

# Challenges of Implementing IWRM in the Arab Region

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## ABSTRACT

Several attempts have been undertaken to assess the status of integrated water resources management readiness, planning and implementation in the Arab Region since the last decade of the twentieth century. This paper considers four major efforts which have been undertaken by the Centre for Environment and Development for the Arab Region and Europe CEDARE (2000), the Global Water Partnership GWP/CEDARE (2003), the Arab Water Council AWC (2005), and CEDARE (2006) following the Danish Hydraulic Institute DHI/UNEP approach. The analyses of water management situation with time show that the water-scarce, hyper-arid, Arab Region has a chance to improve its conditions through applying integrated water management approaches. Moreover, the whole region is committed to IWRM but with different levels of involvement and implementation. The WSSD targets are likely to be met if seriously and regionally coordinated. The level of awareness of IWRM among end users, NGOs, and Water-related sectors and agencies needs to be raised. Moreover, more efforts are required to mobilize the political will towards IWRM among non-water professionals and decision makers.

## INTRODUCTION

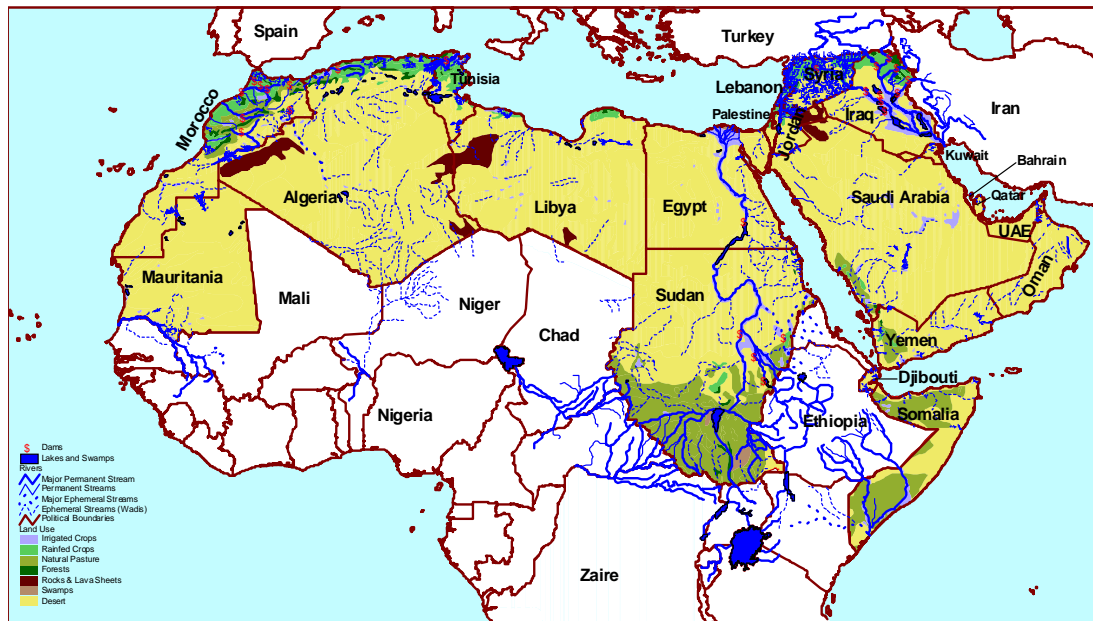
The Arab population, constituting more than 5% of the world population, enjoys less than 1% of the world's freshwater resources. Moreover, the distribution of the limited share of renewable water resources is subject to great variability in time and space. Overall, the Arab Region renewable freshwater availability is estimated at about 335 Km<sup>3</sup>/year. More than 55% of these amounts are originating from outside the region. More than 80% of the limited precipitation received by the region is evaporated indicating the highest aridity in the world, AWC (2005). This is depicted from the land use patterns projected in Figure (1).

Due to the scarcity of water resources in the region, non-conventional water supplies have been widely adopted in the form of desalination plants, wastewater reuse programs, and irrigation schemes utilizing mixed agricultural drainage water. Fossil groundwater has been extensively tapped in the desert areas. A total of about 30 Km<sup>3</sup>/year of non renewable and non conventional water supplies are being produced. The demand, on the other hand is estimated at about 195 Km<sup>3</sup>/year (about 60% of the renewable resources) and is highly escalating. The per capita share of renewable water resources in the Arab Region is projected to decrease from about 1300 m<sup>3</sup>/cap/y in 1995 to 547 m<sup>3</sup>/cap/y in year 2025! AWC (2006).

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**Figure (1) Land Use Patterns in the Arab Region**

In an effort to confront this problem, the Arab countries have initiated a process for reviewing their water strategies and defining their long-term goals within the framework of integrated water resources management. The development of the vulnerable water resources on a sustainable basis should be achieved through regional coordination and cooperation. A balanced understanding of the security problems of food and water supply must be achieved. The history and progress of this IWRM planning process, in the Arab Region, is the subject of the current paper. Particular focusing is attributed to Arab countries on the Mediterranean Sea.

## **ASSESSMENT OF IWRM STATUS PRIOR TO WORLD WATER FORUM 2**

CEDARE (2000), in preparation for the second world water forum conducted a comprehensive assessment for the status of water resources management in Arab Region with particular focusing on North African countries. The main results are summarized, in an SPIR format, as:

### **a. State**

- Hydrological management of water resources is not comprehensively coupled to national agronomic, economic, environmental and social management strategies.
- Water supply management has been dominating national plans except recently (late 1990s) where many countries are shifting to demand management measures to confront escalating scarcity of resources.
- Water quality and environmental concerns are lagging behind the efforts to augment the available quantities of freshwater.
- The legal framework governing development and preservation of freshwater resources is in place in most countries. However, enforcement of regulations is seriously hindered.

- The institutional framework for IWRM is partially in place in many countries. However, appropriate operationalisation of involved institutions is subject to various constraints.
- Irrigated agriculture contributes 13% of national GDP in Morocco, 17% in Egypt.
- Employment in the agricultural sector (irrigated) accounts for 26% in Tunisia, and about 40% in Egypt and Morocco.
- Access to safe drinking water is close to 100% for urban population of Libya, and may drop to less than 50% for rural communities of Morocco. Sanitation services are lagging behind especially for rural areas.

#### **b.     Pressure**

- High rate of population growth, among the highest in the world, UNSPD (1997), where population doubled in 30 years for the sub-region.
- Need to develop, or to make available, additional quantities of freshwater to fulfil requirements of expanded agriculture, domestic and industrial supplies.
- One third of the population is living in drought-prone areas with short recurrent periods.
- Global climate changes may pose threats to available freshwater.
- Lack of regulatory mechanisms to ensure enforcement of laws and regulations.
- Fragmentation in institutions and authorities concerned with water resources management.
- Inadequate wastewater treatment.
- Proper capacity building for institutions is highly required.
- Lack of funds required to finance the water sector. Conditional foreign assistance limits the anticipated benefits.
- Inter-sectoral reallocations versus social stability, foreign dependency, and evolution into market economy.
- Maintaining the equilibrium between urban and rural (agronomy dependent) development.
- Economic instruments to encourage IWRM are not effectively applied.
- Lack of appropriate treatment for industrial wastewater.
- Increased rates of agro-chemical applications.
- Poverty and low economic returns for farmers.
- Political instabilities in some countries, and imposed economic sanctions on others (Libya and Sudan).
- Elevated pressures to join the globalization trend, international market economy, GATT, ...etc.

#### **C.     Impacts**

- Integration needed, at basin level, hydrologic, agronomic, economic and social relationships into a comprehensive modelling frame-work, generating policy instruments, thus ensuring rational use and management of freshwater resources.
- Need to establish national / regional information frameworks / networks for IWRM.
- Need to improve cooperation among centres of excellence to provide for better processing and dissemination of information.

- Depletion and Salinization of coastal aquifers and rapid encroachment of the salt water interface along the Mediterranean shoreline.
- Excessive extractions from fossil water reserves.
- Degradation of water quality of drains, and some irrigation channels.
- Potential for eutrofication of downstream water bodies and loss of natural wetlands.
- Inappropriate hygienic conditions associated with lack of sanitation services, pathogenic contamination resulting from illegal dumping of raw wastewater to surface and groundwater.
- Social stability concerns calls for more development of land and water resources.
- Need to mobilize the political will, which usually over-rules technical decisions.
- Probable reduction of flow of the Blue Nile as a result of global warming and regional climate variations.
- Insufficient technical and financial resources impede efforts for controlling water hyacinth in upper Nile reaches.
- Excessive siltation and reservoir sedimentation hinders effective operation of flow control structures in Morocco, Algeria, Tunisia and Sudan.
- Jeopardizing of development projects with promising benefits, like the Jongly Canal Project, as a result of political instabilities and foreign interventions.
- Loss of valued biodiversity of aquatic fauna and associated impacts on rural/urban migration.

#### **D. Responses**

- National policies for stabilizing population growth achieved partial success in Tunisia and Egypt.
- Major demand management measures include:
  - Extensive reuse of mixed agriculture drainage water for irrigation in Egypt.
  - Drought management and mitigation plan for Morocco.
  - Aquifer recharge in Tunisia.
  - Programs for modernizing of irrigation techniques, and rationalizing of irrigation water use in Egypt and Tunisia.
  - Recycling and reuse of treated domestic wastewater (Egypt).
- Examples of cooperation for IWRM for shared resources:
  - The Nile Basin Initiative (shared by all Nile riparian).
  - Strategies for rational utilization of the Nubian Sandstone aquifer (Egypt, Sudan, Libya, Chad).
- Major environmental preservation measures include:
  - National program for abatement of discharge industrial wastewater to the Nile in Egypt (1998-1999).
  - Control and restriction of water use from lakes, natural bodies, ... etc., in Tunisia, for preserving the ecosystem.
  - Constructed wetlands systems are tested in Egypt for WW biological treatment
  - Major institutional and policy reform measures include:
    - Creation of five basin authorities for IWRM in Algeria (1996).
    - Revised national water resources management plans in all countries attempt to formulate their policies within an IWRM framework. However, implementation of these polices will judge its adherence to IWRM principles.
    - A mature system of water user associations is in place in Tunisia, and Morocco.

- National water research centers are operating in Egypt, Tunisia, and Morocco.
- Conjunctive use of surface and groundwater is widely applied in Egypt, Tunisia, and Morocco.
- Public awareness programs are widely applied in Egypt to preserve Nile water quality, and to rationalize water use.
- Coordination for joint land and water resources management.

**ASSESSMENT OF IWRM IN NORTH AFRICAN ARAB COUNTRIES FOLLOWING THE INDICATORS PROPOSED BY THE GLOBAL WATER PARTNERSHIP (PRIOR TO WWF3)**

The GWP Indicators for the status of IWRM readiness, planning and implementation are summarized as :

- Awareness raised about IWRM and political will to support the process
- A framework for broad stakeholders participation
- Any ongoing activities that the IWRM plan can build on
- IWRM issues and challenges: identified?
- Management potential and constraints: identified?
- Adoption of IWRM plans at the highest political level: ensured?
- Capacity building: initiated?
- Portfolio of implementation projects and financial strategy of the plan: prepared?

Accordingly, CEDARE (2003) conducted a survey for these indicators for Egypt, Libya, Tunisia, Algeria, Morocco, and Sudan. K. AbuZeid et al, 2004 elaborated on the same survey. The main results, which are based on responses from country officials, are summarized in the coming tables (1-7).

<b>Steps</b>	<b>Egypt</b>
<b>1. Awareness about IWRM</b>	High Political will. Good support to initiatives for shared visions and regional cooperation on shared water resources.
<b>2. Framework for broad stakeholder participation</b>	The establishment of the Egyptian Water Partnership (EWP) for dialogue between stakeholders on IWRM. Establishment of water boards and water users associations.
<b>3. Activities that IWRM plan can build on</b>	IWRM plan is developing. Framework for implementation is needed.
<b>4. IWRM issues and challenges</b>	Identified
<b>5. Management potential and constraints</b>	Constraints are identified. Better coordination between the irrigation, agriculture and water supply and sanitation sectors is needed.
<b>6. Political will</b>	Can be achieved.
<b>7. Capacity building</b>	A regional training center for water resources management is established.
<b>8. Portfolio implementation projects &amp; financing strategy</b>	Prepared and submitted to the North AMCOW interim Secretariat (CEDARE). Financing strategy could be prepared.
<b>Conclusion</b>	2005 target of IWRM plan likely to be met.

**Table (1) The GWP Indicators for the status of IWRM in Egypt**

<b>Steps</b>	<b>Libya</b>
<b>1. Awareness about IWRM</b>	High political will. Sirt Summit for water and agriculture organized in 2004. An environmental protection law, a water well drilling law, and a forest protection law issued
<b>3. Activities that IWRM plan can build on</b>	Formation of a national committee on water resources. Assessment of WRs, and identification of challenges. Preparation of a water policy to meet challenges.
<b>4. IWRM issues and challenges</b>	Identified.
<b>5. Management potential and constraints</b>	Identified.
<b>6. Political will</b>	Adopted at the highest levels, due to the severe water scarcity conditions.
<b>7. Capacity building</b>	Organization of awareness campaigns to educate farmers on efficient irrigation practices is ongoing.
<b>8. Projs Portofolio, financing strategy</b>	Prepared and submitted to the North AMCOW interim Secretariat (CEDARE). Financing strategy could be prepared.
<b>Conclusion</b>	2005 target likely to be met.

**Table (2) The GWP Indicators for the status of IWRM in Libya**

<b>Steps</b>	<b>Algeria</b>
<b>1. Awareness</b>	High Political will.
<b>2. Framework for broad stakeholder participation</b>	Hydrographic basin committees; "Parliaments of Water" are created. Assure consultations within the basin, maintain the balance of government representatives & water users associations
<b>3. Activities that IWRM plan can build on</b>	Formation of national water resources committee, 5 basin authorities for IWRM in Algeria, 1996. Ministry of Equipment 1993, initiated a process of reform in the WSS Sector. Consulting with main sectors; Agriculture, Industry, local municipalities, a new Water Policy is adopted
<b>4. IWRM issues and challenges</b>	Identified.
<b>5. Management potential and constraints</b>	Constraints have been comprehensively identified especially in the water supply sector.
<b>6. Political will</b>	Can be achieved.
<b>7. Capacity building</b>	Training programmes were initiated in the early 90 's, with high level consultants, but stopped very quickly, due to some instabilities encountered by the country.
<b>8. Projs Portofolio, financing strategy</b>	Prepared and submitted to the North AMCOW interim Secretariat (CEDARE). Financing strategy could be prepared.
<b>Conclusion</b>	2005 target likely to be met.

**Table (3) The GWP Indicators for the status of IWRM in Algeria**

<b>Steps</b>	<b>Tunisia</b>
<b>1. Awareness about IWRM</b>	High Political will.
<b>2. Framework for broad stakeholder participation</b>	High Involvement of the Farmers Union in the formulation of water policies.
<b>3. Activities that IWRM plan can build on</b>	Formation of a national committee on water resources. The strategy of water resources development for the next thirty years is set to cover the different water requirements at a national level, taking into account all IWRM principles.
<b>4. IWRM issues and challenges</b>	Identified.
<b>5. Management potential and constraints</b>	Identified. Better coordination is required between irrigation, and water supply and sanitation sectors. The legislative framework needs to be reviewed.
<b>6. Political will</b>	Adopted at the highest level.
<b>7. Capacity building</b>	The education and research system has since 25 years supported the policy of hydraulic infrastructure development. It needs some adjustments to face the new challenges.
<b>Conclusion</b>	2005 target likely to be met.

**Table (4) The GWP Indicators for the status of IWRM in Tunisia**

<b>Steps</b>	<b>Morocco</b>
<b>1. Awareness about IWRM</b>	High Political will.
<b>2. Stakeholder participation</b>	Progressing, PPP in process.
<b>3. Activities that IWRM plan can build on</b>	The establishment of the High national council on water is a platform for the development of an IWRM plan. The plan for the establishment of a public-private partnership in the drinking water supply sector is ongoing.
<b>4. IWRM issues and challenges</b>	Identified.
<b>5. Management potential and constraints</b>	Identified
<b>6. Political will</b>	Can be achieved.
<b>7. Capacity building</b>	Capacity building programmes in the water sector are existing.
<b>8. Projs Portofolio, financing strategy</b>	Prepared and submitted to the North AMCOW interim Secretariat (CEDARE). Financing strategy could be prepared.
<b>Conclusion</b>	2005 target likely to be met. A good scope of coordination among sectors is shown.

**Table (5) The GWP Indicators for the status of IWRM in Morocco**

Steps	Syria
1. Awareness	Political will is high.
2. Framework for broad stakeholder participation	Farmers participation is among the elements of the new plan for IWRM, however instruments for the implementation of participation approaches needs strengthening.
3. Activities that IWRM plan can build on	The (1997-2000) policy focused on water resources development, demand management, pollution control, and on the Country Cooperation Framework. A Plan for IWRM for 1998-2008 is developed, support by UNDP
4. IWRM issues and challenges	Identified.
5. Management potential and constraints	Identified.
6. Political will	Can be achieved.
7. Capacity building	Among the strategy objectives, is the technical capacity building of the institutions participating in the implementation of IWRM, through a wide range of training modules in different aspects related to water resources planning and management.
8. Projs Portofolio, financing strategy	Prepared, and the financial strategy could be formulated.
Conclusion	2005 target likely to be met.

Table (6) The GWP Indicators for the status of IWRM in Syria

Country	Plans / Strategies / Policies / Documents towards IWRM	Required Assistance to Meet the IWRM 2005 WSSD Target	
		Needs some support	Needs substantial support
Algeria			X
Egypt	-Main Features for Water Policy towards Year 2017; Ministry of Water Resources & Irrigation, 2000. -National Water Resources Plan; Ministry of Water Resources & Irrigation, 2003.	X	
Libya	-National Strategy for Water Resources Management, 2000-2025 ;1999.	X	
Morocco	-Water Law. 1995	X	
Sudan	-Sudan National Water Policy.	X	
Tunisia	-L'Etat de l'Environnement; 2002. -L'Avenir de l'eau : un nouveau challenge pour la Tunisie -The Long Term Strategy for the Water Sector in Tunisia; Ministry of Agriculture, 2003.	X	

Table (7) Status of Plans, Strategies, and Policies towards IWRM as of 2003



## **ASSESSMENT OF IWRM IN ARAB COUNTRIES CONDUCTED BY THE ARAB WATER COUNCIL 2005**

The Arab Water Council (AWC) is a non-governmental organization that endeavors to promote better understanding and management of the water resources in the Arab States in a multi-disciplinary, non-political, professional and scientific manner; to disseminate knowledge, enhance sharing of experience and information for the rational and comprehensive water resources development of the region for the benefits of its inhabitants. Taking on these responsibilities, the AWC is committed to share and present regional experiences at WWF4.

Throughout its regional consultations, a questionnaire circulated to different members from all states resulted in the following interesting statistics:

- 94% agreed that cost of delivered water should be covered
- 72% recommend that stakeholders should partially participate in Water Resource Management, 22% suggest that water resources management should be gradually transferred to end users, while 6% advise that the government should be fully in charge of all aspects of Water Resource Management
- 88% Agreed that we need to revise our water quality legislations and to implement proper enforcement mechanisms, 6% suggest that we only need enforcement mechanisms, and 6% recommended that water quality legislations need to be revised/altered.
- From of a large pool of suggested actions toward better management of water, 14 actions are selected and prioritized according to the following order:
  - Improving water quality
  - Policy formulation and legislation enforcement
  - Physical interventions
  - Promoting water saving
  - Capacity building
  - Ensuring economic and financial sustainability
  - Institutional reform/strengthening
  - Enhancing applied research
  - Raising awareness for IWRM
  - Introducing technologies and information systems
  - Developing monitoring and evaluation systems
  - Inter-sectoral coordination
  - Introducing water valuing mechanisms
  - Boosting shared resources cooperation

## **THE DHI / UNEP APPROACH, 2006**

The Danish Hydraulic Institute in cooperation with UNEP have designed a questionnaire for assessment of country IWRM status through addressing the following issues:

1. National Water Policy: existence, coverage, reference to IWRM as a base for management, reference to the role of private sector, role of women, polluter pays principle, user pays principle.
2. National Water Legislations: existence of specific water code or law, ownership of water, specific obligations by law for public hearings, stakeholder participation, river basin management, decentralization, water duties, sanctions, separation between water management and water services provisions, incentives for water efficiency.
3. Regulations Supporting the Water Law: effectiveness of existing regulations, impediments to effectiveness of regulations (lack of awareness, lack of monitoring capacity, lack of institutional capacity, contradiction of regulations,...etc), harmonisation of water law with other laws (environmental, health, ..etc.), harmonization with international agreements.
4. Institutional Framework: existence of cross-sectoral coordination body at the national, local, and river-basin levels, existence of platform for public participation
5. Institutional Capacity for undertaking IWRM: policy formulation, drafting of legislations, cost recovery, information systems and data processing, undertaking water-related assessments, monitoring of water-related issues, planning of water use and water conservation.
6. Institutional Constraints: improper governance, mul-defined institutional mandate, overlapping roles and responsibilities, inadequate equipment, inappropriate office conditions, and inadequate budget.
7. Adequacy of human resources to handle IWRM: number of available staff, quality of available staff, number of senior management personnel acquainted with IWRM, staff motivation to implement IWRM, training in IWRM
8. Level of awareness of IWRM among different stakeholders: senior officials, water management staff, water users, NGOs, consultants.
9. Implementation status of IWRM: existence of an action plan for IWRM implementation, existence of a project portfolio and a capacity building program within the plan, existence of a financing strategy and monitoring and evaluation of implementation.

The situation in eight countries within the Arab Region has been assessed through analysing the response to the previous questionnaire. These countries are: Algeria, Egypt, Libya, Mauritania, Morocco, Palestine, and Syria. The analysis revealed the following as per the year 2005:

#### **A. Similar features in all countries**

The following features attained the same responses from all countries:

- A water policy is existing in each country.
- The policy covers water supply and other issues in addition to water resources management.
- The polluter pays principle is inherent to each policy
- Water is a property of state (ownership is not variant)
- A water law or code exists in each country

- Water legislations include obligations for public hearings, stakeholders participation, and water use efficiency
- All water laws do not differentiate between society on gender basis
- A basin-level platform for public participation exists
- Available staff is motivated to a reasonably good degree to apply IWRM principle to current water management!
- Lowest level of awareness of IWRM is experienced by NGOs and main water users (Poor to Fair)

## **B. Similar features in most countries**

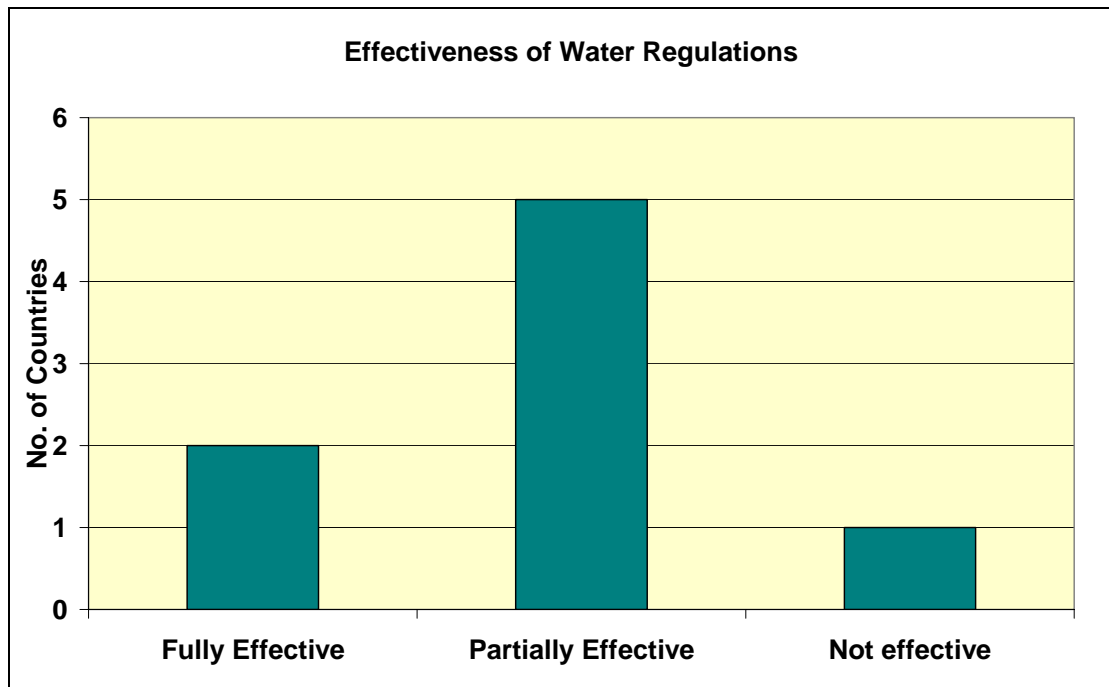
The following features attained the same responses from most countries:

- Water policy is partially to fully harmonized with laws/regulations
- Water policy endorses IWRM principles as basis for water resources management (6 countries), partially in the other 2
- Water legislations include obligations for basin-level management, and private sector involvement
- National legal frameworks are harmonized with international agreements endorsed by the respective countries
- Legislations include an elaboration for an IWRM process / plan / strategy
- A national entity exists for overall cross-sectoral coordination
- A local-level platforms for public participation exists
- A national-level platform exists in 4 countries, provincial-level platforms exist in 3 countries
- Level of awareness of IWRM is reasonably good to high among decision makers, professionals in water management and consultants!

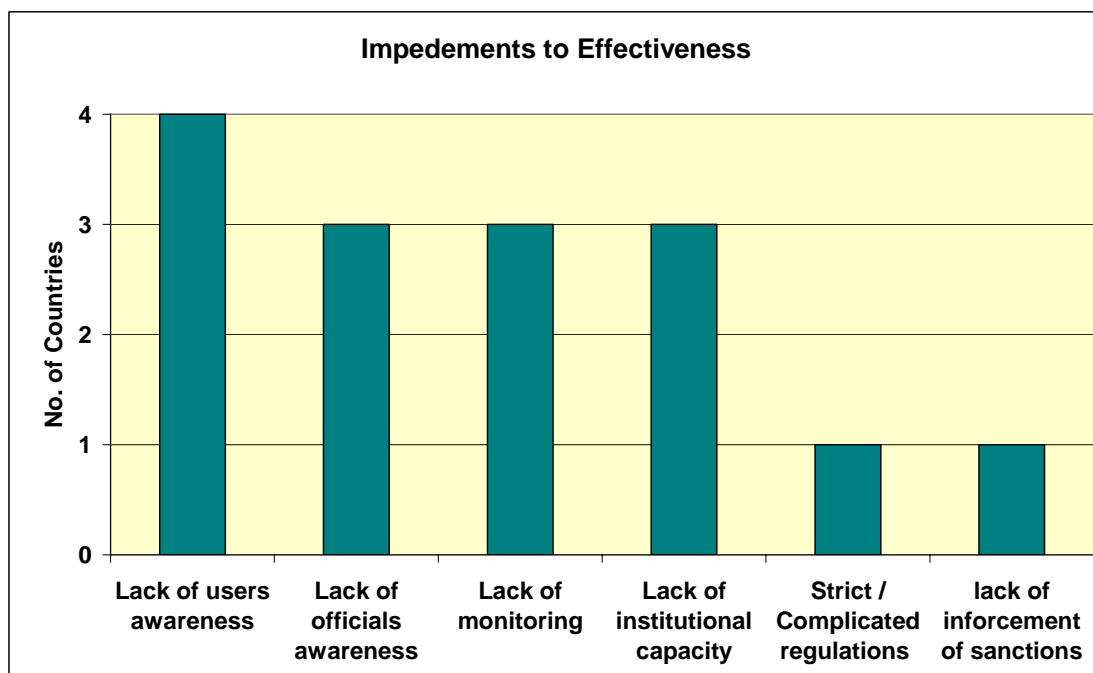
## **C. Regulations supporting the water law and their effectiveness**

Several regulations to support and enforce the water law are issued in all countries. However the effectiveness of such regulations vary from country to country. Generally, regulations are considered to be *partially effective* in 60% of the sampled domain, fully effective in 25% of the countries and only one country considers them to be not effective. This is depicted in Figure (2). Moreover, the impediments to effectiveness are attributed to the following causes which are identified, as shown in Figure (3), and ranked according to their importance:

- a. Lack of awareness of regulations by end users
- b. Insufficient knowledge of regulations by those who enforce them
- c. Inadequacy of monitoring capacity
- d. Lack of institutional capacity
- e. Inappropriate enforcement of sanctions
- f. Regulations themselves are complicated and in many cases too strict to be followed



**Figure (2) Effectiveness of Regulations Supporting the Water Law**

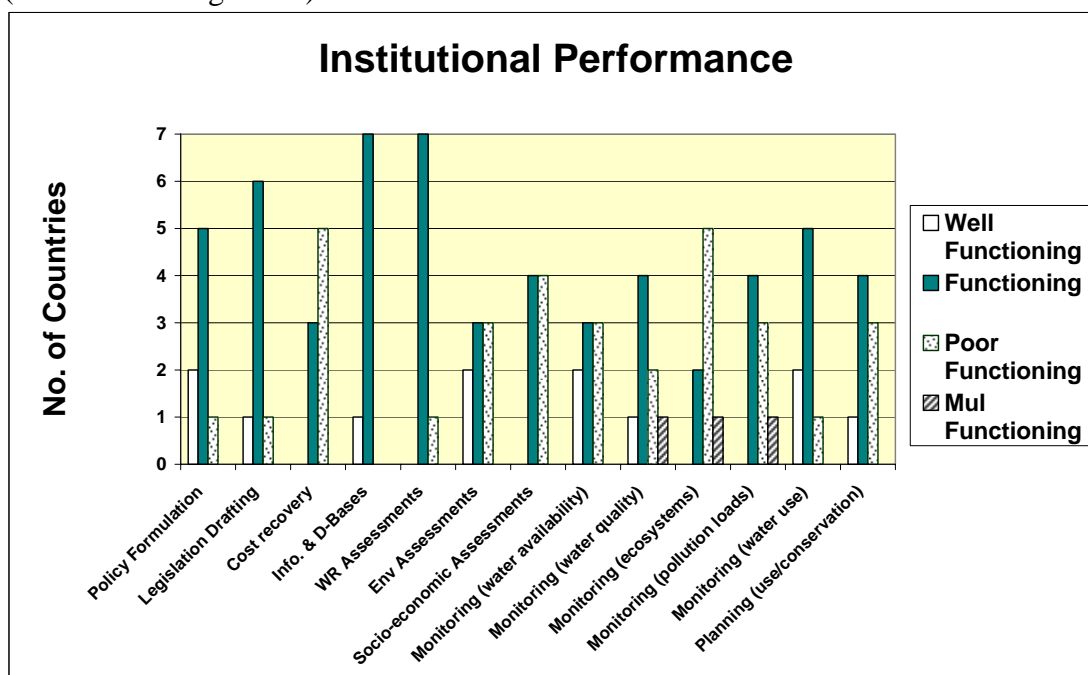


**Figure (3) Factors Contributing to Impediments to Effectiveness of Regulations Supporting the Water Law**

**D. Institutional capacity for water management based on IWRM principles at the national / central level**

The institutional capacity for water management based on IWRM principles, at the national / central level, is judged in the current study according to eleven parameters

as shown in Figure (4). Generally, monitoring activities and recovery of costs of water resources management exhibit lower scores and thus seem to be main restraining factors for the institutional capacity. Furthermore, planning of resource use, protection, and conservation scored average. On the other hand, activities related to water resources assessments, environmental assessments, and legislation drafting scored above average (functioning status). Finally, policy formulation, collection of information on water systems and data management revealed an overall high score (well functioning status).<sup>3</sup>



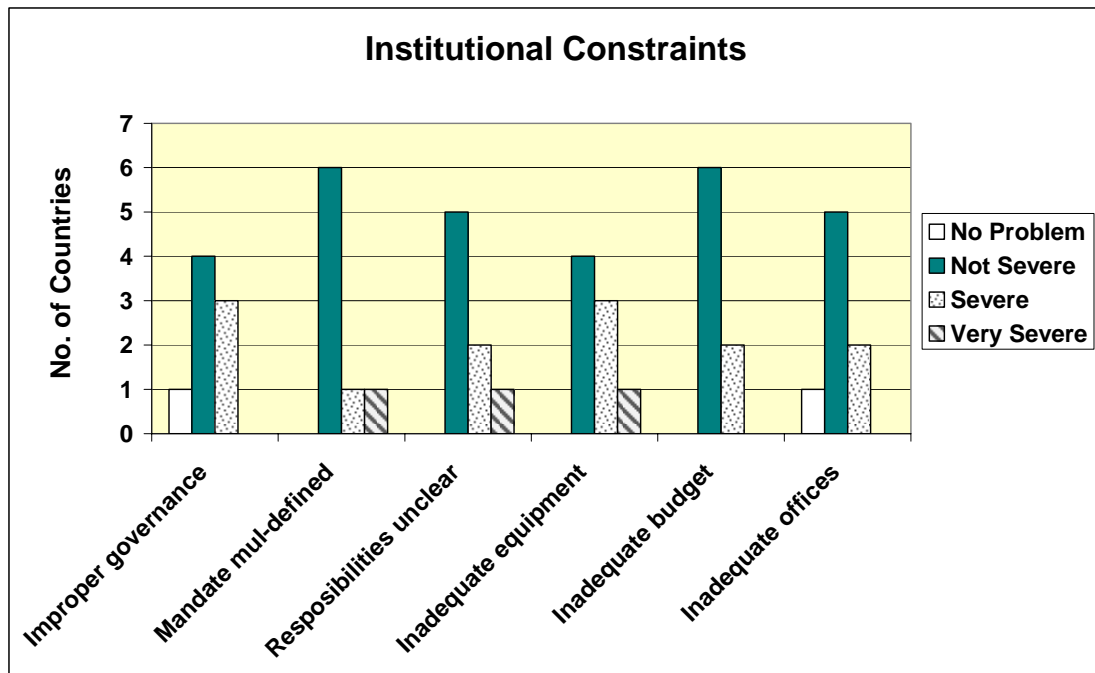
**Figure (4) Factors Governing the Institutional Capacity at the National / Central level for Applying IWRM Principles to Traditional Water Management**

Moreover, the major negative factors constraining the water resources management institution(s) in the assessed countries have been contributed to the following factors, ranked according to their priority (severity):

- Inadequate equipment (laboratory, monitoring equipment, etc.)
- Roles and responsibilities are overlapping for departments and institutes
- Institutional mandate poorly defined
- Lack of good governance (transparency, accountability, communication, integrity, participation)
- Inadequate budget
- Inadequate office conditions

The previous outcomes are depicted in Figure (5). A remark, which is worthy of mentioning here, is that insufficient budget has not been identified as a major constraining factor.

<sup>3</sup> It is the authors belief that although information on water resources may be present, it is the flow and exchange of information that hinders the institutional capacity.



**Figure (5) The Major Negative Factors Constraining the Water Resources Management Institution(s)**

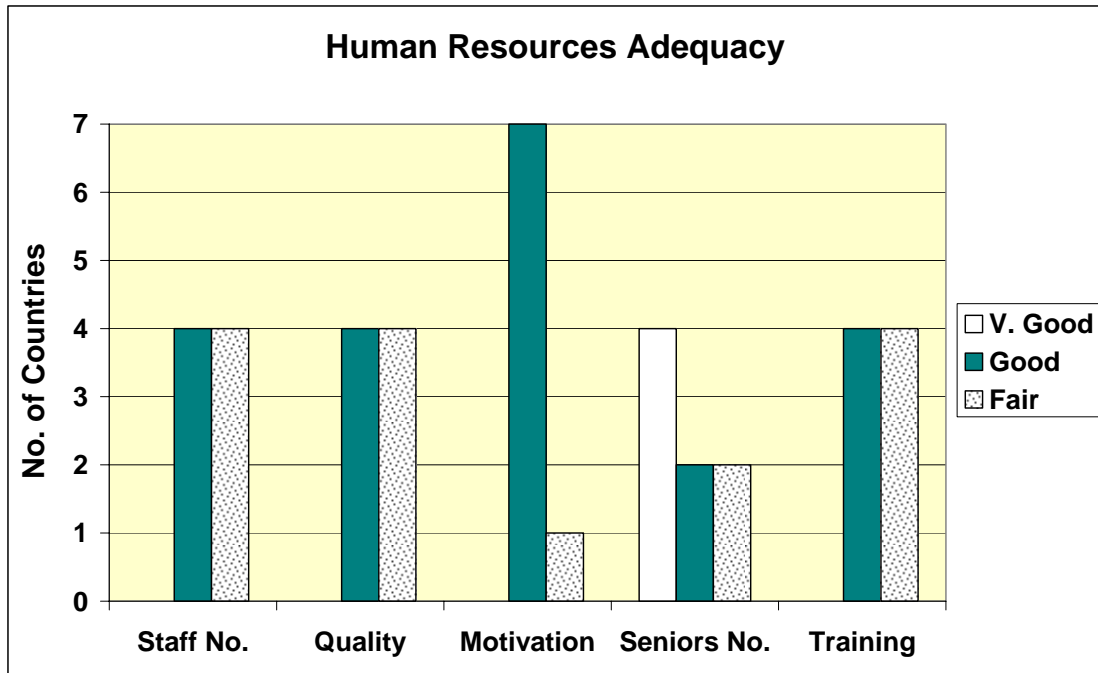
**E. Human Resources and Staff Capabilities Regarding IWRM at National Institutions**

The staff capabilities situation in the national/central water resources management institution(s) in relation to the IWRM functions is assessed according to five parameters as explained in Figure (6). The analysis show that the number of staff, and their qualifications, adequate for handling the IWRM functions at national institutions is between fair to good, and did not reach the full command capacity in any country. The same is valid for the training and capacity building programs undertaken. Moreover, the staff seems to receive an above average motivation to conduct IWRM responsibilities. Furthermore, the number of seniors with sufficient knowledge of IWRM and capacity to implement it is fully sufficient in half of the surveyed countries.

**F. Level of Awareness of IWRM**

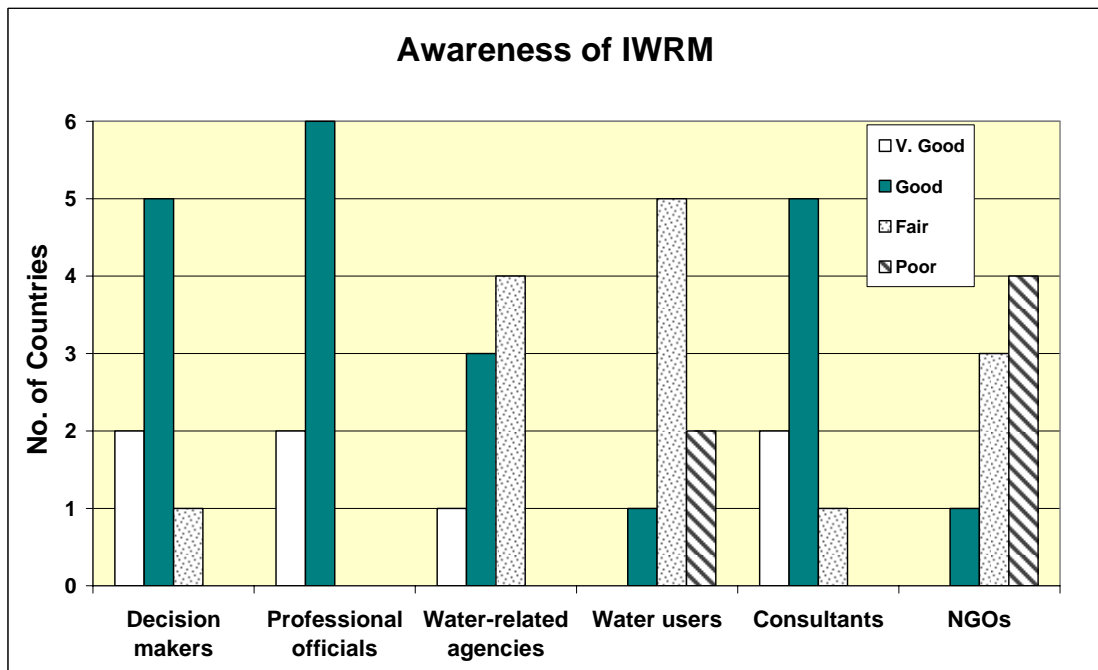
Is IWRM and the inherent concepts known and understood by the major operators in the water sector and sectors relating to water (e.g. agriculture/irrigation, hydropower, health, environment, water supply and sanitation)? The answer is represented in Figure (7).

The results of the questionnaire show that the highest level of awareness of IWRM exist among professionals in institutes mandated for water management followed by high level decision makers in these institutes and their consultants.



**Figure (6) Human Resources and Staff Capabilities at National Water Resources Management Institution(s)**

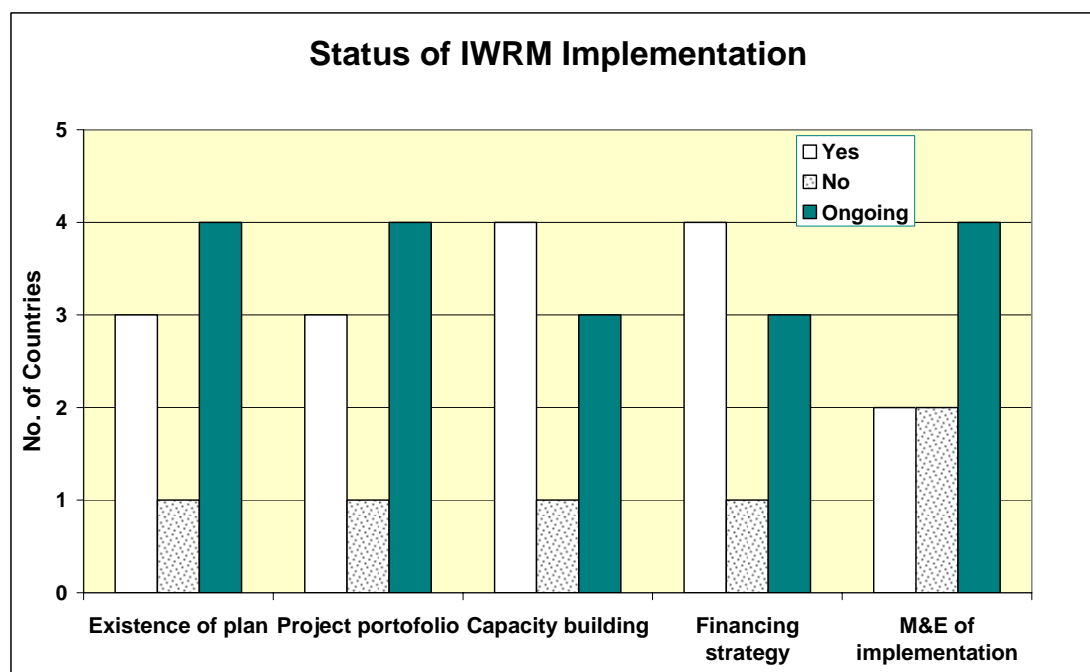
Professionals in agencies within water use and water related sectors scored fair to good, while end users scored fair to poor. The survey also shows that the lowest level of awareness is encountered by NGOs (poor to fair).



**Figure (7) The Level of Awareness of IWRM among Different Stakeholders**

## G. Status of Implementation of an IWRM Framework

The survey shows that three out of eight countries (about 40 %) already have an IWRM action plan, while four countries (50%) are in the process of producing one, and only in one country this process is not foreseen. The former three countries also produced a portfolio of projects associated with the IWRM actions plan, and have some sort of financing strategy. Two of these countries also produced a monitoring plan for evaluating the implementation process. In this respect half of the countries are on their way to produce such an M&E plan, while the remaining 25% did not initiate this process yet.



**Figure (7) Status of Implementation of IWRM**

## CONCLUSIONS

1. Limited water resources in the region is an overwhelming condition, however there is still considerable room for sustainable management of water resources provided IWRM is adopted and implemented
2. Arab countries are committed to IWRM. The WSSD 2005 target is met by five countries, and is likely to be met by the rest of the region before 2007 if seriously and regionally coordinated.
3. IWRM is however at various levels of planning and implementation in the region.
4. Technical and financial support are required for some of the countries for the development of management plans, institutional reform, awareness raising and capacity building.
5. Educating NGOs and end users require immediate attention
6. Coordinating assistance and efforts is highly required. After all, integrated management requires integration of efforts in the first place



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