



# Arab States Region

8 - 10 October 2012 - Amman, Jordan



**Groundwater Governance**  
A Global Framework for Action



# **GROUNDWATER GOVERNANCE PROJECT A GLOBAL FRAMEWORK FOR ACTION**

***THIRD REGIONAL CONSULTATION***

***ARAB STATES REGION***

***8 - 10 OCTOBER 2012***

***AMMAN - JORDAN***

## **REGIONAL CONSULTATION REPORT**

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# Acronyms

APPM	Assessment, Prognosis, Planning and Management
AGWC/ARRH	African Groundwater Commission Algeria (Agence Nationale des Ressources Hydrauliques)
ASCAD	Arab Center for the Studies of Arid Zones and Dry Lands
BGR	Federal institute for Geosciences and Natural Resources
CADARE	Center for Environment and Development for the Arab Region and Europe
CC	Climate Change
EBM	Ecosystem Based Management
FA	Framework for Action
FAO	Food & Agricultural Organization of the United Nations
GEF	Global Environment Facility
GEO	Global Environmental Objective
GWP	Global Water Partnership
IAH	International Association of Hydrogeologists
IGRAC	International Groundwater Resources Assessment Center
IDP	Internal Displaced Persons
IHP	International Hydrological Programme (UNESCO)
INWEB	International Network for Water and Environment
IR	Inception Report
IUCN	International Union for the Conservation of Nature and Natural Resources
IW Learn	International Waters Learning Exchange and Resource Network
IWMI	International Water Management Institute
IWMR	Integrated Water Resources Management
MAR	Management of Aquifer Recharge
MCM	Million Cubic Meter
MDGs	Millennium Development Goals
MENA	Middle East and North Africa
NGO	Non-governmental Organization
OSS-SASS	Observatoire du Sahara et du Sahel
OECD	Organisation for Economic Co-operation and Development
TSE	Treated Effluent Sewage
UAE	United Arab Emirates
UN	United Nations
UNEP	United Nations Environmental Program
UNESCWA	United Nations Economic and Social Commission for Western Asia
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	United States of America
WB	World Bank

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# 1. BACKGROUND FOR REGIONAL CONSULTATIONS ON GROUNDWATER GOVERNANCE

## INTRODUCTION

The GEF Project “Groundwater Governance: A global framework for country action” focuses on addressing concerns over the depletion and degradation of groundwater resources. The overall project objective is to increase awareness of the importance of sound management of groundwater resources as means to preventing and reversing the global water crisis. The main drivers of groundwater depletion and degradation includes, but not limited to:

- a. Increase utilization of groundwater resources as a result of population growth, pressure caused by climate change impact, and increased urbanization;
- b. Weaknesses of groundwater governance structure; and
- c. Limited knowledge groundwater science and lack of awareness of its role in socioeconomic development.

The project will focus on a set of human behaviors that determine groundwater use and abuse. The aim is to reverse groundwater depletion and unsustainable management by adopting groundwater resources governance that shifts management from institutions to individual water users.

As a final result, the project will develop a global "Framework of Action" (FA), consisting of a set of effective governance tools: guidelines for policies, legislation, regulations and customary practices. The FA will foster the evaluation of groundwater as a key natural resource, and of the social, economic and ecological opportunities that sustainable groundwater management could provide through an interdisciplinary dialogue.

## THE PURPOSE OF REGIONAL CONSULTATIONS

The purpose of the regional consultations is to solicit regional perspectives on the practical application of groundwater governance. The specific objectives are:

- a) Compilation of first-hand knowledge provided by direct local sources - groundwater experts, resource managers and actors in different areas – about the main features of the region;

- b) Discussion about the different subjects that derive from the specific characteristics, challenges and priorities of the region based on case studies elaborated by national experts;
- c) Build partnerships amongst cross-sectoral collaborating project agencies, stakeholders, decision-makers and specialists.

The results of the regional consultations will contribute towards the preparation of a “Global Groundwater Governance Diagnostic”, which will serve as a technical basis for the different stages of the process.

Regional consultations are organized in:

- a. Montevideo, Uruguay, for Latin America and the Caribbean, 18<sup>th</sup> – 20<sup>th</sup> April 2012;
- b. Nairobi, Kenya, for Sub-Saharan Africa, 29<sup>th</sup> to 31<sup>st</sup> May 2012;
- c. Amman, Jordan, for Arab Countries, 8<sup>th</sup> – 10<sup>th</sup> October 2012;
- d. Shijiazhuang City, China, Asia , 3<sup>rd</sup>-5<sup>th</sup> December 2012; and
- e. The Netherlands, for USA, Canada, Europe including SEE, Central Asia and a day devoted to the Private sector, March 2013.

## 2. REGIONAL CONSULTATION FOR THE ARAB REGION

The third regional consultation for the Arab region was carried in Amman, Jordan October 8<sup>th</sup> till the 10<sup>th</sup>, 2012. The consultation was organized through UNESCO-IHP network and was designed to bring together a set of groundwater practitioners and policy makers.

In total 19 countries were invited: Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen. Each invitation included the Groundwater Governance Questionnaire for invitees to fill before the workshop.

Sixty nine participants from twenty six countries attended the workshop. Annex 6 includes the full list of participants. The workshop included 7 Plenary Sessions, 2 Breakout Sessions, and 6 Working Groups. It was co-hosted with the Ministry of Water and Irrigation and under the patronage of the Jordanian Minister of Water and Irrigation, Engineer Mohammad Najjar who personally attended the opening ceremony, welcomed the guests and gave brief opening remarks. Representatives from UNESCWA (Carol Chouchani), IAH (Shammy Puri), WB (Marcus Wijnen), FAO (Mohamed Bazza), UNESCO (Anna Paolini, Intisar Al-Qhiwin), and UN Resident Coordinator (Costanza Farina) also welcomed the guest and gave opening remarks.

The workshop received excellent media coverage (Annex 1 links to all the media coverage of the event).



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The final Workshop Agenda is included in Annex 2, and the full text of the opening ceremony speeches is included in Annex 3.

## 2.1 QUESTIONNAIRE ANALYSIS

A questionnaire on groundwater governance that included 13 questions was sent to all invited participants from the 17 countries Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, Yemen, and United Arab Emirates (UAE). All responded but for Qatar, and Syria.

In total, 24 filled questionnaires were received:

- 15 filled by individuals representing their countries;
- 9 filled by representative of institutions.

<b><u>24 filled questionnaires</u></b>	
<b>Countries</b> (15)	Algeria, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Saudi Arabia, Sudan, Tunisia, Yemen, and United Arab Emirates
<b>Institutions</b> (9)	AGWC/ ANRH Algeria; ACSAD Syria; BGR (2); IAH Morocco, UN-ESCWA Lebanon; UNESCO Chair Sudan; UNESCO Chair Jordan; CADARE

**1. To your knowledge, which institutions are involved in groundwater governance in your area/country? Should additional ones be involved?**

In all the countries of the Arab region the government is the main entity responsible for water governance.

Several governmental institutions were listed as having a role in water governance mainly the agencies responsible for water, agriculture, irrigation. Additionally, the government body responsible for health was also listed by a high number of respondents.

In some countries, the government body responsible for municipalities was identified as having a role in water governance.

In Algeria, Morocco, Yemen and Sudan, representatives of local users and associations have a role in water governance.

Some recommended adding new institutions primarily Academia and Research Institutions. From the questionnaires only Tunisia indicated that educational and research institutions are currently involved in water governance.

In one of the questionnaires representing “Institutions” several regional, national and international bodies were mentioned as having a role in water governance including League of Arab States, United Nation Organizations, Regional and International Institutions. However, none of these were mentioned in the country questionnaires, only Lebanon mentioned UN organizations as having a role.

**2. Do adequate groundwater institutions exist at different government levels (national/sub-national /local) acting in your area/country? In what aspects should they be supported?**

The predominant feeling by country representatives was that adequate institutions exist especially at the national level. Some expressed concerns about the ones at the local level.

Many of the representatives of institutions felt that adequate institutions don't exist, and if they do, they need a lot of support.

All, but for UAE, felt that some sort of support is needed.

Capacity strengthening and building was the main support identified especially training of staff, availability of material and budgetary support.



Developing strong information management and monitoring systems was another priority. Various aspects under this were listed.

Some mentioned the need for legislative and/or policy support. A few mentioned the need for support to strengthen coordination and cooperation channels. Financial support was also mentioned.

### **3. What are the groundwater governance priorities at the different government levels (national/sub-national/local) in your area/country?**

Every country had specific priorities. Mostly these revolved around management of groundwater, securing water supplies and legislation. Priorities mentioned can be grouped into the following:

#### Technical Level priorities:

- Improving monitoring and surveying of groundwater.
- Developing reliable data systems and/or modules for quality and quantity.
- Limiting abstraction to sustainable levels (controlling over-abstraction).
- Protecting groundwater quality from contamination.
- Creating/ defining protection zones.
- Promoting water conservation (agriculture was mentioned specifically in a couple of instances).
- Training and capacity building of staff.

#### Legal Level priorities:

- Enforcing groundwater legislations especially.
- Formulating clear policies, strategies and plans.
- Regulating abstraction
- Controlling licensing for drilling and pumping; transparent licensing; transfer of licensing mandates.
- Water allocation plans.

#### Infrastructure Level priorities:

- Implementing water supply projects to provide (potable) water to the population.
- Groundwater recharge techniques or dams.

#### Other Level priorities:

- Promoting water conservation and increasing public awareness was mentioned by some as was increasing public engagement and stakeholder involvement.

**4. Do formal groundwater policies and legislation exist in your area/country? If so, are they applied and enforced?**

Other than Sudan and Lebanon that indicated they are in need of policies as they either have old policies (Lebanon) or fragmented and in draft form policies (Sudan) all other countries in the region indicated they have formal groundwater policies and legislations exist.

Most indicated that although policies exist, enforcement is lacking. In most countries policies are either not enforced or partially enforced. Only Oman indicated that their groundwater policies are enforced.

**Specific Laws include:**

**Algeria:** Law No 05-12 of 2005

**Jordan:** Groundwater management policy and Groundwater bylaw

**Morocco:** Law 10-95.

**Oman:** Promulgating of Water Resources Protection Law, Promulgating Environmental Protection and Pollution Control Law.

**Yemen:** Water Law and the National Strategy for the Water Sector.

**5. What are the challenges and barriers to groundwater governance in your area/country? Why?**

Each country has its specific challenges and barriers, but there were many common challenges, these were:

- Groundwater pollution and declining water quality.
- Lack of well trained and/or motivated staff.
- Limited funding.
- Lack/inadequate political will. Some mentioned the continuous shuffling and changing in the institutions.
- Weak institutions.
- Groundwater overexploitation and declining groundwater levels.
- Lack of enforcement of laws and policies.
- Weak understanding of groundwater systems.
- Growing populations and water demands.
- Limited water resources.
- Lack of coordination between involved sectors.
- Lack of information and/or data and/or needed technology.

Other challenges mentioned to a lesser extent include:

- Lack of awareness.
- Weak monitoring systems.
- Fragmented or overlapping responsibilities
- Lack of legislations/ policies.
- Limited community participation.

Other challenges were mentioned but those were country specific.

**6. What are the main problems related to groundwater quality/quantity in your area/country? What are the scales (national/subnational/local) of the main problems?**

**Groundwater Quality:**

The main problem identified is rising salinity levels and declining water quality. Main pollutants were agricultural activities and wastewater contamination from nearby populated areas. Some respondents point to industrial activities and oil related activities as pollutants. Sea water intrusion was also mentioned by some of the coastal countries.

**Groundwater Quantity**

The main water quantity problem was limited water availability (scarcity) and increased demand. This led to overexploiting groundwater resources which led to declining groundwater levels. Some expressed concerns over exploiting nonrenewable/fossil aquifers.

**7. What is the best way to increase the level of investment in groundwater governance at local, national and regional levels, and what are the main investment needs?**

The main investment needs

Most respondents agreed that investment is needed for establishing strong groundwater monitoring systems and management models that monitor both quality and quantity of groundwater. In some countries where systems are non-existent or limited, new systems need to be established, while in the remaining countries current systems need to be evaluated and upgraded. New technologies and equipment are needed and the capacity of the staff involved needs to be built.

The second most identified need was public education and stakeholder engagement. A few indicated that targeted education towards decision makers is needed.

Building the institutional capacity of the agencies managing water and groundwater was another top identified need. This involves staff training, introduction of new technologies and needed equipment, plus establishment of proper management tools.

Some identified the need for appropriate policies, regulation or legal mandates. While a few identified enforcement of laws as needed.

A few questionnaires identified water harvesting for groundwater recharge as a need.

#### The best way to increase investment in groundwater governance

Only some respondent answered this part of the question, and these mostly identified privatization and private sector involvement as the way to increase investment in groundwater governance.

Encouraging water utilities to invest in wastewater treatment and recycling and pursuing funding from the international community were mentioned by few.

#### **8. How could an interdisciplinary dialogue on groundwater governance among public, private, academia, and civil society partners, and between rural and urban partners, be established and sustained?**

Several thoughts were presented for bringing an interdisciplinary dialogue that can be sustained, but the following three were dominant:

1. Establish real and transparent partnership between the public, private, academia, and civil society groups. All stakeholders must be invited and brought together; a public dialogue initiated.
2. Carrying public education/ outreach campaigns and initiatives that will increase awareness of groundwater issues, challenges and options.
3. Creating a designated structure or recognizable body (i.e. forum, agency, ministry, steering committee) to assume this mandate of bringing stakeholders together and initiating public dialogue. Some elaborated that this body should be governed with the needed legal status. In some countries these structures exist but may need reactivation and/or strengthening.

#### **9. What are the important steps or actions needed to establish a shared regional vision on groundwater governance? How do you see the role of your institution in achieving such an outcome?**

The step that most participants agreed on is establishing a common understanding of the situation, issues and future challenges. This was evident by the repeated calls for one of the following, if not both:

1. Establish a mechanism or communication system for continuous data exchange and dialogue between the different parties/regions/countries involved at the policy, technical and scientific levels (regional meetings were considered by some as a way to share information).
2. Establish shared regional databases/ monitoring systems.

Another step widely recommended is establishing a recognized regional structure to coordinate river/ aquifer basins matters. There wasn't consensus on the nature of this structure, some mentioned entity, others committee, some referred to regional agreements while others settled for organizing a regional forum or consultation dialogue for sharing information.

To a lesser extent, some identified involvement of key stakeholders, and carrying comprehensive assessments as needed steps for establishing a shared regional vision on groundwater.

#### Role of your institution:

Not all responded to this part of the question. For the ones who responded, most answers revolved around two main approaches:

1. Continue current involvement in regional and international initiatives that support the exchange of experience and knowledge and building of capacities such as the UNESCO International Hydraulic Program (IHP) and the Arab Network on Groundwater Protection.
2. Continue supporting on-going initiatives that upgrade knowledge by providing experts and scientists.

#### **10. What are the main local problems and required steps needed to establish an effective action to solve them and to improve local groundwater governance? How do you see the role of your institution on supporting local actions?**

A repeated problem was over-exploitation of aquifers, and the decline of ground water quality and quantity.

Other local problems vary among countries but most problems and required steps were identified and listed under the previous questions.

Role of your institution:

When identified it related to providing technical support and /or acting as catalyst for groundwater governance.

11. **If you work in or have knowledge of a particular case study related to groundwater governance in your area, please provide a very brief description of it—including characteristics of the groundwater (i.e.: aquifer), area, scale, use, stakeholders, institutional setting, actual groundwater issue/s.**

**Groundwater assessment in Greater Darfur IDPs (Internal Displaced Persons) camps:** a comprehensive assessment was carried to identify the main aquifer systems serving the IDPs areas in Greater Darfur. Each aquifer was assessed to determine storage capacity and extraction levels.

**Managed Aquifer Recharge (MAR) program in Bahrain:** this was part of a wider national integrated water resource management effort which looked at alternative scenarios related to the reuse of Treated Sewage Effluent (TSE) at selected potential MAR sites to recharge an aquifer, as intermediate storage with future use in agriculture and/or to use the injected water as a hydraulic barrier to combat increasing saline intrusions, to reuse the TSE in industrial applications e.g. for cooling, to increase existing reuse of TSE directly in agricultural irrigation. Additionally MAR is also discussed in the context of injecting surplus storm runoff water and/or surplus desalination product water due to seasonal variations in demand.

**El Bsissi aquifer in Tunisia:** El Bsissi is a coastal aquifer that suffers overexploitation and sea water intrusion. An agricultural development group representing all beneficiaries was established to help manage the resources of this aquifer. It is responsible for monitoring the abstraction of the resources of this aquifer, the salinity levels.

**The Gash River Groundwater Basin in Sudan:** is the sole provider of water to numerous villages. Water levels started to decline and many wells dried-up prematurely. Investigations were carried and legislation passed with no rigorous compliance and situation didn't improve. The legislation was amended and a water board formed together with the establishment of a well licensing system coupled with enforcement. This hugely improved the situation.

**Integrated Assessment, Prognosis, Planning and Management Tool (APPM) in Oman:** developed a model that incorporates meteorological, hydrological, agricultural interactions taking into account the socio-economic aspects. The first applications of APPM sub-modules show promising results.

**Contract Management of aquifers in Morocco:** contract on the Souss aquifer in the Agadir region implemented. In the Moulouya basin, contract is under preparation for two aquifers (Triffa aquifer and Figuig aquifer. Institutions include the Moulouya River Basin Agency, the agricultural services, the irrigation water users associations.

**High Land Water Forum in Jordan:** created in 2009, the Forum offers stakeholders a platform to discuss and agree on concrete measures to achieve sustainable groundwater management. The Forum brings together conflicting water users including the government, farmer representatives, civil society groups, and academia. The objective is to discuss the causes for dwindling groundwater resources, and to collectively think of creative solutions and collectively develop an Action Plan for sustainable management of groundwater resources.

**Azrak Basin in Jordan:** The over pumping in this basin exceeds 50 MCM compared to 24 MCM safe yield resulting in a significant drop in the water table and the drying of the Azraq Oasis. More than 50% of GW is being used for agriculture.

**The Nubian Sandstone Aquifer System:** is a transboundary, non-renewable groundwater basin in the North Eastern Sahara of Africa (Chad, Egypt, Libya, and Sudan) that includes one of the largest freshwater masses in the whole world.

**Collective Irrigation Scheme in Libya:** Given the sharp water level decline south of the capital city of Tripoli, the water authority introduced a “collective irrigation” scheme that aimed to save the good quality water and providing lower quality water for irrigation. Extensive surveys were carried along with stakeholder dialogues but unfortunately the project did not continue.

**National Council for Scientific Research in Lebanon:** has been monitoring groundwater resources since 1997 including the major processes of groundwater flow from terrain surface to the beneath substratum. Results showed a decrease in the number of fresh water springs in the sea and a drop by 10-15 m of the groundwater level in the major aquifers along with deterioration of quality. Results show a need to raise public and farmers’ awareness to protect the groundwater quality and public health.

**Jeita-Cave Protection Project in Lebanon:** this is the main spring that feeds many cities in Lebanon. Tracer tests were conducted to delineate the catchment area and produce vulnerability map and recommend protection methods.

**Wafra Farmers Case in Kuwait:** farmers occupy two main areas Abdally in the north and Wafra in the south. The litho-logical and hydro-geological dip in Kuwait is from SW to NE. This natural distribution led some of Wafra farmers to illegally drill resulting in overflow of water which damaged farms and adjacent areas including roads. A national

committee of all stakeholders was established to solve the problem and all illegal wells were closed. This case demonstrates that laws without enforcement and monitoring are worthless.

**La Mitidja Aquifer in Algeria:** this is one of the most intensively exploited aquifers in Algeria and has been the subject of numerous pilot studies, management models, cartographic studies, vulnerability studies, and pilot projects on artificial recharge. Significant conservation actions were initiated such as establishing protection zones for groundwater quantity and quality, and discontinuation of pumping in vulnerable areas.

**National Water Resource Agency in Algeria:** has completed mapping the groundwater resources in northern Algeria whereby they updated the national inventory of all water points, identified all aquifer systems in northern Algeria and updated the national geological data, developed 42 hydro-geological maps and quantified the resource.

**12. What is your key message on groundwater governance and to whom would you like to address it?**

Respondents suggested numerous key messages that mainly revolved around the following themes:

- Effective cooperation is needed at all levels and between different stakeholders, especially between competing sectors in order to preserve this vital resource for future generations.
- Groundwater is a scarce and vulnerable strategic resource that must be monitored, well managed, conserved, and protected to ensure its sustainability and protect its quality and quantity.
- Groundwater resources are being overexploited and not treated with care. It is an undervalued commodity.
- Reform in managing groundwater resources is urgently needed before destroying this essential resource.
- Groundwater resources are vital for Arab countries as in many countries it is the only water source.
- Managing Groundwater resources must be a priority concern to decision makers. “Political will” is needed.
- Strengthening the capacity of professionals working in the water sector is needed.
- Appropriate legislations and polices are required to protect groundwater and control exploitation.

**The majority of respondents addressed their message to decision makers.**



### 13. How you define the Groundwater Governance for Arab States?

There were different definitions for Groundwater Governance in the Arab States that varied to the extent that it is difficult to sort them. Below are some of these definitions.

*“Groundwater governance for the Arab States can be defined within the context pooling of the groundwater, land, human, technological, and financial resources for the beneficial achievement of water and food security for the region in a sustainable manner.”*

*“At the level of Arab countries there is weakness in communication and in exchange of information, especially on transboundary aquifers.”*

*“Not well established yet.”*

*“... groundwater governance go hand in hand with current political developments in many Arab States (i.e. moving towards more transparency and accountability).”*

*“Groundwater governance in the Arab States varies in its sustainability and effectiveness. However, it is mainly driven by the political system in the first place then by the economic factors. The civil society is becoming an important stake holder, especially, if it has ties with the private sector.”*

*“I wish the Arab States have a good GW governance because practice on the exploitation of fossil GW showed mismanagement instead of the care for the best use of strategic source. Even the renewable GW is not properly managed in many Arab countries. This pressure will be accelerated with climatic variability and changes in rainfall pattern and intensity...”*

*“Most Arab States are dependent almost entirely on groundwater and therefore good groundwater governance is of utmost necessity for the sustainability of this precious resource. It can be briefly stated as the collective sound management of the resource for the benefit of present and future generations.”*

*“Currently, it’s decisions that define expectations, and grant power, that are not necessarily enforced.”*

*“Groundwater Governance in the Arab States is still needs to be upgraded and developed, especially in irrigation activities. Also there is a lacking on the initiation of integrated cycle on groundwater governance in the Arab States”.*

*“Groundwater governance for Arab countries must be controlled especially for transboundary aquifers”.*

*“GW governance in the Arab region is not different from that of anywhere else.”*

*“States should feel responsible towards their citizens to manage and protect groundwater adequately so that every citizen will get drinking water in sufficient amounts, adequate quality and at an affordable price.”*

*“Groundwater governance should be defined into the general concept of IWRM concept which has the objective to satisfy the water demand, at present and future.”*

*“Not effective and not enough”*

*“Groundwater governance in Arab countries remains below the obligations and below what is anticipated and expected, given the scarcity of resources and the flagrant and continuously increasing imbalance between supply and demand.”*

*“It is suggested not to develop a separate definition for Arab States but rather look for a global definition that includes any necessary regional considerations, if any.”*

## **2.2 PLENARY SESSIONS**

The workshop included 7 plenary sessions:

Plenary Session 1:	Setting the scene of the Groundwater Governance
Plenary Session 2 & 3:	National and Regional Experiences on Groundwater Governance
Plenary Session 4:	Presentation of Regional and International Programmes
Plenary Session 5:	Panel on Groundwater Governance in arid and Semiarid Regions
Plenary Session 6:	Panel: how to strengthen effective Participation of Civil Society in Groundwater Governance

### **PLENARY SESSION 1:           SETTING THE SCENE OF THE GROUNDWATER GOVERNANCE**

The objective of this session was to set the stage for the consultative workshop and for constructive Groundwater Governance discussions. The session started with a video message from the consultative discussion of Africa in Nairobi, followed by an introduction by Andrea Merla to the Groundwater Governance project. It was

emphasized that this is not a scientific conference but rather a venue to talk and share and open up our thinking.

This was followed by a joint presentation by Robert Varady and Sharon Megdal from the University of Arizona on “Thematic Paper on Groundwater Policy and Governance”. This paper is the centre piece of 12 thematic papers and is the first attempt to view groundwater globally. Among its objectives: develop a working definition; review local and multinational institutional governance arrangements and types of instruments; and assess various groundwater models.

FAO representative Mohamed Bazza then shared FAO’s Study on Groundwater Management in the Near East Region. His presentation gave an overview of the groundwater situation in the region. A main message on Groundwater governance in the region that could be drawn from his presentation is that “Governments are well advanced in dealing with physical resources, making progress with management capacity, but there is little progress with accountability mechanisms.”

Plenary Session 1 concluded with a presentation by Aziza Akhmouch on OECD’s Water Governance Programme. She gave a quick overview of their programme which takes a think tank approach to providing advice on water policy by examining the gaps between science and policy, what policies are needed and how they should be implemented. She also gave an overview of the main results. In March 2013, OECD will kick-off a Network on Water Governance, the objectives of this network: one-stop-shop on governance issues, monitor implementation of targets through thematic working groups, plus create a policy forum towards principles on water governance.

The detailed rapporteurs’ report for plenary sessions are included in Annex 4. The full presentations can be accessed at Groundwater Governance Project website - Arab States region page.

Plenary session 1 ended with a Panel discussion entitled “Governance of Groundwater Resources: a Worldwide Concern”, facilitated by Shammy Puri. Panelists were Aziza Akhmouch (OECD), Alice Aureli (UNESCO-IHP), Mohamed Bazza (FAO), Carol Chouchani (UNESCWA), Sharon Megdal (University of Arizona), Andrea Merla (International Expert), Robert Varady (University of Arizona), and Marcus Wijnen (WB).

Main questions raised by participants during the panel discussion:

1. The ultimate goal of the project;
2. Accountability as many of the solutions are outside the water sector and dependent on decision making outside the sector;

### 3. The role of UNESCO centers.

The session was concluded with the agreement that the objective of this project is developing a global framework for groundwater governance, noting that different models of governance were possible. Input is needed from all participants as it is their consultation and their opportunity to include their point of view.

For the detailed proceedings of the discussion, refer to Annex 4 - Plenary Sessions: Rapporteurs' Reports.

#### **PLENARY SESSION 2 & 3: PRESENTATION OF NATIONAL AND REGIONAL EXPERIENCES IN GROUNDWATER GOVERNANCE**

During Plenary Sessions 2, and 3, several country representatives gave a summary of the groundwater governance situation in their respective countries: Sudan, Oman, Jordan, Bahrain, Egypt, Lebanon, Libya, United Arab Emirates, Palestinian Authority, Algeria, Tunisia, and Saudi Arabia.

Presentations covered: the current water situation, institutional and legal structure that governs the sector, on-going efforts, main challenges, and recommendations. Egypt's presentation covered two case studies (Siwa and Uwinat Aquifers programs). At the end of each plenary a 15 minute questions and answers period was allowed.

Below is a list of the presentations and presenters, to access the full presentations visit the Groundwater Governance Project website - Arab States region page. Additionally Annex 4 includes the Rapporteurs' reports.

- ❖ Status of Groundwater Governance in Sudan, by Mohamed Khalafall Ahmed.
- ❖ Status of Groundwater Governance in Oman, by Ahmed Said Hilal al Barwani.
- ❖ Groundwater Governance in Jordan, by Ali Subah.
- ❖ Groundwater Governance in Bahrain, by Waleed AlZubari.
- ❖ Groundwater in Egypt, Challenges and Related Control Actions, by Madiha Hassan.
- ❖ Groundwater Governance in Lebanon, by Talal Darwish.
- ❖ Water Management and strategy in Libya, by Omar Salem.
- ❖ Status of Groundwater Governance at the United Arab Emirates, by Ahmed Ali Murad.
- ❖ Groundwater Governance, by Omar Zayed.
- ❖ La gestion des souterraines en Algeria, by Abdelmadjid Demmak.
- ❖ Status of Groundwater Governance in Tunisia, by Moncef Rekaya.

- ❖ Water Governance in Saudi Arabia, by Abdulrahman Al-Dakheel.
- ❖ Water Governance in Morocco, by Mohamed Aboufirass.

#### **PLENARY SESSION 4: PRESENTATION OF REGIONAL AND INTERNATIONAL PROGRAMS**

During Plenary Session 4, seven regional and international case studies or initiatives were presented, concluding with a 15 minute questions and answers period. Below is a brief synopsis of the case studies presented, to access the full presentations visit the Groundwater Governance Project website - Arab States region page or check annex 4 for the Rapporteurs' reports.

- ❖ Ecosystem Approach for the Management of Fresh Water Resources - Fouad Abousamra (UNEP-ROWA): presented the Ecosystem Based Management (EBM) tool developed by UNEP to facilitate sustainable water resources management, and outlined the tool implementation steps.
- ❖ Water Resources and Governance – Mohamed Elrawady (CEDARE): gave a brief about three different on-going CEDARE activities related to water governance: 1) developing a national water resources plan for Egypt, 2) institutional mapping of Alexandria, 3) non-renewable groundwater exploitation plans (Egypt, Saudi Arabia and Sub-Sahara).
- ❖ The SASS Experience : Lessons Learnt on the Governance of Transboundary Groundwater Resources Management – Djamel Latrech (OSS – SASS): presented the case study of management efforts of the SASS aquifer system that is shared between Algeria, Tunisia and Libya.
- ❖ Shared Water Resources in Western Asia – UNESCWA inventory – Yusuf Al-Mooji (UNESCWA): gave an overview of the UNESCWA initiative to develop an inventory of shared surface and aquifer systems in the Arab countries. It was noted that this inventory also includes maps. Additional information is available on the project website [www.waterinventory.org](http://www.waterinventory.org).
- ❖ Developed Toolkit on Groundwater Operational Management as a Tool for Enhancing Groundwater Governance in the Arab region – Abdelaziz Zaki (UNESCO-Cairo): covered background information on the regional water situation and the main constrains (technical, legal, operational), then presented an overview of the developed toolkit that aims to improve the management and operational skills of managers, technical staff and stakeholders for better groundwater governance.
- ❖ On-going global projects related to groundwater governance project – Jac van der Gun (GEF-UNESCO projects): covered the characteristics of messages that need to be developed and communicated for good water governance. Presented two

global initiatives: a) IW: Science-Groundwater; b) Transboundary Waters Assessment Programme. Drew from global initiatives a list of lessons learned for groundwater governance.

Main questions raised by participants during the questions and answers discussion:

1. The legal framework in Arab countries in relation to developing inventories of shared aquifers;
2. How data can be harmonized in transboundary aquifers;
3. Options for implementation of the EBM tool;
4. How previous reports can be made accessible.

### **PLENARY SESSION 5: PANEL ON GROUNDWATER GOVERNANCE IN ARID AND SEMIARID REGIONS**

The panel was facilitated by Andrea Merla and Waleed AlZubari, panelists included: Fouad Abousamra (UNEP-ROWA), Khaled AbuZeid (CEDARE – AWC), Yusuf Al-Mooji (UNESCWA), Muhammad Al Rashed (Kuwait), Djamel Latrech (OSS – SASS), Ralf Klingbeil (UNESCWA), Wael Seif (ACSAD), Mohamed Shatanawi (UNESCO Chair - Jordan), Omar Salem (Libya), Jac van der Gun (International Expert), Abdelaziz Zaki (UNESCO Cairo Office).

The discussion was divided into three sections, each focused on a specific matter related to groundwater governance. These were:

1. Managing aquifer recharge. This portion started with a brief presentation by Ralf Klingbeil (UNESCO) that demonstrated the importance of aquifer recharge and listing cases from the MENA region. Subsequently, the panelists' shared their experiences and views on managing aquifer recharge listing examples from the region. After that the participants were given the floor to share experiences from their country or ask questions.
2. Renewable vs. non renewable and sustainability issues. An open discussion in which participants and panelists shared their perspectives and ideas on the issue. The importance of agreeing on what renewable vs. nonrenewable aquifers are, and the criteria used to define the aquifer. The definition of sustainability was also discussed and experiences from the region shared.
3. Transboundary aquifers and shared water resources. All countries in the MENA region have transboundary aquifers that they share with their neighbors. The

discussion was kicked-off by the Panel Chair with the question: What is the experience in the region? What worked, what didn't? Experiences from Egypt and Libya were shared.

For the detailed proceedings of the discussions, refer to Annex 4 - Plenary Sessions: Rapporteurs' Reports.

### **PLENARY SESSION 6: PANEL: HOW TO STRENGTHEN EFFECTIVE PARTICIPATION OF CIVIL SOCIETY IN GROUNDWATER GOVERNANCE**

The panel was chaired and facilitated by Vanessa Vaessen, panelists included: Abdalla Abdelsalam Ahmed (UNESCO Chair in Water Resources Sudan), Faiza Bouchama (AMCOW-ANRH Algeria), Asma El Kasmi (UNESCO Chair Water and Gender), Mufleh Abbadi (IUCN), Muhammad Shatanawi (UNESCO Chair Wadi Hydrology Jordan), Jacques Ganoulis (INWEB), Abdulla M. Al-Thary (NWR Authority, Yemen).

The session started with a 3-minute address by each panelist on how to strengthen effective participation of civil society in groundwater governance. Main points raised: groundwater is different than surface water because we cannot see it and feel it, also many stakeholders are involved and bringing their perspective into the dialogue is very important. Careful crafting of messages must happen to ensure that the proper message is being conveyed.

An open discussion with participants followed. The main questions/comments raised:

- Scaling the participation process;
- How do we divide and segment our target for water awareness to be able to identify the opportunities?
- How do we deal with strengthening water governance through bringing together the perceptions of all those who directly use and benefit from groundwater and those who don't?
- How to interact with local communities and civil societies in a participatory approach?
- Well drillers are a main stakeholder and the control of illegal drilling should be tackled through involving this group.
- Capacity is lacking on both sides: the users, and the technical water agencies. It is important to have local champions.

After the panel discussion two presentations were given:

- ❖ Groundwater Governance for Global Groundwater Resource Assessment and Monitoring Center - Ebel Smidt: IGRAC is a UNESCO center that offers a platform for discussion of problems and solutions related to groundwater. It aims to be a main portal for groundwater knowledge. He gave a brief on select IGRAC activities related to governance and communication, as well as discussed the main objectives of the Center. [www.un-igrac.org](http://www.un-igrac.org)
  
- ❖ GEF IW: Learn Project, Groundwater Talks initiative, Groundwater Community of Practice and Permanent Consultation Mechanism – Lucilla Minelli: she gave an overview of the knowledge management activities that the GF are undertaking (IW:Learn project, Groundwater Community of Practice Project, Groundwater Portfolio Analysis report, and the Groundwater Talks initiative).

To access the full presentations visit the Groundwater Governance Project website - Arab States region page.

## **2.3. WORKING GROUPS**

The workshop included two breakout sessions, during each session participants were divided into three Working Groups (WG). In total six WG discussions took place over the three-day workshop:

- WG 1: Competing Demands for Groundwater.
- WG 2: Groundwater in the Face of Climate Change.
- WG 3: Securing Sustainable Financing for Groundwater Resource Governance.
- WG 4: General Policies and Principles for Groundwater Governance
- WG 5: Groundwater Governance in Arid and Semiarid Regions
- WG 6: How to Strengthen Effective Participation of Civil Society in Groundwater Governance

Each participant chose the group he/she wanted to participate in.

### **WG 1: COMPETING DEMANDS FOR GROUNDWATER**

Facilitator: Mohamed Bazza (FAO)      Rapporteur: Djamel Latrech (OSS-SASS)



WG1 was tasked with discussing competing demands for groundwater, and identifying some of the most pressing challenges plus making recommendations for improvements. Specific questions to guide their discussions included:

- Q1. What is the extent of conflicts between groundwater uses in the region and how are these conflicts addressed?
- Q2. Is there a need for a very significant reform of current institutional and regulatory arrangements?
- Q3. How to increase public awareness, concerted dialogue amongst stakeholders and data sharing among agencies?

### **Main findings:**

- Conflicts exist between major water users such as agriculture versus domestic water users. Conflicts also exist between sectors and regions.
- Water laws exist, but enforcement of these laws and regulations is problematic.
- Managing water services by the line ministry alone, is not sufficient.
- A lot of reform has happened in the region, but much more is needed.
- The infrastructure and the institutions exist in many countries. Implementation is what is needed.
- Need to go beyond science to involving stakeholders and considering their interests and issues.
- Need to review national food security strategies with due consideration to water and groundwater governance.
- There is a lack of trust between governments and water users and main stakeholders.
- Sharing data and information is difficult. Researchers have difficulty getting needed information.
- There is limited coordination between government and water users regarding prioritization, planning and allocation.

### **Recommendations:**

- Water laws must be the driving force for resource development and management in the Arab region.
- Need clear and well defined water rights.
- Gradual voluntary withdrawal from less economical agriculture coupled with an incentive scheme for farmers is required. This will release water to meet domestic needs.
- Law enforcement and public awareness are effective means for achieving better water governance.
- Need to involve all stakeholders in management of water resources.

- Adopting water cost recovery is necessary to improve management.
- Conflicts have to be resolved at national, watershed, and aquifer levels. This should happen through dialogue and mutual understanding between stakeholders.
- Part of the solution lies in finding alternative water sources (such as treated wastewater) to be traded against fresh water.
- Mandates and structures of public institutions need to be revisited and their capacities strengthened.
- Oil companies are major water users, as such they must be considered as stakeholders for negotiating solutions.
- Awareness targeting decision-makers is needed and should be separated from awareness targeting the public (different messages).
- Sharing public information with users and stakeholders should be included in the regulations and enforced.
- Populations are sensitive to real issues and respond to them, especially when raised by “champions” and trust the pursued goal.
- Awareness creation (on GW governance) is highly needed, including long-term awareness efforts through education.

## **WG 2: GROUNDWATER IN THE FACE OF CLIMATE CHANGE: CURRENT POLICIES AND THE FUTURE**

Facilitator: John Chilton (IAH)

Rapporteur: Walid AlZubari (Bahrain)

WG2 was tasked with discussing the subject of groundwater in the face of climate change (CC) and coming up with the main challenges and a list of recommendations for improvements. Specific questions to guide their discussions included:

- Q1. Do we have enough information to establish realistic scenarios that can be considered into groundwater governance programmes?
- Q2. How to consider population growth and demand uncertainties?
- Q3. How to fully integrate artificial recharge and wastewater treatments?
- Q4. What role for desalination?
- Q5. How to ensure preservation and restoration of coastal aquifers?
- Q6. How to consider adaptations measures in the governance framework??

### **Main findings:**

- There will be less water in the future (this should be conveyed to Politicians) and it will be more expensive to provide water for the ever-increasing demand.
- Although groundwater is expected to be less vulnerable to CC than surface water, both will be significantly impacted. Impacts can be direct ( less recharge to shallow GW) and indirect ( increasing demands on deep GW).

- It will become important to use GW as a buffer resource to climatic variability.
- Available adaptation options include activities on the supply side such as using non-conventional water (desalination), waste water reuse, and water harvesting especially groundwater recharge dams which is an important option for the region.
- Available adaptation options include activities on the demand side that aim to conserve water and increase water use efficiency.
- Demand side adaptation activities especially those concerning the agricultural sector are more cost-effective.
- There are some good examples of adaptation to CC in the region (Tunisia, Oman, and Egypt).
- Some countries in the region don't have control over their own water (West Bank, Gaza, Southern Lebanon, Golan Heights) to govern it.
- Over-arching crucial issue is groundwater monitoring both in term of quality and quantity. If you cannot measure groundwater, you cannot manage it, and thus cannot govern it.

### **Recommendations:**

- Need to advise politicians and stakeholders using the proper tools that the era of increasing water to meet increasing demands has ended and that a shift towards reduction of consumption and adaptation needs to start.
- Policy makers need to understand that protecting and preserving groundwater is part of increasing society's resilience to climate change impacts.
- Adaptation activities (supply and demand) for the region need to be assessed and prioritized based on cost-effectiveness.
- Adaptation solutions need to be analyzed out of the water box, as most of the solutions are outside the water sector control domain, e.g., transforming to a less water-dependent economy (food security, employment, farmers); changing population policies.
- Climate change adaptation needs to be integrated in national water resources planning and management.

## **WG 3: SECURING SUSTAINABLE FINANCING FOR GROUNDWATER RESOURCES**

### **GOVERNANCE**

Facilitator: Marcus Wijnen (WB)

Rapporteur: Ebel Smidt (IGRAC)

WG3 was tasked with discussing how to secure sustainable financing for groundwater resource governance and identifying the main challenges and recommendations.

Specific questions to guide their discussions included:

Q1. What needs to be financed: knowledge, institutions, monitoring or processes?

- Q2. Can we differentiate between short term needs and long term issues as self-reliance and sustainability of groundwater governance?
- Q3. What is the role of national and international financing mechanism?

**Main findings:**

- In the Arab region water is generally considered a free commodity and current practices don't recover cost.
- Lack of transparency on cost-benefit structures hampers the integration of financing and governance issues.
- Budgets allocated for groundwater studies and monitoring are small compared to the importance of water to society. Plus bureaucracy hampers the spending of allocated budgets.
- A vision on long term self-reliance and sustainable financing of the water sector is lacking both nationally and regionally.
- Groundwater governance reflects the overall governance of a country. Where bottom-up processes are not yet imbedded in overall planning processes, overall capacity building in governance programs is required.
- Concepts of paying for overall governance services are starting to emerge. Directly visible services (i.e. water treatment) are more easily billed than invisible services (i.e. basin management).
- The political changes in the Arab states since 2010 might further stimulate the formation of windows of opportunities for addressing financial aspects of the governance of water services, but the volatile political situation makes it difficult to implement changes that increase the burden of citizens. No quick solutions can be expected. International donors tend to withdraw from countries in crises while they are appealing for donors to maintain their support (i.e. Yemen).
- International donors play a role in financing activities on transboundary aquifers, but some countries require more support for national activities.
- Creating cost-recovery awareness is a major challenge for groundwater governance, but this is a direct investment in sustainability especially for renewable groundwater resources.
- Developing and managing deep/ fossil groundwater reservoirs is expensive. Financing lessons can be learned from the oil and gas sector. Plus these costs can be considered investments in the progressive introduction of sustainability.
- Local groundwater problems need local solutions also in terms of financing. Cultural factors related to financing mechanisms needs more attention.
- The private sector is currently involved in groundwater use projects that have a good internal rate of return, but hardly plays any role in groundwater governance.

### **Recommendations:**

- Adaptive management strategies are needed for the development of fossil groundwater. Beneficiaries of these investments might contribute to funds that guarantee the future sustainable economic development of these areas.
- Up-scaling successful local financing mechanisms, needs attention from national and international institutions.
- A shared long term vision of groundwater resources and sustainable financing of the water sector on a regional basis is indispensable.
- Short term funding (international and local) for raising awareness on groundwater governance on national level is urgently needed.
- Attracting private investors is critical and international donors can play a fundamental role in: stimulating local stakeholders' involvement, cross-sectoral experience and knowledge exchange, and the creation of open markets.
- When privatization and open markets are introduced, it is critical to provide alternatives to the producers affected by the changing pricing and subsidy policies.
- Include financing of groundwater governance in the economics of the realization of the relevant Millennium Development Goals.
- More scientific insight is required in the feedback mechanisms between behaviour of individual and collective (ground)water users and pricing mechanisms.

### **WG 4: GENERAL POLICIES AND PRINCIPLES FOR GROUNDWATER GOVERNANCE**

Facilitator: Sharon Megdal/ Robert Varady (UOA)

Rapporteur: Louise Whiting (FAO)

WG4 was tasked with discussing the general policies and principles for groundwater governance. During the discussion, participants agreed that the objective of this session will be to define the overarching principles specific to groundwater governance that need to be reflected in the Global Framework for Action that will come out of the GWG project. Participants also agreed:

- Focus on principles. Policies will then derive from principles as will stakeholders to be engaged, and tools/ good practices.
- Avoid prescriptions on institutional organization in the definition of principles (e.g. groundwater shall be state-owned).
- Principles are not binding nor considered compulsory. Countries are free to adopt them or not; They provide the framework / rationale for understanding groundwater specifics.
- What is missing is not a set of principles but the implementation / enforcement and accountability on the ground and at various levels of principles already known.

- Individual laws and governance frameworks need to take into account the situation of the country (place-based policies).

### **Main findings:**

- There are **two sets of principles** that provide guidance on how human behaviour needs to change, those applying to any kind of water management (sustainability, equity etc.) and those specific to groundwater.
- The principles that apply to any kind of water management are: transparency, participation, equity, institutional robustness, sustainability, inclusiveness (as many human behaviours as possible), and scale. Additionally, water governance should build on incentives to change human behavior.
- The principles that are specific to groundwater:
  - a. Groundwater should not be privately owned.
  - b. Groundwater is invisible and need extra effort to bring it to the attention of users and decision makers.
  - c. Temporal issues: the negative effects of groundwater misuse on take time to detect and solve.
  - d. Urgent situation with regards to the current state of aquifers worldwide, especially in countries where groundwater is the major source of freshwater (Libya – 97%).
  - e. Needs to be integrated with land use management processes
  - f. Legal frameworks for groundwater are often incomplete even in developed countries.
  - g. Serious concerns about protection and conservation.
  - h. Higher vulnerability of groundwater (coastal aquifers).
  - i. Strong correlation with agricultural use.
  - j. Conjunctive use with surface water is often underestimated as a viable solution. Groundwater should not be regulated in isolation from surface water but in a complementary way.
  - k. Enforcement requires comprehensive monitoring techniques/tools.

Participants also discussed sustainability versus longevity, perpetual versus limited licenses, and ecosystem services, but did not reach a conclusion. Recommendations were not discussed.

### **WG 5: GROUNDWATER GOVERNANCE IN ARID AND SEMIARID REGIONS**

Facilitator: Wael Seif (ACSAD), and Andrea Merla (International Expert)

Rapporteur: Jac van der Gun (International Expert), and Ralf Klingbeil (UNESCWA)

WG5 was tasked with discussing groundwater governance in arid and semi arid regions and identify the current situation and main challenges. Participants also agreed on a set of recommendation needed. Participants were asked to their discussion on:

1. Renewable vs. nonrenewable and sustainability issue.
2. Transboundary aquifers/ shared water resources.
3. Management of aquifer recharge (MAR)

**Main findings:**

- MAR differs from artificial recharge by the link between water and land. Land use can affect quantity and quality of recharge.
- Artificial recharge is a priority for supplying nomad population in regions with scarce rainfall.
- Recharge dams in Oman have their main recharge areas downstream of the recharge dams.
- Uncontrolled construction of recharge schemes may result in upstream-downstream interferences and sometimes even to annihilate the positive effects.
- Adequate knowledge on the resource is a prerequisite to governance.
- Groundwater storage depletion is evident in the Arab region, with negative consequences for long-term sustainable development.
- There is little political willingness in the region to cooperate on transboundary groundwater.
- Scientists can play an important role in generating confidence between countries and laying the ground for cooperation at a political level.
- A lot can be learned from the oil and gas industry to apply on governance of deep aquifers.
- UN ILC Draft Law of Transboundary Aquifers is expected to become a global reference document.

**Recommendations:**

- Links between land and water management needs to be emphasized in MAR projects.
- Sufficient analysis need to be carried out in order to inform planning and governance of non-renewable groundwater exploitation. First steps should include assessing water availability, current water abstraction, land use and potential sites for MAR schemes.
- Special attention is needed when identifying locations of the large recharge dams.
- Multiple recharge schemes in a single river basin should be planned in a coordinated manner.

- Results of private sector studies that nowadays have restricted circulation, have to be made widely available.
- Exploitation plans should include real cost analysis (socio-economic cost-benefit analysis, including subsidies, opportunity costs and comparison of alternatives).
- Plans for exploiting non-renewable groundwater should take into account an embedded equity that considers water for future generations.
- Reports with data on non-renewable groundwater should specify which aquifers are considered to be non-renewable and the criteria used.
- Effort should be made for multiple reuse of abstracted non-renewable and renewable water.
- The governance process should in its initial stages not focus on sharing water, but on sharing information. Scientific cooperation should be promoted to satisfy information needs and create a climate towards political cooperation at a later stage.
- Donor funding should be sought particularly for joint monitoring and exchange programmes.
- Develop and apply criteria to rank transboundary aquifers, and identify priority actions required.
- Support to Arab process towards drafting legal guidance for cooperation on shared surface water and groundwater.

## **WG 6: HOW TO STRENGTHEN EFFECTIVE PARTICIPATION OF CIVIL SOCIETY IN GROUNDWATER GOVERNANCE**

Facilitator: Asma El-Kasmi (UNESCO)    Rapporteur: Michael van der Valk (UNESCO-IHP)

WG6 was tasked with discussing how to strengthen the effective participation of civil society in groundwater governance. In the process they were to identify the main challenges and subsequently make recommendations on:

- Q1. How to secure the effective participation of civil society in Groundwater Governance?
- Q2. How to include participation of civil society in reformulating the legal and institutional frameworks for integrated water resources management?
- Q3. How to promote dialogue and negotiations among local actors and national organizations involved in groundwater management (including coordination with the private sector, state institutions, civil society and universities)?

### **Main findings:**

- Participation in groundwater governance is complex because it is an invisible resource and there is no perception of the limitation of the resources.



- The participation of civil society in groundwater governance is a new concept in the Arab Region.
- Participation Is a long-term and continuous process.
- Not all countries in the region legally require the participation of civil society and associations. In countries where it is required, there is a gap between the Law and actual practice.
- National governance structures are top-down and don't enforce effective decentralization. No mediation and conflict resolution structure.

### **Recommendations**

- Need to define what is meant by civil society groups. Several groups can play a crucial role and must be included (academia, NGOs, users, and farmers). Detailed analyses of stakeholders to identify the characteristics of the civil society groups are needed.
- There should be better understanding of decentralization at the local level, followed-up with monitoring.
- Information, communications, and public awareness are crucial tools that need to be customized according to target groups.
- Civil society groups need to be organized, legal recognition granted, and their responsibility defined.
- Civil society groups need to be engaged and the local community understands the benefits of participation and sharing of responsibility.
- Local specificities and culture must be taken into account, and we should build on traditional knowledge and systems (i.e. Qanats, Falaj, Foggaras, Khattarat).
- In reformulating the legal system we need to consider formal property rights compared to customary rights and practices that are in place.
- To promote dialogue we should use a diverse spectrum of tools including social media, to ensure that we incorporate the interest and the values of stakeholders.
- It is essential to convey the information in a clear manner understood by the lay person. Local champions (i.e. sports champions) can be the messengers.
- To influence decision making, the process needs to be inclusive (private sector, state institutions, civil society, and universities) and the benefits and negative consequences of different measures must be understood by all.

## **2.4. RECOMMENDATIONS AND CLOSING REMARKS**

The regional consultation workshop for the Arab region was successful in soliciting the perspective of regional partners on the current status of groundwater governance and on-going efforts. It was also successful in clarifying some of the most pressing challenges and presenting some immediate needs. Mainly :

- ❖ There is a strong feeling among representatives from all over the region that existing data and monitoring systems are inadequate and weak. Everyone expressed a deep concern about this and there were many calls for upgrading this through new technologies, equipment, and staff training. This concern was expressed for both national groundwater aquifers as well as for shared ones.
- ❖ There was an expressed concern about the weak institutional structures governing the water sector. This weakness is manifested in the lack of the institutional accountability and will to even enforce existing laws, bylaws, policies and strategies that govern groundwater resources. There were several calls in the questionnaires and working groups for strengthening all aspects of the water institutions responsible for groundwater resources.
- ❖ Engaging stakeholders, the public, and even decision makers was another highly voiced need. Existing structures and processes limit stakeholder involvement and there is minimal public dialogue. Transparency and public involvement in the water sector and groundwater management is needed.
- ❖ There were repeated calls for public awareness and education across the board. Participants expressed concern over the weak knowledge and awareness of stakeholders, the general public and even decision makers of groundwater matters. All expressed the need for wide communication and awareness efforts for the general public. Some felt that special educational efforts are needed for decision makers. A few participants indicated that water use across the Arab states differs according to the water scarcity in each country, however with the latest political events in the region and movement of people across borders, more awareness is needed on the ground.
- ❖ Legal and policy reform was another expressed challenge and need. However, it was evident from the questionnaires and various discussions that many countries in the region are facing difficulties enforcing existing laws and policies. Accordingly, assistance is needed to help governments enforce existing laws before moving to efforts aimed at formulating new ones.