Co-convened by

In cooperation with

Third UNESCO/GEF IW:LEARN Groundwater Integration Dialogue

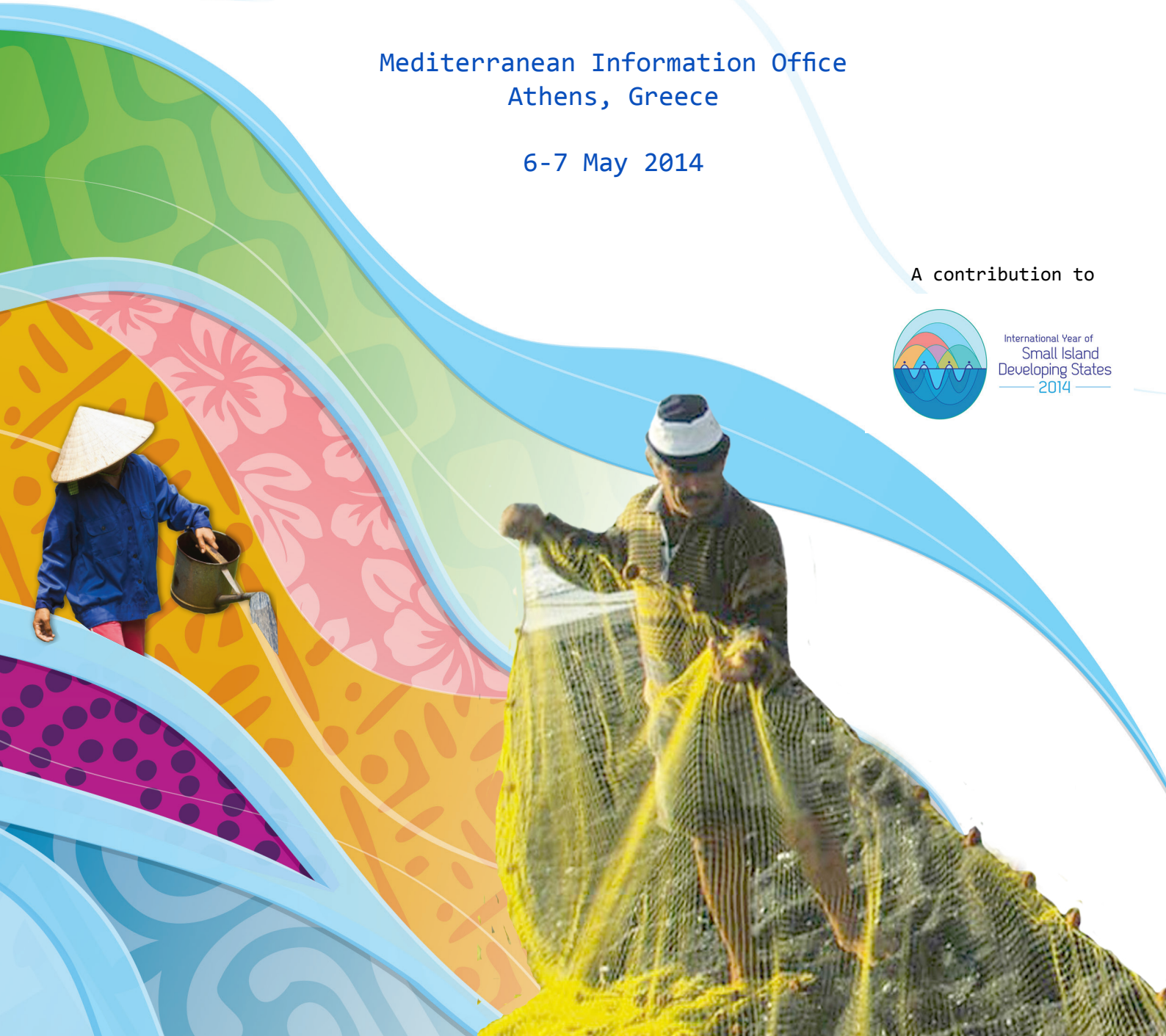
"Managing Groundwater in Coastal Areas and SIDS"

Mediterranean Information Office
Athens, Greece

6-7 May 2014

A contribution to

International Year of Small Island Developing States 2014



WELCOME FROM THE ORGANIZERS

2014 was declared International Year of SIDS. This shows that the challenges of water governance and SIDS vulnerabilities have achieved global recognition. We must therefore promote a culture of resilience through sustainable development and protection of fragile ecosystems, particularly those dependent on groundwater. It is my great honor to wish you every success in this meeting.

Blanca Jiménez-Cisneros, *Secretary UNESCO-IHP/Director UNESCO Division Water Sciences*

Your gathering in Athens is a critical debate on the integration of freshwater and marine water issues. Coastal and marine ecosystem management discussions typically do not adequately address groundwater issues; consequently, the insights emerging from this workshop will be useful not only to the Mediterranean, but to the rest of the world. On behalf of the GEF I would like to welcome and encourage you to be outspoken and daring in your deliberations. Thank you for your creativity and commitment.

Astrid Hillers, *Senior Environmental Specialist, GEF International Water*

ICZM applications are rigorously advancing in the Mediterranean, along with the adoption of the ICZM Protocol. IWRM, including emphasis on groundwater, is in the countries' focus in this water scarce Region. The importance of ICZM/IWRM integration, addressing also groundwater needs, become more relevant under conditions of climate variability and change. I look to the Athens Workshop as a valuable experience sharing among peers and a stepping stone for further action, and warmly welcome you at the GWP-Med premises.

Michael Scoullos, *Chairman, Global Water Partnership – Mediterranean (GWP Med)*

On behalf of the Strategic Partnership for the Mediterranean Large Marine Ecosystem (MedPartnership), it is with great pleasure that I welcome you to this workshop. The MedPartnership is a unique example of collective effort of leading regional/international organizations, NGOs and countries sharing the Mediterranean Sea towards the protection of the marine and coastal environment to reverse degradation trends. In this context the integration among ICZM, IWRM and costal aquifers management is one of the key issues under the project..

Lorenzo Galbiati, *MedPartnership Project Manager, UNEP-MAP*

There is a challenge to provide human safety and promote economic development without compromising ecological integrity, especially in SIDS. Benefits from coastal and marine ecosystem services are often not quantified and thus not integrated in management processes. We at the IOC consider that effective and sustainable Integrated Coastal Area Management, incorporating transboundary systems such as coastal aquifers, is needed to safeguard the status and biodiversity of aquatic ecosystems by strengthening cooperation among different policy areas.

Wendy Watson-Wright, *Executive Secretary, UNESCO-IOC; ADG, UNESCO for IOC*

On behalf of IGRAC, it is my pleasure to welcome you to this workshop. We are delighted that it will facilitate exchange of unique knowledge about coastal aquifers and groundwater in Small Island Developing states. The collection of experiences from experts around the world is an invaluable contribution to the global groundwater community. We look forward to seeing how your contributions enhance our understanding of these critical issues. Enjoy your stay in Athens!

Neno Kukuric, *Director, International Groundwater Assessment Center, IGRAC*

I would like to extend my warmest greetings to the participants of the workshop, and thank all the partners for their effort in organising it. This workshop is a result and an example of good cooperation established among several institutions dealing with water resources management in the Mediterranean coastal zones. The experience gained in several on-going projects shows that the Mediterranean ICZM Protocol can contribute significantly to a better management of this vital yet extremely fragile resource globally.

Zeljka Skaricic, *Director, Priority Actions Programme Regional Activity Centre (PAP/RAC)*

Coasts and river deltas support the economies of many cities around the world; they are also vital for life and well-being in small island nations. Solutions to water pollution are found in coordinating the use and management of land and water, surface and underground, from source to sea. I warmly welcome this workshop as a milestone in advancing learning on how to link action and implementation at the coastal interface, in support of ecosystem services and improving livelihoods.

Mark Smith, *Director, Global Water Programme, IUCN*

RATIONALE FOR JOINT MEETING

Coastal ecosystems sit at the nexus of terrestrial, freshwater and marine environments and are among the most productive, threatened and complex ecosystems in the world. Many active geologic processes occur in coastal zones including erosion, sedimentation, alongshore and onshore sand transport, shoreline changes, wind/tidal flooding, and dunes accretion. Therefore, coastal zones are open and dynamic systems with numerous internal processes as well as interactions with the wider environment, natural and man-made.

The hydrogeology of coastal zones is characterized by the layering of freshwater over the more dense saline waters of the sea. Over-exploitation of coastal aquifers can result in saline water intrusion. Unfortunately, this phenomenon is occurring in a majority of the world's populated coastal areas. Seawater intrusion is not easily reversed. Furthermore, the progressive loss of freshwater in coastal aquifers is further aggravated by climate change and sea level rise. This is a global-scale problem that is endangering development in many highly-populated coastal regions and Small Island Developing States (SIDS).

Aquifer management in coastal zones focuses on reaching a balance between protecting ecosystem services – considering that many coastal ecosystems are groundwater dependent - and sustaining the often aggressive socio-economic development of the coastal zone. These are challenging tasks since fresh groundwater in coastal aquifers is highly vulnerable to impacts from land use, surface water management, upstream pollution, marine intrusion and coastal geological processes.

This meeting is the third of a series organized by UNESCO-IHP in the framework of the IW:LEARN Project in cooperation with relevant partners. It will bring together project managers and practitioners from relevant GEF International Waters (IW) projects, country representatives, and experts on groundwater and coastal management to exchange knowledge on issues crucial for the sustainability of coastal areas worldwide, particularly in SIDS, to inform project design of IW projects during the next GEF cycle, and to feed into the implementation of on-going GEF IW coastal and LME projects.

INTERNATIONAL YEAR OF SIDS

The International Year of Small Island Developing States (SIDS) was launched by the United Nations (UN) in February 2014 to put a spotlight on the special needs of island nations. SIDS have always faced a range of particular challenges and vulnerabilities – isolation, limited land, and shortage of resources- which rendered the pursuit of sustainable development to be more complex.

International Year of Small Island Developing States 2014

Recently, climate change effects such as sea level rise, coastal erosion, saline intrusion, and extreme weather events have added another level of difficulty for SIDS as their abilities to adapt to these monumental changes on their own are rather limited. Groundwater resources are also sensitive to climate change as they are also subject to over-exploitation, pollution from various practices relating to sanitation, and waste management. Further, there are often direct linkages between quality of groundwater and coastal resources. In this regard, the International Year of SIDS aims at mobilizing international interest for sustainable development in these states. The UN has agreed to support SIDS in enhancing effective water governance through development of institutional and human capacities involved in water management by focusing on practical and pragmatic actions for further implementation.

www.sids2014.org

BACKGROUND INFORMATION

Highlights on UNESCO's work on freshwater resources

The **International Hydrological Programme (IHP)** is the only intergovernmental scientific programme of the United Nations system devoted to hydrology, water resources management, and water education. The IHP Secretariat serves UNESCO's 190 Member States, through the IHP National Committees, other governmental bodies, and academic and research institutions in the implementation of the programme. The **UNESCO Water Family** comprises the UNESCO-IHE Institute for Water Education; the World Water Assessment Programme (WWAP); a network of 18 water-related Institutes and Centres; anc 29 Water-related Chairs and UNITWIN Networks.

United Nations Educational, Scientific and Cultural Organization · International Hydrological Programme

www.unesco.org/water

The eight phase of IHP (2014-2021) focuses on "**Water security: Responses to local, regional, and global challenges**". It reflects a deeper understanding of the interfaces and interconnections between the water, energy and food nexus, which aims to further improve integrated water resources management (IWRM). The role of human behavior, cultural beliefs, and attitudes toward water, and the need for research in social and economic sciences to understand and develop tools to adapt to human impacts of changing water availability, are challenges to be addressed in this new phase.

Since its inception, IHP has paid due attention to studies on groundwater resources and aquifer characteristics, enhancing the role that aquifers play in supporting human activities and ecosystems In order to conduct a global inventory of transboundary aquifers and to elaborate recommendations for the sustainable management of these systems, UNESCO launched the multidisciplinary **International Shared Aquifer Resources Management (ISARM)** programme. ISARM has identified more than 440 transboundary aquifers. These systems exist in each continent, are shared by two or more countries and contain significant quantities of groundwater.

isarm

www.isarm.org

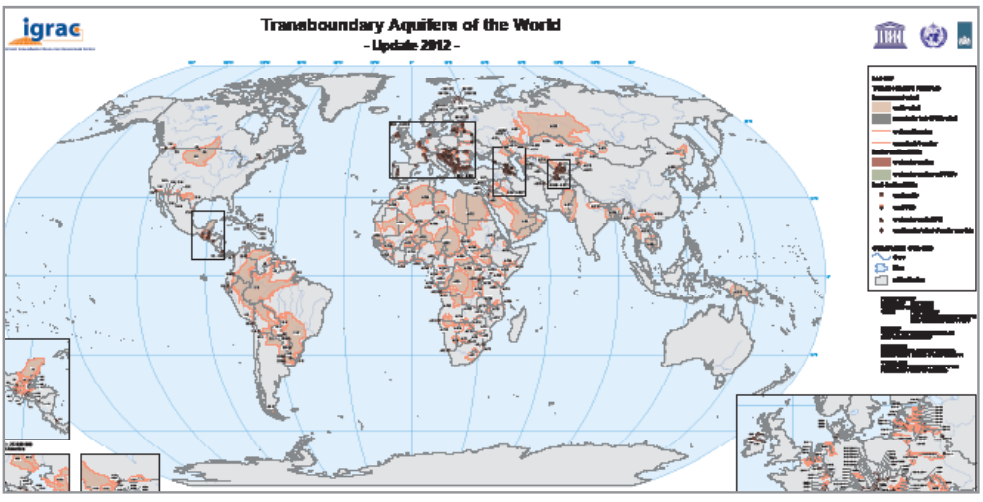
The **World-wide Hydrogeological Mapping and Assessment Programme (WHYMAP)** compiles data on groundwater from national, regional and global sources, and visualizes them in maps, web map applications and services.

www.whymap.org

The **UNESCO/WMO International Groundwater Resource Assessment Centre (IGRAC)** facilitates and promotes international sharing of information and knowledge on sustainable development, management monitoring and governance of groundwater resources worldwide.

igrac

www.igrac.org



Map prepared by IGRAC, 2012

The UN ILC Draft Articles on the "Law of Transboundary Aquifers"

In 2002 the UN International Law Commission (ILC) embarked on the codification of the law of transboundary aquifers in order to provide **legal regime for the proper management of transboundary aquifers** in view of the critically important freshwater resources. UNESCO-IHP played a central role in providing the valuable assistance and support to ILC by mobilizing hydrogeologists, groundwater administrators and water lawyers. A UN General Assembly Resolution (A/RES/63/124) was adopted in December 2008, including a **set of 19 draft articles** as an annex and encouraging States sharing an aquifer to consider them when entering into an agreement for the proper management of the underground resource.

The Draft Articles provide a comprehensive understanding of transboundary aquifers and their adequate management that includes procedures for **data exchange, monitoring and cooperation.** The articles also consider the existing disparities in capacity and knowledge between countries and the need for international technical cooperation. The articles include requirements on cooperation, including scientific and technical cooperation for developing countries, and regular exchange of data and information between the countries in whose territory the aquifer is located, as well as provisions concerning monitoring and prevention of contamination, with particular attention to groundwater dependent ecosystems The UN ILC draft articles indicate that regulations should accurately define the limits of the system and identify the recharge and discharge areas. The **guiding principles** are indeed: the obligation for equitable and reasonable utilization of a transboundary aquifer (Art. 4), the obligation not to cause significant harm to other countries of the country in whose territory such system is located (Art. 6), or where a recharge/discharge area is situated, the general obligation to the countries to cooperate (Art. 7) and the regular exchange of data and information between countries on a regular basis on the condition of their transboundary aquifers or aquifer systems.

The first example of the application of the Draft Articles is the agreement on the **Guarani Aquifer** signed by the four countries concerned (Argentina, Brazil, Uruguay and Paraguay) in 2010. This is the **first international agreement that explicitly refers to the Draft Articles** as inspiring principles for its formulation and implementation.

At its sixty-six session in December 2011, the UNGA brought once again to the attention of Member States the issue of the form that the "Law of Transboundary Aquifers" should take in the future. By reaffirming the major importance of the subject matter and the need for a proper management of this vital natural resource through international cooperation, the **UNGA adopted a second Resolution** (A/RES/66/104) on the "Law of Transboundary Aquifers" recommending the set of 19 draft articles already annexed to the first Resolution to be considered by Member States when negotiating future arrangements for the management of their transboundary aquifers. The text of this second Resolution reaffirms "the major importance of the subject of the law of transboundary aquifers in the relations of States and the need for reasonable and equitable management of transboundary aquifers, a vitally important natural resource, through international cooperation". A significant addition to the second Resolution on the "Law of Transboundary Aquifers" is the specific call that the UNGA makes to the **UNESCO International Hydrological Programme to act as the technical and scientific instrument facilitating the implementation of the Draft Articles** and providing the necessary assistance to the States concerned in making regional or bilateral agreements.

Intergovernmental Oceanographic Commission of UNESCO (IOC)

Within the UN system, the IOC serves as the focal point for **ocean observations, ocean science, ocean services and data and information exchange**. And the UNCLOS considers IOC to be the **competent international organization for marine scientific research.**

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

http://ioc-unesco.org

In this context, the **Integrated Coastal Area Management (ICAM),** as a continuous and dynamic process, permits harmonization and coordination among institutions and user groups with authority and interests in coastal areas, aiming for the sustainable use, development, and the protection of coastal and marine areas and its resources.

ICAM has been widely recognized as a way to achieve the sustainable management of the coast, and as an extension, the sustainable planning of our ocean. In addition to this, the UN Regular Process for global reporting and assessment of the state of the marine environment welcomes coastal management under an integrated perspective.

At Rio+20, Member States stressed the importance of the conservation and sustainable use of the ocean and seas and of their resources for sustainable development and encouraged as well, the provision of assistance and capacity building to developing countries in developing their institutional capacity and legal framework to reach the objectives of ICAM:

ICAM

(i) Increase collective capacity to respond to change and challenges through further development of science based management tools such as **ICAM, Marine Spatial Planning, and Large Marine Ecosystem Approach;**

(ii) Build on IOC's and UNESCO's other coastal programmes in **developing Member States' capacity for the application of ecosystem-based management tools**; and

(iii) Promote the integration **of climate change adaptation** and **coastal hazards preparedness** into the management approaches.

Among other projects, the ICAM Programme has actively participated at the EC-funded FP7 project **PEGASO - People for Ecosystem-based Governance in Assessing the Sustainable Development of Ocean and Coast**, which aims to develop coastal and marine sustainable management and planning tools in the Mediterranean and the Black Sea to support the Mediterranean Integrated Coastal Zone Management Protocol.

As well as the **Transboundary Waters Assessment Programme (TWAP),** GEF funded project, arose out the need for a) a global baseline assessment of the status and changing condition of transboundary water systems, which will allow to set science-based priorities for financial resource allocation, and b) the institutional arrangements for conducting periodic future assessments of transboundary water systems. The ICAM Programme is currently leading the components of Large Marine Ecosystems, considering LMEs as natural coastal regions encompassing waters from river basins, groundwater and estuaries to the seaward boundaries of continental shelves and margins of coastal currents and water masses.

BACKGROUND INFORMATION

Global Environment Facility (GEF)

The Global Environment Facility (GEF) is a financial mechanism uniting 182 member governments—in partnership with international institutions, nongovernmental organizations, the civil society and the private sector - to **address global environmental issues**. Born in 1991, today the GEF is the largest public funder of projects to improve the global environment. An independently operating financial organization, the GEF provides grants for projects related to different focal areas: biodiversity, climate change, **international waters**, land degradation, and persistent organic pollutants.

www.thegef.org

Both the GEF5 focal area strategy, as well as the draft GEF6 Programming Directions, stresses the **conjunctive management** of groundwater (together with surface freshwater as well as coastal areas and marine ecosystems) as a major priority for project design.

TWAP Project

The Global Environment Facility (GEF) **Transboundary Waters Assessment Programme (TWAP)** is a two year full size project (2012-2014) co-financed by the GEF, with the overall objective of producing the first truly global assessment of all transboundary waters within the five recognised categories (Open Oceans, Large Marine Ecosystem, Lake Basins, River Basins, and **Aquifers and SIDS Groundwater Systems)**, and at the same time formalize the network of partners to establish firm institutional basis on which to base future periodic global assessments of transboundary waters. Additionally, the project aims to assist the GEF and other international organizations in improved priority setting for funding allocations by providing a baseline and priorities for intervention. It is anticipated that this baseline will serve to assist international funding agencies in tracking the impacts of their interventions in terms of changes in state of the aquatic environments under consideration.

www.twap.isarm.org

Based on the tremendous advances in data, information and knowledge related to transboundary aquifers that were made by UNESCO's Internationally Shared Aquifer Resources Management (ISARM) initiative, the Worldwide Hydrogeological Mapping and Assessment Programme (WHYMAP), International Groundwater Resources Assessment Centre (IGRAC), **UNESCO-IHP will serve as the lead agency for the assessment of transboundary aquifers and SIDS groundwater**. UNESCO-IHP began compiling information on the **aquifers of 43 SIDS in 2013**. Information and data are being collected for a wide set of hydrogeological and socio-economic indicators, via questionnaires submitted to national experts and governments in each of the participating SIDS. The data will then be integrated into indices to facilitate priority-setting within water management strategies. The outcome of this assessment will allow **identifying the most vulnerable systems** and providing data to estimate of how the quantity and quality of water in these underground systems may change over the next 15–20 years. A parallel goal is to shine a spotlight on aquifers of particular concern, in order to catalyse international support for remedial measures and development of sustainable management strategies.

BACKGROUND INFORMATION

IW:LEARN Project and Groundwater Community of Practice

IW LEARN stands for the "International Waters Learning Exchange And Resource Network" Project of the Global Environment Facility. It is a unique initiative in the GEF portfolio and its current phase (2011-2014) places a strong focus on groundwater protection and management. Its goal is to Strengthen Transboundary Waters Management by facilitating information sharing and knowledge management amongst GEF IW projects and partners.

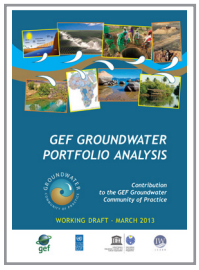
www.iwlearn.net

By pursuing these objectives, IW:LEARN has entrusted UNESCO-IHP and IUCN to establish and facilitate respectively two Global Communities of Practices on **Groundwater** and **Surface Freshwater**. These Communities are formed by water practitioners, GEF IW project managers and representatives of relevant Ministries. The CoPs aim to accelerate learning from and within the GEF IW portfolio, and promote replication of good practices in transboundary freshwater management.

www.groundwatercop.iwlearn.net

Within the Groundwater CoP several activities are being organized:

Analysis of the GEF Groundwater Portfolio: A tool to present and review the portfolio of groundwater projects (co-)financed by the GEF in light of disseminating outstanding results, lessons learned and replicable practices. The report is a living document that will continue to be enriched with comments, additions and revisions from participants of the Groundwater Community of Practice until end of the project.



Groundwater Integration Dialogues: Face-to-face meetings in different regions of the world organized by UNESCO-IHP to bring together surface, marine and groundwater GEF:IW projects to exchange among each other as well as with local scientific communities in order to identify best practices and promote cooperative approaches and conjunctive management within transboundary settings.

Groundwater Talks: A series of videos and interviews from events across the world looking at groundwater issues. Groundwater Talks presents an "underground" journey to explore what people say and think about groundwater, their experiences and perceptions, what they would like to learn or share.

Webinars: A series of online workshops that allows multiple participants to exchange and discuss groundwater related issues online from anywhere in the world. The software is provided by UNESCO and all recordings and resources are available at the Groundwater CoP website.

Global Groundwater Forum: Hosted by IGRAC, it is the world's online hub for dialogue about groundwater resources. Its purpose is to incite conversation, share knowledge and inspire action among professionals interested in groundwater issues. The Forum is an integral part of the Groundwater CoP.

forum.un-igrac.org

MedPartnership Project

The **Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem (MedPartnership)** is a collective effort of leading organizations and countries sharing the Mediterranean Sea towards the protection of the marine and coastal environment of the Mediterranean. The MedPartnership project (implemented by the UNEP/MAP, financially supported by the GEF and other donors, and executed by many partners), is the first GEF project in the Mediterranean to integrate coastal aquifers into marine, coastal area and basin management and protection. Experience is being gained as part of the project thanks to the **cooperation among three partners** – UNESCO's International Hydrological Programme (IHP), Priority Actions Programme/Regional Activity Centre (PAP/RAC) and the Global Water Partnership – Mediterranean (GWP Med) - that might be usefully shared throughout the Mediterranean region and beyond, in particular in SIDS.

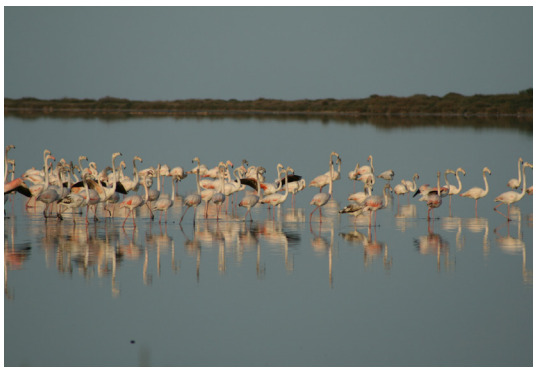
Strategic Partnership for the Mediterranean Large Marine Ecosystem
MedPartnership
www.themedpartnership.org

Coastal aquifers and groundwater in the Mediterranean: UNESCO-IHP's contributions

In the Mediterranean coastal zone, coastal aquifers represent generally available and secure water supplies that are being increasingly threatened by depletion due to over-extraction and quality degradation caused by contamination. UNESCO-IHP, in the context of its contributions to the GEF-UNEP/MAP MedPartnership project, is undertaking activities to reverse the trends of overextraction and degradation in the quality of coastal aquifers through policy interactions and appropriate capacity and technology for groundwater management. Activities are focused along three lines of action: i) **Assessments of coastal aquifer risk and uncertainty**, ii) **Regional actions for coastal aquifer management**, and iii) **Legal, policy and institutional recommendations.**

UNESCO-IHP has assessed the risk and uncertainty related to coastal aquifer management in the region through a **baseline analysis of the main pressure drivers impacting coastal aquifers** in the participating countries, along with the scientific characterization of the most significant coastal aquifers as identified by the countries. This analysis was complemented by case studies that demonstrated the use of geochemistry and vulnerability mapping as tools for improving the understanding and management of coastal aquifers. Furthermore, UNESCO-IHP will ensure that coastal aquifers and groundwater are fully considered in future management decisions by producing a **coastal aquifer supplement to the Transboundary Diagnostic Analysis for the Mediterranean Sea Large Marine Ecosystem (TDA-MED)**, thereby filling the knowledge gaps identified in this document for these vital water resources.

Regional actions for coastal aquifer management will be established by UNESCO-IHP to ensure a coherent, coordinated response to the negative trends affecting coastal aquifers among the participating countries sharing the Mediterranean Sea. Specifically, a regional action plan will follow from the work currently being undertaken for the coastal aquifer supplement to the TDA-MED. This action plan will include, inter alia, recommendations for the consideration of coastal aquifers in the existing Strategic Action Plans for the Conservation of Biological Diversity and the Reduction of Land Based Pollutants in the Mediterranean (SAP-BIO and SAP-MED). The regional action plan will furthermore benefit >>>



Cap Bon promontory in Korba, Tunisia, one of the sites being studied by UNESCO-IHP for its assessment of groundwater dependent coastal wetlands in the Mediterranean. Photo: Courtesy of Mr Noureddine Gaaloul

>>> from the results of the UNESCO-IHP case studies that demonstrate the role of coastal aquifers in integrated coastal zone management plans and in the management of coastal wetlands that depend on groundwater resources. Moreover, UNESCO-IHP has constituted a group of wetland experts from the participating countries to assess the **role of groundwater resources in sustaining the health of Mediterranean coastal wetlands** and the biological resources that thrive in these important but fragile ecosystems.
Recognizing that governance plays an important role in management decisions surrounding coastal aquifers and groundwater that in turn affect the health of the shared Mediterranean Sea, UNESCO-IHP is also studying the legal, institutional and policy framework of the management of coastal aquifers and groundwater in the participating countries. This study will produce a set of recommendations on policy, legal, and institutional developments aimed at enhancing coastal aquifer management in the region.

The results of the activities undertaken by UNESCO-IHP – including the desk studies, case studies, maps and recommendations –will be made accessible to the public via an interactive web-based mapping tool that will serve as a platform for the storage and exchange of project resources.

Global Water Partnership – Mediterranean (GWP-Med)

GWP-Med, established in 2002, is a regional partnership of the Global Water Partnership (GWP). GWP-Med aims at promoting action and exchanging knowledge on Integrated Water Resources Management (IWRM) and sustainable use of water resources in the Mediterranean.

GWP-Med is a multi-stakeholder regional platform that brings together ten major regional networks of different disciplines (government, river basins, local authorities, professionals, NGOs, wetland managers, research institutes, irrigators, etc) and over ninety other institutions and organizations from non-EU countries and EU countries, including the private sector. In addition to the Head Office in Athens, the GWP-Med Secretariat extends its human resources in Beirut and Tunis.

GWP-Med facilitates regional, sub-regional and national dialogues, provides policy support and implements demonstration actions on a range of aspects of governance for IWRM including water financing, river basin/transboundary water management, joint IWRM/Integrated Coastal Zone Management (ICZM) planning, adaptation to climate vulnerability and change, water demand management, private sector and stakeholders participation, education and capacity building, and networking of targeted groups including decision makers, parliamentarians and the media.

GWP-Med's functions as the Secretariat of the Mediterranean Component of the EU Water Initiative (MED EUWI, 2003-ongoing); Technical Facilitator of the Petersberg Phase II/Athens Declaration Process to promote Transboundary Water Resources Management in the region (2005-on going); Secretariat of the formal Drin Core Group for the management of the extended Drin River Basin (2011-on going); co-facilitator of the Circle of Mediterranean Parliamentarians for Sustainable Development and the Circle of Mediterranean Journalist for Sustainable Development (2002-onhoing).

GWPMed implements a range of **IWRM/ICZM-related activities** including in the framework of the GEF MAP UNEP MedPartnership (2009-2015); GEF MAP UNEP Climate Variability and Change Programme (2012-2015); North Africa Component of the AMCOW/GWP Programme on Water, Climate and Development (WACDEP-2012-2016); EU SWIM-SM Programme (2010-2014); etc. Under the MedPartnership, and in close cooperation with PAP RAC and UNESCO, GWP-Med has worked on the elaboration of an Integrated Methodological Approach on ICZM/IWRM, and practical application of its provisions at local level in the Mediterranean.

Global Water Partnership Mediterranean

www.gwp.org/en/GWP-Mediterranean

The UNEP Mediterranean Action Plan (MAP)

UNITED NATIONS ENVIRONMENT PROGRAMME
MEDITERRANEAN ACTION PLAN
for the Barcelona Convention

UNEP MAP

www.unepmap.org

In 1975 the MAP was adopted with the objectives to assist the Mediterranean countries to assess and control marine pollution, to formulate their national environment policies, to improve the ability of governments to identify better options for alternative patterns of development, and to optimize the choices for allocation of resources.

Although the initial focus of the MAP was on marine pollution control, experience confirmed that socio-economic trends, combined with inadequate development planning and management are the root of most environmental problems. Consequently, the focus of MAP gradually shifted to **include integrated coastal zone planning and management as the key tool** through which solutions are being sought. Today the MAP is a regional cooperative effort involving 21 countries bordering the Mediterranean Sea, as well as the European Union. Through the MAP, these Contracting Parties to the Barcelona Convention and its Protocols are determined to meet the challenges of protecting the marine and coastal environment while boosting regional and national plans to achieve sustainable development.

Key **MAP priorities** for the coming decade are:

- to bring about a massive reduction in pollution from land-based sources;
- to protect marine and coastal habitats and threatened species;
- to make maritime activities safer and more conscious of the Mediterranean marine environment;
- to intensify integrated planning of coastal areas;
- to monitor the spreading of invasive species;
- to limit and intervene promptly on oil pollution.
- to further promote sustainable development in the Mediterranean region

The key ingredient in the continued and enhanced success of this regional 'green' effort is the **commitment of the region's inhabitants**, and its millions of visitors, to an overall respect for the Mediterranean environment and their will to integrate this respect into their daily lives.

Figure 1.1 The Mediterranean Countries and their Coastal Regions

The Barcelona Convention

In 1976 the Parties to MAP adopted the **Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention)**. Seven Protocols addressing specific aspects of Mediterranean environmental conservation complete the MAP legal framework:

- Dumping Protocol (from ships and aircraft)
- Prevention and Emergency Protocol (pollution from ships and emergency situations)
- Land-based Sources and Activities Protocol
- Specially Protected Areas and Biological Diversity Protocol
- Offshore Protocol (pollution from exploration and exploitation)
- Hazardous Wastes Protocol
- Protocol on Integrated Coastal Zone Management (ICZM)

In 1995, the **Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean (MAP Phase II)** was adopted by the Contracting Parties to replace the Mediterranean Action Plan of 1975.

At the same time, the Contracting Parties adopted an amended version of the Barcelona Convention of 1976, renamed Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean.

Today, the Barcelona **Convention and MAP are more active than ever. The Contracting Parties are now 22, and they are determined to protect the Mediterranean** marine and coastal environment while boosting regional and national plans to achieve sustainable development.

The **Convention's main objectives** are:

- to assess and control marine pollution
- to ensure sustainable management of natural marine and coastal resources;
- to integrate the environment in social and economic development;
- to protect the marine environment and coastal zones through prevention and reduction of pollution, and as far as possible, elimination of pollution, whether land or sea-based;
- to protect the natural and cultural heritage;
- to strengthen solidarity among Mediterranean coastal States;
- to contribute to improvement of the quality of life.

The **22 Contracting Parties to the Barcelona Convention** are: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, the European Community, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey.

Graphic from GRID-Arendal, 2013

BACKGROUND INFORMATION

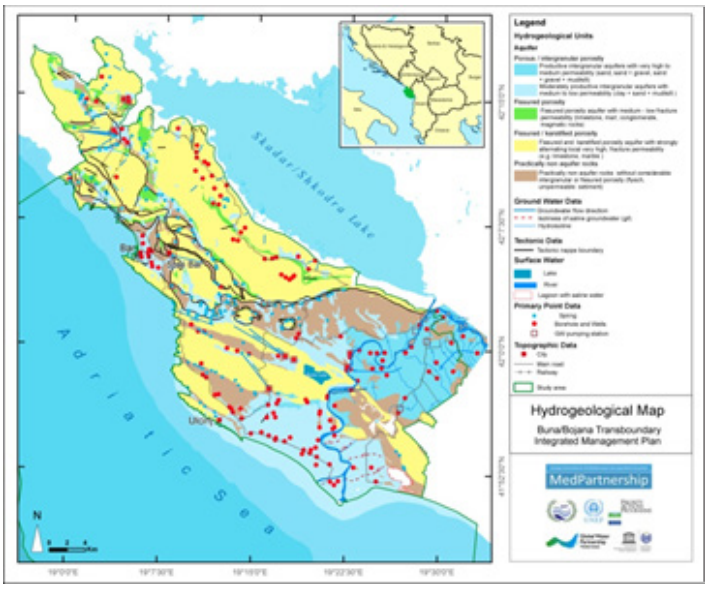
The Priority Actions Programme Regional Activity Centre (PAP/RAC)

PAP/RAC was established in 1980 to assist in the implementation of the Integrated Planning Component of the Mediterranean Action Plan (MAP) adopted in Barcelona in 1975. Its original mandate was broad in scope and encompassed ten priority actions in six fields of activity that required immediate action. With the further development of MAP, and in light of the challenges of the global environmental context, especially those relating to coastal areas, the focus of PAP/RAC's operations was subsequently repositioned to respond to the need for the sustainable development of the region's coastal areas, particularly through Integrated Coastal Zone Management (ICZM). The adoption of the Protocol on Integrated Coastal Zone Management in the Mediterranean (the "ICZM Protocol") in 2008 **formalized the role of PAP/RAC with regard to the implementation of the ICZM Protocol.** The specific objective of PAP/RAC is to **contribute to sustainable development of coastal zones and sustainable use of their natural resources**. In this respect, PAP/RAC's mission is to provide assistance to Mediterranean countries in the implementation of Article 4(i) of the Barcelona Convention, meeting their obligations under the ICZM Protocol and implement the Mediterranean Strategy for Sustainable Development and by carrying out, in particular, the tasks assigned to it in Article 32 of the ICZM Protocol, 2008.

The Protocol on Integrated Coastal Zone Management (ICZM Protocol)

The entry into force, on 24 March 2011, of the **Protocol on Integrated Coastal Zone Management (ICZM Protocol) of the Barcelona Convention** represents a milestone for the Mediterranean region, allowing the riparian states to better manage their coastal zones and to deal with the emerging environmental and development challenges. Although the ICZM Protocol is not solely related to the management of water resources it still provides a solid legal frame for sustainable use of aquifers and underground water.

The ICZM Protocol refers to aquifers and water resources in several articles. A specific reference to water resources is included in Article 5 'Objectives of ICZM'. These are the guiding objectives, as many other articles refer to them as the main criteria for the management of coastal areas. For example, in Article 9, paragraph 2(e) on utilization of natural resources, a specific mention of aquifers is made in sub-paragraph (iii). Parties are required "to monitor coastal aquifers and dynamic areas of contact or interface between fresh and salt water, which may be adversely affected by the extraction of underground water or by discharges into the natural environment".



Hydrological map of Buna/Bojana Transboundary Integrated Management Plan

To summarise, the Protocol on ICZM for the Mediterranean provides a **good legal framework for regulating water resources, including the aquifers**, as a crucial component of the water cycle of coastal zones. Until there is a specific aquifer-related international agreement adopted all provisions offered by this unique Mediterranean instrument should be applied. This could provide an important level of guarantee for the preservation and sustainable use of aquifers in the future.

IUCN: Demonstrations that catalyze solutions

Experience from the International Union for the Conservation of Nature (IUCN) **Water and Nature Initiative (WANI)** has shown that 'Water Governance Capacity' (WGC) is built most effectively where all stakeholders participate and it is coordinated from the local to the national and transboundary levels. In practical terms, the coordinated development of policies, laws, and institutions which are necessary to build '**Water Governance Capacity**' takes place through:

- tangible benefits for local, national, or river basin priorities in terms of socio-economic development from improved water resource management;
- learning, capacity building, and information exchange among decision-makers and other stakeholders;
- support for national policy, legal, and institutional reforms;
- multi-stakeholder dialogues and fora to build consensus and enable coordination of decisions;
- demonstration of and support for international cooperation in transboundary basins.
-

IUCN's approach to **strengthening water dialogues and cooperation** is demonstrated through BRIDGE, a project which promotes:

- negotiation and understanding of water agreements and sharing benefits in transboundary river basins;
- the adoption of good water governance practices, water charters, codes of conduct, by-laws, and other types of transboundary governance mechanisms,
- new multi-stakeholders platforms to build trust between stakeholders;
- preventing future or potential conflicts and enabling sustainable use and equitable sharing of freshwater ecosystem services.

This approach offers lessons for the **governance of the coast** as well in that it can help mobilize better understanding of the **connectivity between fresh and marine water systems**, and the need for greater recognition by civil society, the private sector, and governments of the impact and role they have in managing coastal aquifers sustainably, into extending water management between salt and freshwaters.

IUCN
www.iucn.org/water

IUCN Water and Nature Initiative
www.waterandnature.org

BRIDGE
www.iucn.org/bridge

IUCN also facilitates the IW:LEARN Global Surface Freshwater Community of Practice:

SURFACE FRESHWATER COMMUNITY OF PRACTICE
www.freshwater.community.iwlearn.net

MEETING OBJECTIVES

The meeting aims to:

1. Review possibilities and opportunities for IWRM/ICAM integration as well as state of integration of groundwater and surface water management within the context of integrated coastal area management in SIDS.
2. Promote recognition of the role of coastal aquifers in protecting and preserving coastal and marine ecosystems.
3. Contribute to enriching the analysis of the GEF IW Freshwater Portfolio with respect to coastal zone management and IWRM including in SIDS. Sharing the Mediterranean experience in coastal management.
4. Introduce a new approach to environmental sustainability in coastal areas and SIDS: the concept of coastal zone use capability and its application to coastal aquifers.
5. Discuss opportunities for conjunctive surface, marine and groundwater management and planning, as well as targeted needs for capacity building – in the context of the 6th GEF Replenishment.
6. Identify practitioners' technical and capacity development needs.
7. Discuss appropriate knowledge management and dissemination strategies and review existing tools including participation of members in the Global Surface Water and Groundwater Communities of Practice (CoPs) and future linkages with GEF Large Marine Ecosystems CoP.
8. Contribute to enriching the global dialogue and awareness raising campaign promoted through the International Year on SIDS 2014

Photo © A. Merla

During the two-day meeting, participants will be invited to record very short statements on camera. The videos will be edited into an episode of "Groundwater Talks" and will be distributed through different channels of GEF, UNESCO and other networks.

Groundwater Talks can be watched at:

www.groundwatercop.iwlearn.net/groundwatertalks

08:45-09:00 **Registration**

09:00-09:30 **Welcome and opening addresses**

- *Konstantinos Triantis,* Head, Special Secretariat for Water of the Hellenic Minsitry of Environment, Energy and Climate Change
- *Maria Peppa*, Head, Department for International and EU Affairs, Hellenic Minsitry of Environment, Energy and Climate Change
- *Vangelis Constantianos*, Executive Secretary, GWP-MED
- *Lorenzo Galbiati,* Project Manager, MedPartnership Project, UNEP-MAP
- *Patrick Weiler*, Project Officer, IW:LEARN Project, UNOPS
- *Lucilla Minelli,* Project Officer, UNESCO-IHP

09:30-09:50 **Keynote speech**

- *Andrea Merla,* Senior International Expert, UNESCO-IHP

09:50-10:30 **Twinning and tour de table exercise**

Overview of Projects and Organizations involved in coastal-related projects and activities (Surface/Marine/Groundwater). Participants will be assigned in pairs with the objective of explaining to one another the main achievements/challenges in their respective Projects/Organizations. The exercise will be facilitated with prepared material by the organizers.

Moderators: *Kirstin Conti*, IGRAC and *Patrick Weiler*

10:30-11:00 ***Coffee Break and Group Picture***

11:00-12:00 **Report in plenary of twinning exercise**

12:00 -13:00 **"Sharing the Mediterranean Experience" (Session I)**

Chair: Vangelis Constantianos

- An overview of the EU legislative framework on water resources and coastal management (*Konstantinos Triantis* and *Maria Peppa*)
- The MedPartnership: implementing SAP MED, SAP BIO and ICZM Protocols (*Lorenzo Galbiati*, UNEP-MAP)
- ICZM Protocol and its relevance for the management of coastal aquifers (*Marko Prem*, PAP/RAC)
- The experience of the SWIM Project (*Giorgos Lourmas* and *Sameeh Nuimat*, SWIM Project)

Q&A Session

13:00-14:00 ***Lunch break***

(Affiliations are mentioned only once)

14:00-15:30 **"Sharing the Mediterranean Experience" (Session II)**

Chair: *Virgine Hart*, MedPartnership Project, UNEP-MAP

- Hydro-geochemistry as a tool for coastal aquifer management: the case of the Bou-Areg coastal aquifer in Morocco (*Viviana Re*, Ca' Foscari University, Venice)
- Integrated water resources and coastal management: the Buna-Bojana Delta - Montenegro, Albania (*Dimitris Faloutsos*, GWP-MED)
- Mediterranean coastal aquifers: vulnerability mapping 1: Croatian experiences (*Ranko Biodic*, Zagreb University)
- Mediterranean coastal aquifers: vulnerability mapping 2: Tunisian experience (*Salvatore Carruba*, Independent Expert)

Q&A Session

15:30-16:00 ***Coffee break***

16:00-17:30 **"Sharing the Mediterranean Experience" (Session III)**

Chair: *Ivica Trumbic*, Senior International Expert

- Alexandria Coastal Zone Management (ACZM) Project (*Mohamed Moselhy El Ghazawy*, World Bank)
- Coastal Zone Use Capability Mapping: its application to coastal aquifers (*Andrea Merla*)
- The Mediterranean Coastal Aquifers Geo-referenced Information System (*Matthew Lagod*, UNESCO-IHP)
- Assessment and management of wetlands that depend on coastal aquifers (*Nejib Benessaiah*, Mediterranean Wetlands Initiative (MedWet))
- The Dinaric Karst and its Coastal Areas: impacts on the Adriatic marine environment (*Leszek Bialy*, UNESCO-IHP)

Q&A Session and closing of the day

18:00-23:00 **Guided Walk and Group Dinner**

A guided panoramic tour of the Acropolis & Plaka has been designed for the participants of the workshop as a networking and social event.
The walking tour (approx. duration of two hours) begins at Hotel "Divani" and passes across the hill of the Acropolis and its crowning glory, the Parthenon, then through the Ancient Agora before reaching the restaurant "Zorbas" for the group dinner.
Low heeled comfortable shoes are recommended for this tour.

09:00-09:05 **Recap of Day 1 & Introduction to Day 2**

09:05-10:30 **1st Thematic Discussion: "Small Islands and Coastal Aquifers"**

Chair: *Andrea Merla*

Keynote speeches:

- "Implementing Sustainable Integrated Water Resource and Wastewater Management in the Pacific Island Countries Project"(*Marc Wilson*, SOPAC)
- "Implementing Integrated Water Resource and Wastewater Management in Atlantic and Indian Ocean SIDS Project" (*Daniel Nzyuko*, UNEP)
- "Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States (IWECO) Project" (*Shermaine Clauzel*, The Caribbean Public Health Agency (CARPHA))

Discussion Facilitator: *Marc Wilson*

Rapporteur: *Leszek Bialy*

10:30-11:00 ***Coffee Break***

11:00-12:30 **2nd Thematic Discussion: "A broader view at the governance of Coastal Aquifers"**

Chair: *Marko Prem*

Keynote speeches:

- " Groundwater Governance" (*Jac van der Gun*, Senior International Expert)
- "The experience of the Canary islands" (*Lucila Candela*, Polytechnic University of Catalonia, Spain)
- "Integrated Coastal Area Management and transboundary water ecosystems" (*Alejandro Iglesias Campos*, UNESCO-IOC)
- "Global Assessment of groundwater systems in SIDS" (*Leszek Bialy,* TWAP Project)

Discussion Facilitator: *Ivica Trumbic*

Rapporteur: *Matthew Lagod*

12:30-13:30 ***Lunch Break***

13:30-15:00

3rd Thematic Discussion: "Sustaining Networks and Sharing of Experiences: The Way Ahead"

Chair: *Daniel Nzyuko*

Keynote speeches:

- "Sharing, Networking, Capacity building"(*Donna Spencer*, Testing a Prototype Caribbean Regional Fund for Wastewater Management (CREW) Project)
- "Global Communities of Practice - Groundwater, Surface Freshwater, LMEs: tools to keep alive the legacy of projects" (*Alejandro Iglesias Campos* and *Lucilla Minelli*)

Discussion Facilitator : *Anastasia Roniotes*, MIO-ECSDE

Rapporteur: *Kirstin Conti*

15:30-16:00

Coffee Break

16:00-17:30

Way forward

Facilitators: *Andrea Merla* and *Jac van der Gun*

Consolidate messages from the group directed to:
(i) the GEF, providing recommendations on how to better design of SIDS, coastal zone and marine protection projects so as to promote integrated, conjunctive management, and calling for dedicated projects to addressing these issues;
(ii) the Groundwater Governance project, which is in the process of identifying a shared global vision in which conjunctive management is a central theme;
(iii) UNESCO-IHP in order to include the results of these discussions and the work of partners in the VIII phase of the IHP Programme.

Recommendations will also inform the analysis of the GEF Groundwter Portfolio and encourage participation in the IW:LEARN Groundwater Community of Practice and UNESCO/IGRAC Global Groundwater Forum - while contributing to global initiatives such as the International Year of SIDS and the Post-2015 development agenda.

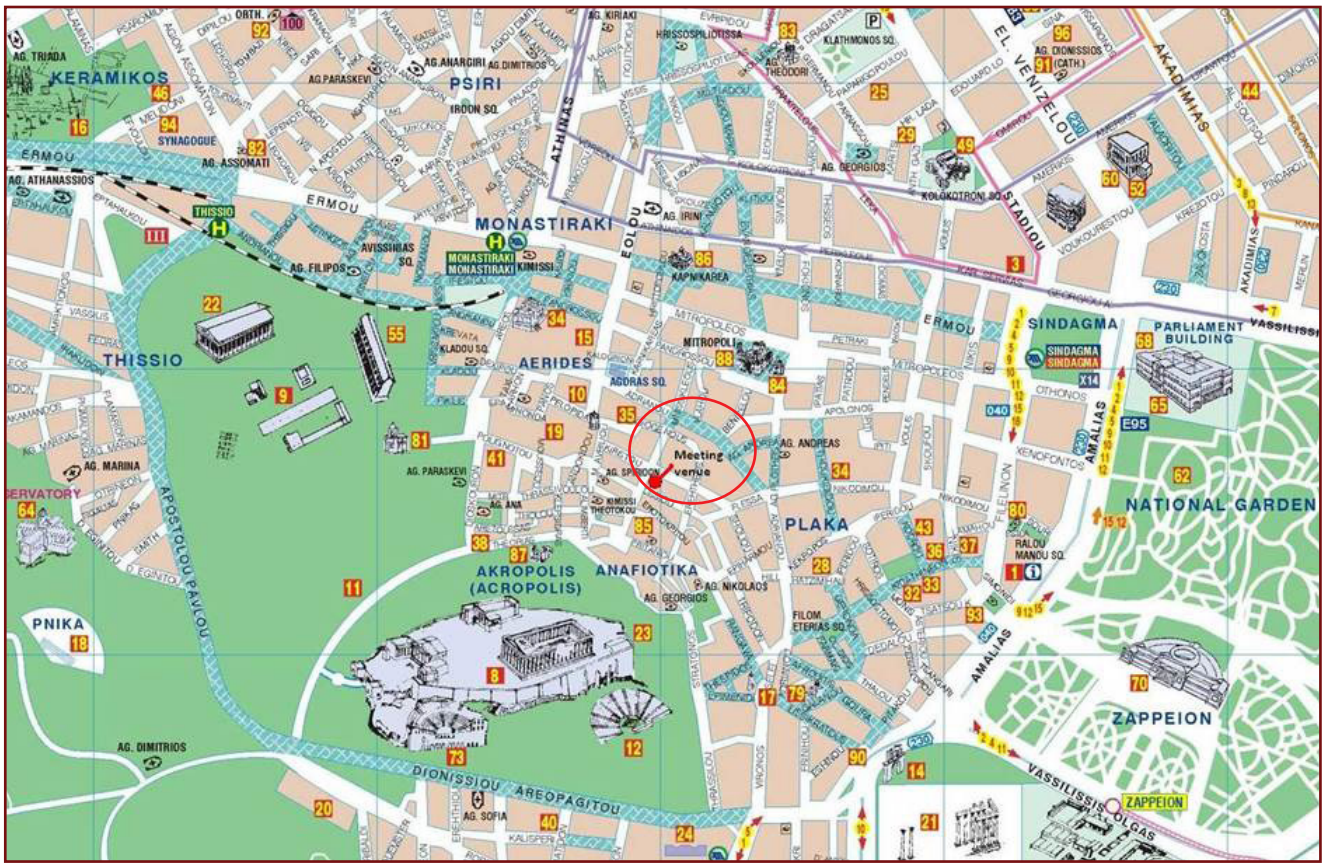
17:25-17:30

Closing remarks

Lucilla Minelli

LOGISTICS

- **Meeting Venue**
  Mediterranean Information Office
  12, Kyrristou str. 105 56, Athens, Greece



COUNTRY INFORMATION

- **Currency:** euro (EUR)
- **Local time:** UTC/GMT +3 hours
- **Climate in May:** From March through May, the weather in Athens is pleasant and mild (average daytime high temperatures range from 15 °C to 26 °C degrees).
- **Greece Electrical Outlet:** 220 V, 50 Hz

  Type C  Type E  Type F 

- **Country code:** +30; Athens 21

CONTACTS

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