Abstract

Most of the Arab countries are located in arid and semi-arid zones known for their scanty annual rainfall, very high rates of evaporation and consequently extremely insufficient renewable water resources. The per capita water share of renewable water resources in the Arab Region is less than 10% of the global average. Sustainable management of water resources is a must as water scarcity is becoming more and more a development constraint impeding the social economic development of many countries in the region. The International Hydrological Program IHP is UNESCO’s international scientific cooperative programme in water research, water resources management, education and capacity-building, and the only broadly-based science programme of the UN system in this area. The current concentration areas of IHP in the Arab region as entrusted to UNESCO Cairo Regional Office, are groundwater protection, integrated water resources management, with special emphasis on wadi hydrology, eco-hydrology of drylands, water use ethics, and impact of climate changes on water resources. Concentration areas are selected during the regional meeting of Arab IHP National Committees, held each biennium. The sixth phase of IHP (2002-2007) has strived to minimize the risks to vulnerable water resources systems, taking fully into account social challenges and interactions and developing appropriate approaches for sound water management. Assessing the global time and space distribution of freshwater availability and use, developing approaches to reduce the vulnerability of hydrosystems and their supporting ecosystems and improving water resources management for vulnerable areas are among the main objectives. Capacity-building, water education and training, as well as institutional development (with emphasis in the use of information and communication technologies for water resources research and training) are reinforced, the social and ethical views of water users are incorporated into the development of conflict prevention and resolution. The seventh phase of IHP (2008-2013) is focusing on integrating interdependencies of water sciences and policy making through research and education, underpinned by culture and communication; the IHP-Phase VII will maintain its comparative advantage in promoting and leading international hydrological research, facilitating education and capacity for enhanced water management towards meeting the UN Millennium Development Goals on Environmental Sustainability, Water Supply, Sanitation, Food Security and Poverty Alleviation. It will add value to localized research and experience by providing a policy relevant context and harvesting the knowledge of researchers, educators, practitioners, and policy-makers so as to maximize the value of scientific outcomes and engender confidence in innovation and reform. It will provide a solid scientific underpinning for the UN Decade of Water for Life. Outcomes of IHP-VII should establish pathways and benchmarks for water management in the decades to come. They should contribute to sustaining human and environmental health wherever water-dependent systems are under pressure and effective societal responses not yet in place. Many extra budgetary projects are initiated in UCO: the UNESCO/Flanders Funds-In-Trust Project on “Capacity Building and Training on Environmental Planning and Management” in Palestine. A FRIEND (Flow Regimes from International Experimental and Network Data Sets) Project for the river Nile is being under execution. FRIEND is one of IHP’s success stories which is considered as a cross-cutting theme in IHP-VI. The FRIEND/Nile project has selected various research projects, being carried out by research groups with members of all riparian Nile countries. The urgent need for comprehensive assessment of the world’s freshwater has been emphasized by the UN Commission on Sustainable Development. This led to the launch of the UN system-wide World Water Assessment Programme (WWAP) led by UNESCO, which aims to improve the assessments of the state of world water resources and their response to the pressure posed by escalating human demands, as well as by factors related to global change. It is a collective initiative of 24 UN Agencies working on aspects related to water.

Therefore, UNESCO Cairo Regional Office is implementing efficiently the themes of the IHP relevant to the Arab Region. The strategy is to consolidate efforts between various national, regional and international agencies in these areas to address these themes.
1. Introduction

UNESCO (the United Nations Educational, Scientific and Cultural Organization) is one of United Nations specialized agencies. It was established in 1946 with a total of 20 member states, which grew to 190 member states in 2007. The UNESCO Cairo Office, a Regional Office for Science and Technology for the Arab States, is one of 60 field offices and units worldwide. It was originally established in 1947, and currently serves more than 18 Arab States.

The Cairo Regional Office mission, like all other UNESCO field offices and units, is to contribute to peace and security in the world by promoting intellectual cooperation among nations through education, sciences, culture, and communication.

The main objective of the IHP in UNESCO Cairo Office (UCO) is to implement IHP themes and priorities that are relevant to the Arab Region in coordination with all institutions working in the water sector.

The Cairo Office’s policy in the field of water resources is to maintain close liaison with the UN offices, Specialized Agencies of the United Nations in the Arab region, and with regional banks and regional organizations working with water. It coordinates closely with the UNESCO National Commissions and IHP National Committees in the Arab States.

2. The international hydrological programme (IHP)

(International Hydrological Program of the UNESCO) is a vehicle through which Member States can upgrade their knowledge of the water cycle and thereby increase their capacity to better manage and develop their water resources. It aims at the improvement of the scientific and technological basis for the development of methods for the rational management of water resources. The water programme in UNESCO started in 1965 as international hydrological decade followed by phases of the International Hydrological Programme (IHP). The overall objectives of IHP can be summarized as follows:

- to act as a vehicle through which Member States, cooperating professional and scientific organizations and individual experts can upgrade their knowledge of the water cycle, thereby increasing their capacity to better manage and develop their water resources
- to develop techniques, methodologies and approaches to better define hydrological phenomena
- to improve water management, locally and globally
- to act as a catalyst to stimulate cooperation and dialogue in water science and management
- to assess the sustainable development of vulnerable water resources
- to serve as a platform for increasing awareness of global water issues.

The planning, definition of priorities, and supervision of the execution of IHP are ensured by the Intergovernmental Council. The Bureau of the Intergovernmental Council of the IHP co-ordinates the work of the Council between sessions.

2.1. History of IHP evolution:

The Water programme started in UNESCO as International Hydrological Decade (IHD), after which three phases of IHP were implemented. The milestone of IHP started in 1990 when a specific overall theme was defined for IHP. This practice continued in an excessive consultation process with member states. The time line of the programme can be summarized as follows:

- 1975-1989: First Three Phases of IHP;
- 2002-2007 IHP-VI: Water Interactions: Systems at Risk and Social Challenges; and

2.2. The sixth phase of IHP (2002-2007):

The sixth phase of IHP with the main theme Water Interactions: Systems at Risk and Social Challenges, has strived to minimize the risks to vulnerable water resources systems, taking fully into account social challenges and interactions and developing appropriate approaches for sound water management. Assessing the global time and space distribution of freshwater availability and use, developing approaches to reduce the vulnerability of hydrosystems and their supporting ecosystems and improving water resources management for vulnerable areas are among the main objectives. Capacity-building and water education and training, as well as institutional development (with emphasis in the use of information and communication technologies for water resources research and training) are reinforced, and the social and ethical views of water users are incorporated into the development of conflict prevention and resolution.

The main theme of the IHP-VI is Water Interactions: Systems at Risk and Social Challenges. This frame contains five themes as follows:

- Theme 1 (T1): Global Changes and Water Resources
- Theme 2 (T2): Integrated Watershed and Aquifer Dynamics
- Theme 3 (T3): Land Habitat Hydrology
- Theme 4 (T4): Water and Society
- Theme 5 (T5): Water Education and Training.

Under each theme, there are many activities and actions. Two cross-cutting programme components: FRIEND (Flow Regimes from International Experimental and Network Data)
and HELP (Hydrology for Environment, Life and Policy) have been identified which, through their operational concept, interact with all themes.

2.3. Global water resources assessment:

The urgent need for comprehensive assessment of the world’s freshwater has also been emphasized; the UN Commission on Sustainable Development urged a collective initiative to this effect, with the strong support of the Ministerial Conference at The Hague in March 2000. This led to the launch of the UN system-wide World Water Assessment Programme (WWAP) led by UNESCO, which aims to improve the assessments of the state of world water resources and their response to the pressure posed by escalating human demands, as well as by factors related to global change. River systems and the underlying aquifers need to be analysed in their entirety, including natural and human-induced processes at various scales in space and time in order to derive appropriate water management practices. Likewise, the acuteness and type of water-related problem vary according to landform (i.e. mountains and wetlands) and climate (i.e. humid tropics and arid zones).

The overriding objectives is to provide the appropriate scientific knowledge-base to perform freshwater assessments including WWAP and to develop approaches that minimize the risk to vulnerable water resource systems and their supporting eco-hydrological systems through integrated management. Cooperation with other UN-system agencies, and other intergovernmental and non-governmental partners, and with Member States and an active role of the field offices, will be fundamental to this effort, not excluding cooperative arrangements with the private sector where applicable.

The cross-cutting initiatives FRIEND (Flow Regimes for International Experimental and Network Data) and HELP (Hydrology for the Environment, Life and Policy), having important international partners, already provide significant trans-disciplinary platforms to launch integrated efforts, and will contribute to the study of physical and social processes and to the formulation of management approaches and policy-relevant recommendations. More effective strategies for the reduction of water-related social vulnerability and for the improvement of management at the basin scale will be sought. To this end, impact assessment of extreme events and proposed mitigation schemes; enhancement of modelling capabilities of processes at the interfaces of the hydrologic cycle; and comprehensive assessment of human-watershed-aquifer interaction considering the relevant human activities and physical and ecological processes will be addressed. Specific attention will be given to the impacts of climatic and landform variability, linked with habitat and biodiversity (in co-operation with MAB), to gain a better understanding of the processes associated to the water cycle at different scales, leading to the development of sustainable water resources management approaches. The land form/land-use classes to be considered include: drylands, wetlands, mountains, small islands and coastal zones, and urban areas and rural settlements. The efficient use of energy/water interactions and the applicability of novel technologies for urban drainage and sanitation and for wastewater recycling, such as bio-remediation, will be examined. Suitable urban water management strategies, institutional frameworks and participatory processes in the context of poverty alleviation will be explored. The increasingly critical relationship between water and tourism will be considered. Likewise, the use of isotope methodologies and trace elements in water for better water resource management will be investigated.

2.4. Capacity Building-Water Education and Training:

The concept of Water Education and Training (W-E-T) Vision Framework Paper was adopted by the 14th IHP Inter-governmental Council in Paris, June 2000. Water education was considered as very important for IHP and especially for UNESCO. The need for stakeholder education and training needs assessment were emphasized. In addition to the principles listed in the draft report, interdisciplinary and water-related disaster Education was emphasized. The IHP Council members and observers were invited to provide written input to both the draft IHP Education Policy Document and also to the W-E-T Framework Paper, particularly since the finalized W-E-T Vision document should also be reflected in the final version of the IHP Education Policy Document.

The training is directed towards the improvement of individual and group skills that will be required by the implementation of project activities which are of high priority in the specific countries. These encompass water professional, managerial, institutional, and other skills needed to carry out cooperative development programs throughout the basin.

Thus IHP constitutes a framework for applied research and education in the field of hydrology and water management. It should be regarded as a dynamic concept whose aim is to improve the links between research, application and education and to promote scientific and educational activities.

It is a well established fact that the temporal and spatial variability of freshwater resources is very sensitive to possible changes that may occur in the climate mechanism due to global warming. It is assumed that the frequency of extreme hydrological events (floods, droughts) will increase in function of various climate change scenarios. As the interaction between the climate system and the land phase of the hydrological cycle is still one of the least understood components of global change, it is extremely important to further improve the understanding of global hydrology in the climate mechanism including the consideration of geo-biochemical feed backs and to improve the downscaling/upscaling of climate change predictions of extreme hydrological events as well as to develop
new ecohydrological approaches for sustainable water resources management.

2.5. IHP activities in the Arab region:

Most of the Arab countries are located in arid and semi-arid zones known for their scanty annual rainfall, very high rates of evaporation and consequently extremely insufficient renewable water resources. Sustainable Management of water resources is a must as water scarcity is becoming more and more a development constraint impeding the economic growth of many countries in the region. Due to the expanding population in this century together with the increasing per capita water demand and the huge socio-economic developments of the last three decades the need for sustainable use and integrated management of the region’s scarce water resources has become an eminent condition for survival. Many of the surface and groundwater resources in the region are drawn from shared rivers and aquifers respectively, complicating the situation even further. The consequences of water scarcity and conflicts could lead to serious crisis and possible confrontations, if they are not looked at, and dealt with, from a mandatory and equitable sustainable approach.

Current concentration areas of IHP in the Arab Region are Groundwater Protection and Rainfall Water Management, with special emphasis on Wadi Hydrology. Concentration areas are selected during the regional meeting of Arab National Committees, held biannually. Activities in the Arab Region include both research and training.

2.6. Groundwater Protection Network:

UNESCO Cairo office has initiated a regional programme on Groundwater Protection by forming the Groundwater Protection Network in the Arab Region. Groundwater has become vitally important in many of the Arab countries and is therefore increasingly utilized as a vital but rather vulnerable resource. To protect this precious source from over abstraction and pollution IHP has initiated a special theme focusing on the protection of groundwater.

Studies and training activities are now being carried out throughout the region to enable the various countries to make optimum use of their scarce water resources.

Groundwater plays an important role in the overall water resources in most of the arid and semi-arid regions. It is either the main source of water or a complementary source to surface water. It can be renewable or fossil. Therefore, groundwater resources protection should receive high attention in such regions to ensure sustainability of developments.

Groundwater deterioration occurs in various forms, namely, pollution, excessive drawdowns, sea water intrusion, etc. Due to the low travel velocity of groundwater, deterioration may not be detected at real times; and when detected, rehabilitation may either be impossible or very costly. Accordingly, monitoring is one essential activity in the process of groundwater protection. Monitoring of groundwater should be carried out in the framework of integrated systems rather than simple networks. Important tools in this process are databases, geographic information systems, and numerical models.

Groundwater management generally aims at the protection of the resource in the framework of integrated water management. Groundwater management is the second important step after the formulation of water policy in each region/country. Groundwater management deals with both the hardware and the software. The hardware constitutes of various elements, namely, assessment, planning, and research/implementation; while the software consists of the human resources, institutions, the public, and the legislation. All together form a package that aims at the protection of the resource.

2.7. Wadi Hydrology Network:

In 1996, UNESCO Cairo office has initiated a regional programme named “Wadi Hydrology” with the following development objectives:

1. To improve the understanding and knowledge of the hydrological processes in arid and semi-arid zones with emphasis on Wadi Hydrology.
2. To develop the concept of integrated and sustainable development and management of wadi systems and improve methodologies to cope with water scarcity in dry regions.

Several studies, workshops and conferences have been organized by this network. These events helped to enhance the state of knowledge of the hydrology of wadi systems including its processes and interactions. The application of IWRM at the wadi level and using the ecohydrological approach are being studied.

2.8. The Arab Network for Water Ethics (ANWE):

ANWE is a civil society, not-for-profit; regional organization dedicated to water ethics issues in the Arab States. It is for ANWE to incorporate Water Ethics in all the tools of IWRM, which is intended to contribute to alleviating the Arab water crisis. The long term vision of ANWE is “To create a Society of Water Use Ethics”.

The mission of Arab Network for Water Ethics is “to disseminate knowledge, exchange experience, change behaviour, improve social conduct, raise awareness, and publicize success stories in water use ethics”.

ANWE will utilize the wide-ranging expertise in water management in the Arab region, its water research and educational institutions, and in cooperation with a consortium of other research and educational centers, industry, water utilities, non-governmental organizations, and inter-governmental bodies in Arab countries.
The main objectives of the ANWE are to:
1. Develop a specialized applied program that incorporates water ethics in all IWRM tools.
2. Publicize and disseminate information on the ethics of freshwater use as embodied in the work of the COMEST Sub-Commission on the Ethics of Freshwater.
3. Highlight the role of social and cultural variables in the resolution of water-related conflicts in the region, and promote the ethics of trans-boundary rivers collaboration and cooperation.
4. Engage all stakeholders in exploring issues related to the ethics of freshwater use, to develop guidelines for just practices of water technology, water science and water management.
5. Promote an awareness of the social, cultural, and ethical issues involved in technical, political, and demonstrative aspects of water management; through issuing publications and holding workshops for learning.
6. Capacity building of individuals and young professionals in the Arab water sector, with special emphasis on skills building in communication, negotiation, and conflict resolution.
7. Networking with relevant programs, networks and projects within UNESCO and other UN agencies as well as NGOs (e.g. FRIEND -Flow Regimes for International Experimental and Network Data- and HELP-Hydrology for the Environment, Life and Policy).

2.9. Ecohydrology of drylands:

A cornerstone of the IHP strategy, considering that “Water resources and ecosystems” is the principal priority of the Natural Sciences Sector, is joint action with the other international scientific endeavours of UNESCO.

The ecohydrological approach is a vital tool of integrated water resources management IWRM. The most common definition of IWRM is

“A process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.”

Several workshops and meeting were organized by UNESCO Cairo in close coordination with Man and Biosphere Network of UNESCO. The meeting agreed on promoting the following objectives:
- The harmonization of ecohydrology understanding and approaches in the Arab region;
- Identifying of the ecosystem water needs and challenges within IWRM approach in the Arab region focusing on high risk areas;
- Promoting ecohydrology as a tool of IWRM; public awareness, capacity building and educational systems;
- Defining ecohydrological priorities and activities in the Arab region jointly with MAB;
- Identifying ecohydrology pilot project in the Arab region jointly with MAB.

2.10. The FRIEND and FRIEND/Nile Project:

The FRIEND programme is an international collaborative study intended to develop, through the mutual exchange of data, knowledge and techniques at a regional level and a better understanding of hydrological variability and similarity across time and space. The advanced knowledge of hydrological processes and flow regimes gained through FRIEND helps to improve methods applicable in water resources planning and management. FRIEND is a cross-cutting programme that interacts with all five core IHP-VI themes.

The scientific aspects of the FRIEND project include studies in: low flows, floods, variability among regimes, rainfall/runoff modelling, processes of stream flow generation, sediment transport, snow and glacier melt and climate and land-use impacts.

FRIEND also provides support to researchers and operational staff of hydrological services in developing countries, thereby contributing to their capacity to assess and manage their own national water resources. It thus contributes to the goal of providing a reliable supply of fresh clean water to the world’s poor.

2.11. The FRIEND/ Nile Project:

The river Nile is among the largest rivers of the world. The length of the main stream of the river Nile from its mouth on the Mediterranean Sea to its remote source, at the head of river Luvironza, is nearly 6,500 kilometers. The catchment area of the Nile basin is about 2.9 million squared kilometers, which approximately represents one tenth of the area of Africa. The catchment of the river Nile embraces parts of many countries, namely: Tanzania, Uganda, Rwanda, Burundi, D.R. of Congo, Kenya, Ethiopia, Eritrea, Sudan and Egypt.

The FRIEND/Nile Project was initiated by UNESCO in March 1996. It aims at creating more understanding and quantification of the river Nile system in order to enhance the management of the Nile water resources and to improve the planning of water resources projects in the Nile Basin countries. The FRIEND/Nile is, therefore, a very important project in the context of the regional North-South and South-South cooperation.

So far, ten annual steering committee meetings have been undertaken since the initiation of the project (Cairo, Egypt, January 1997; Dar Es Salaam, Tanzania, August 1998; Khartoum, Sudan, July 1999; Cairo, Egypt, August 2000; Cairo, Egypt, December 2001; Aswan, 2003; Mombassa, 2004; Addis Ababa, 2005; Sharm El sheikh, 2005 and Entebbe, 2007). UNESCO succeeded to secure funds for the project from the...
Flemish Government of Belgium. The support was for the duration of four years (2001-2006). The second phase (2006-2010) is also supported by the Flemish Government of Belgium. They are providing technical and financial support for the project.

Within the framework of the second phase of the UNESCO-Flanders Science Fund-In-Trust project, the research themes focus on the use of models in view of the analysis of integrated water resources management guidelines or scenario’s. Climate variability and land use changes are examples of management problems that can be addressed. There are 5 research themes included, mainly:

1) Hydrologic Modelling Component, coordinated by the University of Dar Es Salaam of Tanzania. The activities of this component include:
   - Developing rainfall-runoff models for the available gauged catchments within the Nile Basin in view of the analysis of integrated water resources management guideline;
   - Investigating the impacts of land use change or climatic change on the river flow; and
   - Studying surface/groundwater interactions, if necessary in view of the management problems.

2) Erosion and Sediment Transport Modelling component, coordinated by the UNESCO-Chair in Water Resources of Sudan. The main activities of this component are to:
   - Understand catchment erosion and sedimentation processes in the Nile with in the view of the analysis of integrated water resources management guidelines/scenarios; and
   - Develop guide lines for erosion problems and watershed management in the Nile Basin.

3) Stochastic Modelling component, coordinated by the University of Nairobi of Kenya. This component is focusing on:
   - Developing regional design procedures for estimating flood magnitudes for a given probability of exceedance at gauged and un-gauged sites in the Nile basin; and
   - Analyzing daily river flow data for estimation of low flow magnitudes-duration-frequency relationships as well as drought analysis.

4) Ecohydrology Component, Coordinated by Makerere University of Uganda. The Overall Objective is to enhance the understanding of ecohydrological processes/functions within the Nile River Basin and their application in IWRM. The activities will comprise the following:
   - Establish the water quality objectives for the Nile River Basin.

5) Integrated Water resources Management, coordinated by the Water Resources Research Institute of Egypt. The activities of this component include:
   - Establishing a formal and informal contact, cooperation and networking between universities and research institutions in the region as well as the Flemish research and training institutions in the water sector;
   - Improving the scientific basis for resolving water resources issues relevant to the Nile Basin countries;
   - Improving the institutional aspects of the water resources sector in the participating countries especially in capacity building, regional cooperation and technical exchange;
   - Promoting the professional career in the water resources engineering and management program through training and capacity building activities;
   - Disseminating information and publishing research results; and
   - Linking the FRIEND/Nile with other related regional activities and networks e.g. Nile Basin Initiative.

3. Main results achieved by the FRIEND/Nile Project

1. Exchanging of experience and knowledge between the technical people of the Nile Basin countries;
2. Establishing a formal and informal contact, cooperation and networking between universities and research institutions in the region as well as the Flemish research and training institutions in the water sector;
4. Improving the scientific basis for resolving water resources issues relevant to the Nile Basin countries;
5. Improving the institutional aspects of the water resources sector in the participating countries especially in capacity building, regional cooperation and technical exchange;
6. Promoting the professional career in the water resources engineering and management program through training and capacity building activities;
7. Disseminating information and publishing research results; and
8. Linking the FRIEND/Nile with other related regional activities and networks e.g. Nile Basin Initiative.

4. The seventh phase of IHP: themes and focal areas

As discussed earlier, the themes of the Seventh Phase of the IHP (2008-2013) have been identified based on several levels of consultation with member states and IHP governing bodies. These themes are:

**Theme 1: Adapting to the impacts of global changes on river basins and Aquifer systems**

**Focal area 1.1:** Global changes and feedback mechanisms of hydrological processes in stressed systems

**Focal area 1.2:** Climate change impacts on the hydrological cycle and consequent impact on water resources

**Focal area 1.3:** Hydro-hazards, hydrological extremes and water-related disasters
Focal area 1.4: Managing groundwater systems' response to global changes
Focal area 1.5: Global change and climate variability in arid and semi-arid regions

Theme 2: Strengthening water governance for sustainability
Focal area 2.1: Cultural, societal and scientific responses to the crises in water governance
Focal area 2.2: Capacity development for improved governance; enhanced legislation for wise stewardship of water resources
Focal area 2.3: Governance strategies that enhance affordability and assure financing
Focal area 2.4: Managing water as a shared responsibility across geographical & social boundaries
Focal area 2.5: Addressing the water-energy nexus in basin-wide water resources

Theme 3: Ecohydrology for sustainability
Focal area 3.1: Ecological measures to protect and remediate catchments process
Focal area 3.2: Improving ecosystem quality and services by combining structural solutions with ecological biotechnologies
Focal area 3.3: Risk-based environmental management and accounting
Focal area 3.4: Groundwater-dependent ecosystems identification, inventory and assessment

Theme 4: Water and life support systems
Focal area 4.1: Protecting water quality for sustainable livelihoods and poverty alleviation
Focal area 4.2: Augmenting scarce water resources especially in SIDS
Focal area 4.3: Achieving sustainable urban water management
Focal area 4.4: Achieving sustainable rural water management

Theme 5: Water education for sustainable development
Focal area 5.1: Tertiary water education and professional development
Focal area 5.2: Vocational education and training of water technicians
Focal area 5.3: Water education in schools
Focal area 5.4: Water education for communities, stakeholders and mass-media professionals

Cross-cutting programmes remain as HELP and FRIEND

Associated programmes:
- International Flood Initiative (IFI)
- International Sediment Initiative (ISI),
- Water for Peace: From Potential Conflict to Cooperation Potential (PCCP)
- Joint International Isotope Hydrology Programme (JIHP)
- Internationally Shared Aquifer Resources Management (ISARM)
- Global Network on Water and Development Information in Arid Lands (G-WADI)
- Urban Water Management Programme (UWMP)
- World Hydrogeological Map (WHYMAP).

4. Concluding remarks

UNESCO Cairo Office is implementing the IHP in the Arab States. It is taking the lead on two main themes of IHP-V in groundwater at risk and dryland hydrology through two concentration areas of groundwater protection and wadi hydrology, respectively. The strategy is to consolidate efforts between various national, regional and international agencies in these areas to address these themes. Human resources development and capacity building has been a prime objective of UCO activities. UCO is following the UNESCO approach of result based management in all its activities.

References