

**JOINT PROJECTS AND PROGRAMS PROMOTING MIDDLE EAST COOPERATION AND KNOWLEDGE IN THE WATER SECTOR**

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**ABSTRACT**

A regional approach to the impending water crisis in the Middle East is fundamental to both short and long-term peace and stability. The Regional approach towards integrated water resources development and management requires the participation of all Parties concerned. The process must be a continuing one and activities should always be ongoing in order to keep-up interest and on-the-ground cooperative efforts, and new activities should be initiated periodically. The importance of building strong professional and technical liaisons in the Region has been proven in the Multilateral Peace Process and other programs and initiatives in the area. It will be emphasized that participation of organizations and governments from outside the Middle East region have served as a catalyst for these programs.

**KEYWORDS:** joint water projects, Middle East water crisis, regional cooperation

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Water in the Middle East area seems unlikely to satisfy entire present and future needs of the populations of each country – and their riparians. And it must be admitted that scarcity in the area stems not only from natural conditions, but also from unilateral, un-integrated development projects.

States of the Middle East share similar environmental conditions and face common water problems. These problems can be an incentive towards regional cooperation that could support the resolution of political, social and economic problems. The provision and protection of water is a major challenge for Middle Eastern governments. Decisions made today will have a significant impact for future generations.

Water contamination in the Middle East region was in the past a matter of concern mainly in relation to the endangerment to human health. Now it has also become a matter of environmental concern – as well as a constraint to socio-economic development. Water management decisions in the Middle East Region should deal with the concept of regional water resources in all three phases of what can be called the “water usage cycle”, which should be visualized from the very beginning of any planning phase as non-separable elements of a process.

Water use and pollution control cannot be considered independently of the entire set of managerial activities - long term planning, economic instruments, standards and regulations, research and technology, training and education, and, of course, the existing political, institutional and legal framework.

A regional approach to the impending water crisis in the Middle East is fundamental to both short and long-term peace and stability. It is a well-known fact that the countries in the region have water resources that cross political boundaries and/or they share a major river basin. Just these two geographical and geological facts point to the need for Regional cooperation – and the need for a definition of water rights. This Region’s impending water crisis stresses the absolute necessity of addressing both the current and future situation in the water sector from a Regional perspective.

Water issues provide a potential opportunity for regional cooperation. For example, collaboration on desalination plants, the Red-Dead Sea Canal. Other regional efforts could include development of ‘low cost’ desalination and pumping techniques, expanded water recycling, development of salt resistant crops, conservation of water and

improved irrigation processes, and repairs of existing water carrier systems.

It is important for the populations of the Middle East to see “action on-the-ground” with concrete results in the water sector in each participating country. It is stressed that this process must be a continuing one and that approved activities should be ongoing and new activities should be initiated. The importance of building strong professional and technical liaisons in the Region has been proven (for example, the Multilateral Water Working Group of the Middle East Peace Process). The Regional approach towards integrated water resources development and management requires the participation of all Parties concerned.

Below are examples of regional projects involving the Eastern Mediterranean countries of the Middle East:

### **MULTILATERAL PROJECTS IN THE MIDDLE EAST PEACE PROCESS**

The framework for the multilateral track of the Middle East Peace Process was established in Moscow in 1992, shortly after the Madrid Conference of October 1991. Five multilateral working groups were set up with the intent to examine a range of technically oriented issues that extend across national boundaries, the resolution of which is essential for long-term regional development, stability and security in the Region. It was recognized that management and sharing of the scarce water resources is one of the main regional issues that needs to be resolved in order to obtain a sustainable and lasting solution to the Middle East conflict. The Multilateral Working Group on Water was thus one of the five groups established to supplement and reinforce the bilateral track in the Peace Process.

The Water Working Group (officially the Middle East Multilateral Working Group on Water Resources – MWGWR) is the umbrella for a number of ongoing and approved projects in which parties from the region cooperate on a range of technical issues. The purpose of this cooperative framework is to explore solutions to key regional problems, and build confidence among the participating Parties/countries.

The overall designated goals of the Multilateral Process are data exchange, coordination, enhancement of water resources, and enhancement of joint management of water resources. The primary aim of this Multilateral Process is to create an awareness of water issues from a regional perspective.

This technical/cooperative process is still continuing, despite the unfortunate lack of progress in the essence of the overall Peace Process. The lasting programs/components of this process are EXACT (for water data bank(s) and associated issues), WaterCare (a public awareness type program), and MEDRC (the Middle East Desalination Research Center in Muscat, Oman). The Multilateral Water Resources Working Group is chaired by the United States, and co-chaired by Russia. Figure 1 shows an example from an EXACT publication.

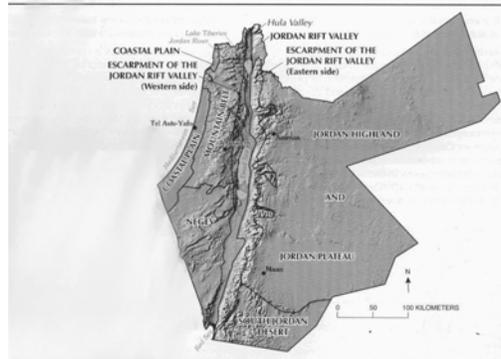


Figure 1. Map from Overview of Middle East Water Resources Water Resources of Palestinian, Jordanian and Israeli Interest EXACT, 1999, page 6.

**EMWIS (in English) / SEMIDE (in French)**

**Euro-Mediterranean Information System on the know-how in the Water sector: EURO-MEDITERRANEAN WATER INFORMATION SYSTEM**

EMWIS is an information and knowledge exchange tool between the Euro Mediterranean partnership countries and it is a tool for the implementation of the Action Plan defined at the Euro Mediterranean Ministerial Conference on Local Water Management in Turin, Italy in 1999. EMWIS aims to facilitate the access to information, to develop the sharing of information, and to promote common outputs and cooperation programs- all on know-how in the water field. Geographically, EMWIS covers 27 countries: the 15 countries of the

previous European Union, and 12 Mediterranean partners. See Figure 2 below.

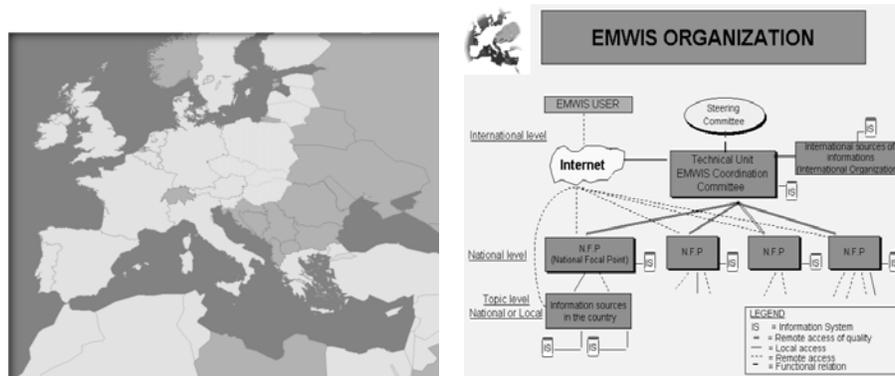


Figure 2: Map showing participating countries in EMWIS / SEMIDE and Chart showing overall program organization.

The EMWIS organization is based on a administrative level and a functional level . The administrative level includes a Steering Committee composed of the representatives of 10 countries and a Coordination Committee that includes the representatives of the National Focal Points and the Technical Unit.. The functional level groups are the National Focal Points and the Technical Unit. Each National Focal Point is composed of a small team within a public or public-serving organization in charge of gathering and disseminating documentation and information relating to the water sector in each country, and making an inventory and approving the sources of available information.

The Technical Unit is composed of a consortium of three national operators: CEDEX (Spain), OIEau (France), and SOGESID (Italy). These operators constitute a permanent structure which assures, along with the National Focal Points, the execution of the annual activity plan.

Currently, five topics concerning the know-how in the water sector have been developed on the websites of participating Countries by the Focal Points and their counterparts. These five information / knowledge sectors are: institutions, documentation, training, research and development, and data management. Of course, later on other topics could be integrated into the overall system.

## **GIWA – THE GLOBAL INTERNATIONAL WATERS ASSESSMENT**

GIWA is coordinated by the United Nations Environment Programme/ Regional Office for West Asia (UNEP/ROWA) and ESCWA, is funded by the Global Environmental Facility (GEF), the National Oceanic and Atmospheric Administration (NOAA), the Finnish Department for International Development Cooperation, and the Swedish International Development Cooperation Agency (Sida).

GIWA has been working since 1999. Its main executing agency is Kalmar University in Sweden where the GIWA Core Team and Coordination Office is located. The objective of GIWA is to produce a comprehensive and integrated global assessment of international waters. This means this program aims to provide a systematic assessment of environmental conditions and problems with regard to international waters – coastal and freshwater areas, surface and groundwater. GIWA is designed not merely to analyze the current problems and their societal root cause, but to develop scenarios of the future condition of the world's water resources and analyze policy options. Ultimately, the aim is to provide sound scientific advice to decision-makers and managers concerned with water resources and dealing with environmental problems and threats to transboundary water bodies.

A total of 66 subregions of the world have been identified with the aim of evaluating the major causes and effects of environmental problems associated with transboundary water areas. See Figure 3. The areas of GIWA that are in the Middle East are:

- The Jordan Valley (land-locked river system)
- The Arabian Gulf
- The Red Sea
- The Gulf of Aden

The objective in the end is to produce for each of these areas a comprehensive and integrated assessment encompassing the ecological status of and causes of environmental problems of transboundary freshwater (surface and groundwater) basins (and their associated coastal and ocean/sea systems). Included in the assessment are the issues of water quality and quantity; associated biodiversity and habitats; their use by society; the societal causes of the regionally identified issues and problems, and scenarios of future conditions

based on projects of demographic, economic and social changes associated with the process of human development.

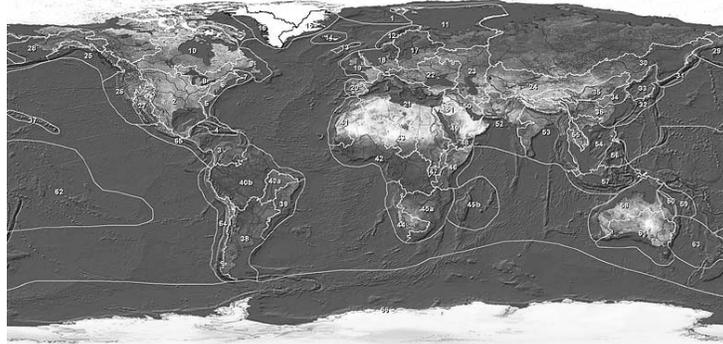


Figure 3. Map showing the 66 sub-regions being assessed by the GIWA program. GIWA brochure, Kalmar, Sweden.

### **THE NILE BASIN INITIATIVE**

The Nile River is the longest river in the world. From its major source – Lake Victoria in east central Africa – the White Nile flows generally north through Uganda and into Sudan where it meets the Blue Nile at Khartoum which rises in the Ethiopian highlands. From the confluence of the White and Blue Nile, the river continues to flow northwards into Egypt and on to the Mediterranean Sea. The Nile River is 5,584 kilometers long if measured from Lake Victoria, and 6,671 kilometers long if measured from its remotest headstream in Burundi. The Nile River Basin has an area of more than 3,349,000 square kilometers. See Figure 4.

There are ten countries which make up the Nile River Basin with an estimated 160 million people within the Basin (and roughly a 300 million total population). Some of the countries have only a small part of their area within the Basin, while others are virtually entirely within the Basin. All the countries contribute differently to the Basin and have different needs for the water and other resources of the Basin. (Burundi, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda).

The Nile Basin Initiative is working steadily towards a long-term legal and institutional framework which began in 1992 at a Council of Ministers Meeting, and then a CIDA supported Nile River Basin Action Plan (1995), and then in 1997 with the support of the United Nations Development Program (UNDP) a project to build a

cooperative framework for management of the Nile. Early on, Nile riparians realized that cooperation on the Nile requires a development focus, a permanent institution and an agreement on core legal principles. The first draft text of a Cooperative Framework as drafted by the riparian experts (senior government lawyers and water resource specialists) was produced in early 2000. The process is still continuing under the support of an UNDP extension.

Then, the Nile Basin Initiative was established in 1999 as a Cooperative Framework project that aims at providing the support to the Nile River Basin countries in defining an adequate and acceptable framework for co-operation that may pave the way for equitable and legitimate use of the Nile River Basin water resources. This initiative established partnerships that will lead to sustainable development and management of the River Nile for the benefit of all, and provides an agreed basin-wide framework to fight poverty and promote economic development in the region. Within this Initiative, a Strategic Action Program was agreed upon in order to identify and prepare cooperative projects in the Basin – both Basin-wide and sub-regional (i.e., two or more countries).

In addition, an International Consortium for Cooperation on the Nile was established to support the NBI's action program and to encourage further dialogue on cooperation, sustainable development and poverty alleviation in the Nile Basin. Within this Consortium, the World Bank convenes Consultative Group meetings at the request of the riparians in order to raise funding from bilateral and multilateral donors for the Nile Basin Initiative Activities. The challenge of regional cooperation is to address development opportunities with transboundary implications.



Figure 4. Nile River Basin Map. [www.nilebasin.org](http://www.nilebasin.org)

**GLOWA – Jordan River Project**  
**Integrated Land and Water Management in the Lower Jordan River Basin**

The Jordan River Basin is the most important surface water resource in the region of the Eastern Mediterranean countries. The Jordan River flows from north to south from an elevation of 2200 meters above mean sea level on Jebel El-Sheikh (Mount Hermon) to ~400 meters below mean sea level at the Dead Sea. The Jordan River passes a straight distance of about 140 kilometers with a river (stream) length of about 350 kilometers due to its meandering path. From its three distinct sources (the Dan River originating in northern Israel, converging with the Banias originating in Syria (occupied since 1967) and the Hasbani originating in Lebanon) the Jordan River flows generally south into Lake Tiberias (Lake Galilee, Lake Kinneret) where it meets the Yarmouk ten kilometers south of Lake Tiberias where the Yarmouk River enters the Jordan River coming from Syria and Jordan. From the confluence of the Jordan Waters in Lake Tiberias with the Yarmouk Waters, what remains of the Jordan River continues southward flowing toward the Dead Sea. (The headwaters of the Yarmouk River are in the Hauran Plain within the Syrian borders). The Jordan River Basin has an area of more than 42,800 square kilometers. See Figure 5.

There are five countries which make up the Jordan River Basin with an estimated 13.3 million people within the Basin (and roughly a 37 million total population). All the countries contribute differently to the Basin and have different needs for the water and other resources of the Basin. This triangle of the Jordan River and the Yarmouk River and Lake Tiberias have been the reason for water resources disputes between the Arab riparian countries (Syria, Lebanon, Jordan and Palestine), and Israel.

The GLOWA project is funded by the Germany Ministry of Sciences. GLOWA is an abbreviation of the German words meaning "Global Change of Water Cycle". The Jordan River Basin area is a critical region with respect to sustainable water supply as the area has one of the lowest per capita water availabilities worldwide and at the same time is experiencing rising water demands, while available water is gradually decreasing. Over the last fifty years, the Jordan River flows have dropped significantly due to the diversion of its tributaries'

waters and over abstraction of upstream groundwater resources. Climatic changes and development projects are other factors that have also affected water availability.

Agriculture and irrigation consume more than two thirds of the regional water resources. Most water sources are located in the upper basin of the Jordan River, from where large amounts of water are exported to the south and beyond the basin. A number of water use conflicts arise from this situation and from the fact that the Jordan River and regional aquifers are transboundary resources. Strategies for sustainable management of the regional water resources have to be based on collaboration between the various regional stakeholders and on a sound scientific knowledge.

Two complementary projects under the GLOWA–Jordan River project are being implemented at the same time: one on the upper catchment of the Jordan River, and the second on the lower catchment of the Jordan River. The Jordan River and much of the groundwater of the region are transboundary resources that require strategies for sustainable management of the water resources based on collaboration between the regional riparians. The long term goals of this project are joint activities and the integration of both parts of the project in order to provide scientific support for a joint management of water resources, including transboundary resources in all parts of the basin.

The responsibility for the overall project co-ordination is located at the Department of Plant Ecology and Nature Conservation of the Institute of Biology and Biochemistry, University of Potsdam, Germany. Scientists from the various fields of expertise cooperate within this multi-disciplinary and international project: water resources management, soil science, agronomy, hydrogeology, hydrology, ecology, climatology, socio-economy, as well as peace and conflict research.

The German-Israeli cooperation is within Part I of the Project and the German-Jordanian-Palestinian cooperation forms Part II of the Project. The project is divided into the following components: Climate Change Scenarios; Impacts of Regional Climate Change on Regional Water Resources – and on Agriculture and Land Use; and Integration, Stakeholder Involvement and Implementation of Results.

Results from GLOWA Jordan River should be transferable to other arid and semi-arid regions with transboundary water resources. The project also addresses non-conventional methods of water management, i.e. desalination, wastewater reuse, and water transfers as well as their ecological and socio-economic implications.

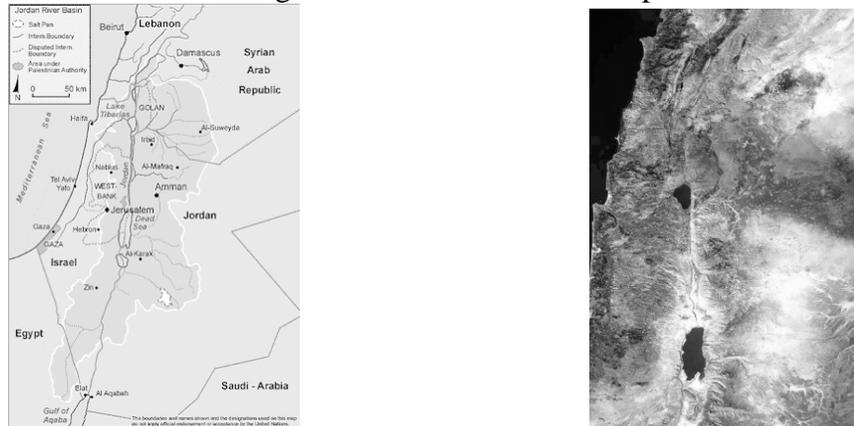


Figure 5: Map delineating the Jordan River and Dead Sea Basins along with a satellite image of the Jordan River Basin.

Note: Other GLOWA project basin areas are: the Elbe River Basin (Czech Republic and Germany), the Danube River Basin (Germany), the Volta River Basin (Ghana and Burkina), and the IMPETUS Program for two river catchments: Wadi Draa in Morocco and the Oueme River in Benin.

## CONCLUSIONS

The word 'conflict' need not automatically be associated with water, not even in the Middle East. Cooperation to solve water problems is possible. Indeed, joint action on water has the potential to lead to even greater cooperation in the wider political arena, as resolution of water problems may help to slowly build the trust needed to settle other issues that need to be solved. All would agree that mutually beneficial solutions are preferable to conflict or stalemate. Conversely, arrangements that are not perceived to fairly allocate one of life's most important necessities can only perpetuate conflict.

When evaluating the mentioned joint projects in the region that are having both an intensive and extensive affect – it can be noticed that they all are guided – or sponsored – by institutions or governments

outside of the region (the Multilaterals / EXACT, etc. – the USA and Russia; EMWIS/SEMIDE – the EU with France, Italy and Spain composing the Technical backup; GIWA – the GEF, NOAA, Finland and Sweden; the Nile Initiative – CIDA, the UNDP and the World Bank; and GLOWA-Jordan River – Germany.

As a point for thought, compared to other water resource basins in the immediate area, the Jordan River Basin is small. See Figure 6. It seems to have been a taboo subject since the days of Eric Johnston – it is a hot-spot. Do we really have to wait for outside interest and outside help in order to work together, especially in a sector – the water sector – that is so essential to life and prosperity? If so, then let us find that guiding hand quickly so that all countries can implement a rational and sustainable water policy taking into account the vital value of water, and the importance of economically balanced management and its social aspects. It is a must to have a SHARED VISION - both at the local and regional levels in order to obtain sustainable socio-economic development through the equitable utilization of - and benefit from – common water resources. And along with this shared vision must come joint action – either nationally, bilaterally, or multilaterally – in order to help the Jordan River Basin region develop and put into practice sustainable water usage and conservation strategies and policies with concrete achievements that follow a logical course of action.

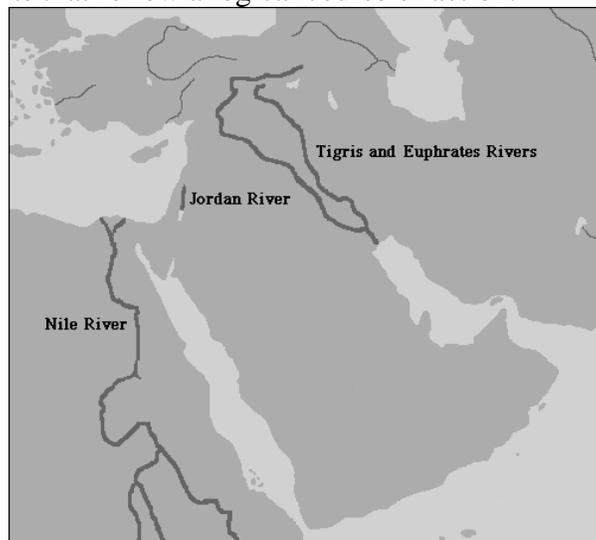


Figure 6. Comparative Map of Middle East River Basins –emphasizing extent of size. Picture from the Internet, source unknown.

Critical ecosystem water resource threats include: draining of wetlands for agricultural and housing development uses; pollution of freshwater by industrial activities and untreated human waste; and contamination of wadis, aquifers, and lakes due to run-off from fertilizers and pesticides. The combination of political strife, resource overuse and contaminated sources mean that freshwater scarcity in the Jordan River Basin will reach a critical level in the near future. The political conflict endemic to this region is a major factor leading to unilateral and unsustainable water management of the river basin.

Information and technology sharing among and between basin states can only benefit management region-wide. The process of engaging scientists and other experts in cooperative management, development and conservation efforts builds communication networks and, over time, may contribute to easing political tensions. Cooperation and sharing of knowledge also serve to verify reporting accuracy – which is critical to sound decision-making. The critical nature of water resources, and the ever-dwindling supply of freshwater in the Jordan River Basin, and the irrevocability of inappropriate policy measures require unified, definitive and ecologically sound changes to current policies and practices to insure an adequate future water supply for all peoples of the region.

Development starts with people - and in the institutions or organizations where they work. Dialogue, empowerment, capacity-building, creating opportunities, and partnership building are not only concepts that sound good and that are in fashion, they are essential in helping to generate ownership, motivation, and a vision for communities at all levels in order for them to shape their destiny. International aid should promote and open opportunities for the people to be the central characters of their own development and future. It is only in this atmosphere that investments, technology, and infrastructure can grow and make a difference in a sustainable way.

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