (timing to be clarified)

E. Web page

The web page of the Mediterranean Groundwater WG is hosted by the "Euro-Mediterranean Information System on the know-how in the Water sector (EMWIS)" and is available at:

<http://www.semide.net/topics/groundwater>

This electronic page provides a platform for information and knowledge sharing and consists of a public and a private area. All the Members of the WG will be provided with the password for the private area.

All the working documents/contributions will be available in the public section of the page, while the draft reports will be available for comments only in the private area, which is accessible only by the members of the WG.

Any documents related to groundwater resources management in the Mediterranean region can be uploaded in this web page, after requesting to Mr. Spyros Tasoglou (e-mail: tasoglou@dpers.minenv.gr).

F. Links with other activities

The Mediterranean Groundwater WG will provide information, examples and experiences on good management practices to the WG C (WG on Groundwater under the EU Common Implementation Strategy of the Water Framework Directive) and more specifically to the Activity WGC-3 “Integrated Risk Assessment and Management (IRAM)”.

The work plan of the Mediterranean Groundwater WG will strongly be affected by the timeframe of the Activity WGC-3 of the WG C and the need for Mediterranean contributions on good management practices and especially on artificial groundwater recharge.

Close links will also be established with all the WGs developed under the second phase (2007-2009) of the Mediterranean EUWI/WFD Joint Process:

- “Water Scarcity and Droughts” WG
- “Agriculture and Rural Development” WG
- “Waste Water Reuse” WG
- “Shared Water Resources Management” WG
- “Water Monitoring” WG

The representatives of the Mediterranean Groundwater WG to other related WGs of the WFD CIS and the Joint Med EUWI/WFD Process are responsible for:

- presenting the progress and results of the Mediterranean Groundwater WG to the corresponding WG leaders and members and
- providing information, when necessary, to the Mediterranean Groundwater WG on the progress and results (documents, conclusions of meetings, etc.) of the corresponding WG.

G. WG Members

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