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MENA REGIONAL WATER GOVERNANCE BENCHMARKING PROJECT

COUNTRY PROFILE – MOROCCO

October 2010

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ACRONYMS

ABH	River Basin Agency
AUEA	Agricultural Water Users Association
DGH	General Directorate of Hydrology
DMN	National Meteorological Service
EBA	Expert Based Assessment
GDP	Gross Domestic Product
HCWC	High Council for Water and Climate
IGWRDP	Integrated General Water Resources Development Plan
IRG	International Resources Group
MENA	Middle East North Africa
O&F	Organizations and Functions
ONE	National Electricity Office
ONEP	Drinking Water Supply Office
ORMVA	Regional Agricultural Development Authority
P&L	Policy and Legal
PWC	Provincial Water Commissions
REWAB	MENA Regional Water Governance Benchmarking Project
SEE	State Secretariat in Charge of Water
USAID	United States Agency for International Development

FOREWORD

The MENA Regional Water Governance Benchmarking Project (ReWaB) aimed to characterize water governance regimes in six Middle Eastern countries to allow comparisons both across countries and over time. In doing this, information on a variety of aspects of water governance was generated, including the country context, policies and laws, organizations, and expert-based ratings of performance. This information has been consolidated into a profile for each country in a common format.

The Morocco profile was drafted by Lucia De Stefano, Bridget Brown, Jonathan Lautze, Luke Sanford and Mark Svendsen, with contributions from Muhamed Aboufirass, Sarah Kopper, Michael Campbell, Rebecka Daye and Alastair Green. It also drew from a great many other inputs – other project team members, national collaborators, and workshop and rating session participants.

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SUMMARY

COUNTRY PROFILE – MOROCCO

HIGHLIGHTS

OVERALL FINDINGS OF INTEREST

High Capacity

- Organizing in the water sector; clearly assigning roles at central and regional levels
- Collecting data and planning strategically
- Responding to changing conditions
- Interagency and trans-level consultation on decisions
- Assigning and transferring water rights

Potential Challenges

- Regulating water quality and protecting aquatic ecosystems
- Providing sufficient human resources for management
- Accountability and integrity in governance
- Enforcing water withdrawal limits
- Enforcing water quality standards
- Maintaining public infrastructure

WATER SECTOR ORGANIZATIONS

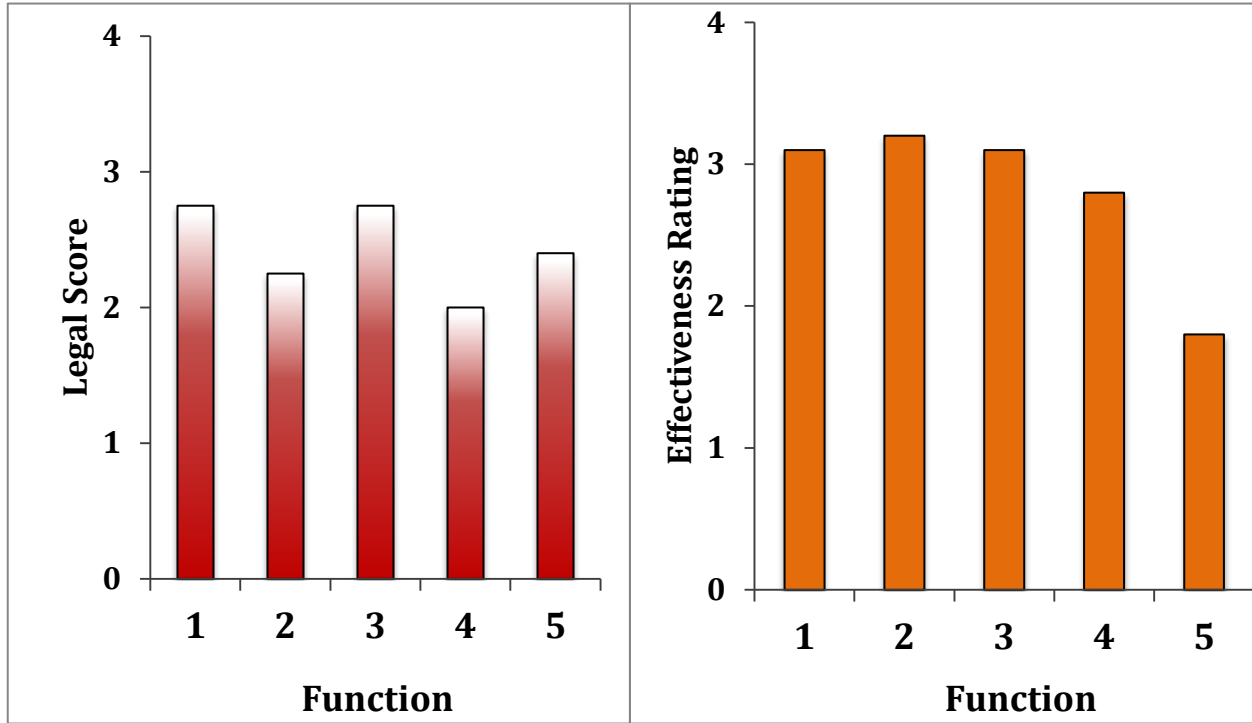
RELATIVE INFLUENCE ON WATER GOVERNANCE FUNCTIONS

	Organizing	Planning	Allocating	Developing	Regulating
Water Secretariat	●●●	●●●	●●●	●●●	●●●
Dept. of Environment	●●	●	●	●	●●●
Basin Agencies	●●●	●●●	●●●	●●●	●●●
M. Agriculture	●●●	●●●	●●●	●●●	●●
S. Council on Water & Climate	●●●	●	●	●	●
Dept. of Planning	●	●	●	●	●
Dept. of Industry	●	●	●	●	●
Dept. of Land Management	●	●	●	●	●
Dept. of Tourism	●	●	●	●	●
Dept. of Health	●	●	●	●	●
Dept. of Economy	●	●	●	●●●	●
Dept. of Justice	●	●	●	●	●
Legislative Body	●●	●	●	●	●
Drinking Water Supply Office	●●●	●●●	●●	●●	●●●
National Electricity Office	●	●	●	●	●
Regional Ag. Development Au.	●●	●●●	●●●	●●●	●●
Dept. of Water and Forests	●	●	●	●	●
Private Sector	●	●	●	●	●
Universities	●	●	●	●	●
NGOs	●	●	●	●	●
WUAs	●	●	●	●	●
Ministry of Interior	●●	●●	●	●	●
Government Companies	●	●●	●	●●	●●

STANDARD WATER GOVERNANCE FUNCTIONS

(1) Organizing & Building Capacity – (2) Planning Strategically – (3) Allocating
(4) Developing & Managing – (5) Regulating

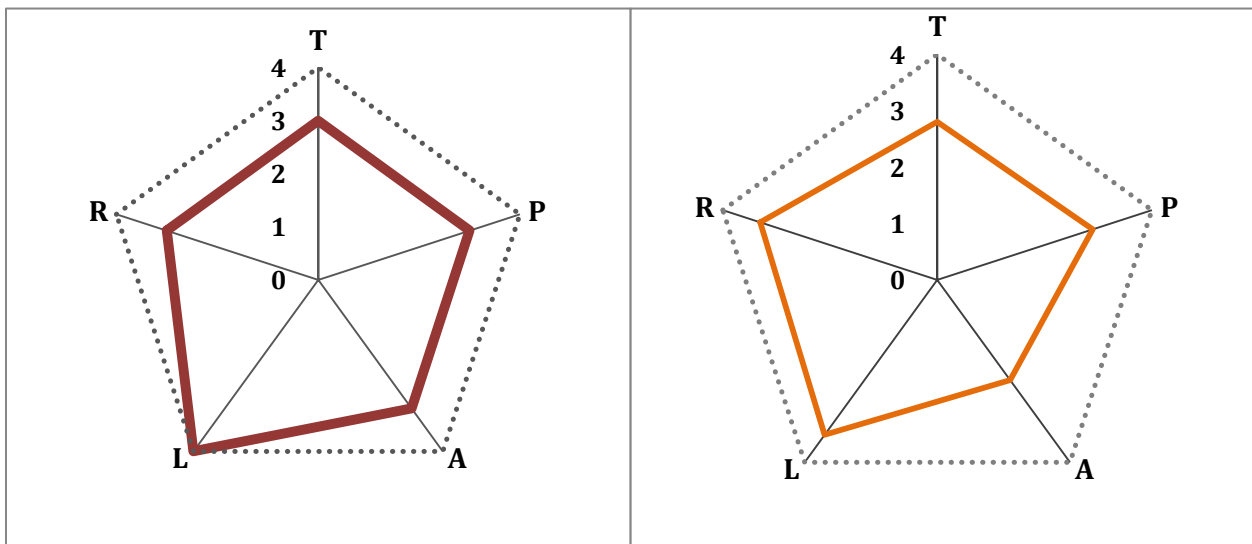
■ Legal Score ■ Expert Rating



GOOD GOVERNANCE PROCESS FEATURES

(T) Transparency – (P) Participation – (A) Accountability – (L) Rule of Law – (R) Responsiveness

■ Legal Score ■ Expert Rating ■ Highest Possible



1. INTRODUCTION

Most countries of the Middle East are chronically water stressed. Population growth and climate change impacts will exacerbate that stress. Most of the region's countries have already constructed significant water resource infrastructure, but the effectiveness of water governance and management has often lagged behind. Clearly, hardware solutions to these formidable challenges are not, by themselves, sufficient. Water governance shortcomings also hamper the achievement of durable solutions to water stress.

In order to tackle water governance weaknesses it is necessary to assess the present situation and its evolution over time. The Regional Water Governance Benchmarking Project¹ (ReWaB) aims at establishing a system of water governance capacity and performance benchmarking for Middle East and North Africa (MENA) countries. After analyzing the state of the art on the subject, the project team defined concepts of *governance*, *policy*, *management*, and others and designed a strategy for assessing *de facto* water governance based on essential water governance functions and characteristics of good governance decision-making processes. It also suggested a three-tiered framework defining the structural capacity for effective water governance comprising policies, laws, and organizations. Based on these concepts, it defined an approach to measuring and assessing water governance and tested it in six countries in the MENA region (Egypt, Jordan, Morocco, Oman, Turkey, and Yemen).

This report summarizes the results of the ReWaB assessment for Morocco. After this Introduction, Section 2 briefly presents the project's approach to water governance benchmarking. Section 3 provides a brief overview of the political, economic, and social situation in Morocco; looks at water availability; broadly outlines the main users and managers of Morocco's water resources; and identifies relevant transboundary issues. Section 4 describes the main actors in Morocco's water governance and their influence on functional performance, as shown by the Organizational and Functions (O&F) Matrix. Section 5 presents and discusses the main findings of the Policy and Legal (P&L) Analysis. Section 6 presents and discusses the results obtained in the expert-based assessment (EBA), which gauged the functional effectiveness of the Moroccan water sector and the application of good governance processes in water-related decision making. Section 7 concludes the profile, highlighting areas of high capacity and areas where potential areas of improvement exist.

¹ www.rewab.net

2. THE REWAB APPROACH

2.1 CONCEPTS²

After critically reviewing the variety of existing definitions of water governance, ReWaB defined water governance as *the manner in which authority is acquired and exercised on behalf of the public in developing, utilizing, and protecting a nation's water resources*.

For analytical purposes, governance structures can be divided into three groups: policies, laws, and organizations (Saleh and Dinar, 2004). In this context, **policies** are purposive courses of action giving overall direction to governance, while **laws** are codified and informal “rules of the game”. Finally, **organizations** are groups of individuals engaged in purposive activity.

The observation that, while there are large differences in organizational structures across different countries there is substantial consistency in the core functions that water sectors perform, led to the identification of a set of core functions, called standard water governance functions (functions), that must be performed by any effective national water sector (Table 1).

Table 1. Standard water governance functions and sub-functions

<p>1. Organizing and building capacity in the water sector</p> <ul style="list-style-type: none">1.1 Creating and modifying an organizational structure1.2 Assigning roles and responsibilities1.3 Setting national water policy1.4 Coordinating and integrating among sub-sectors, levels, and national sub-regions1.5 Establishing linkages with neighboring riparian countries1.6 Building public and political awareness of water sector issues1.7 Securing and allocating funding for the sector1.8 Developing and utilizing well-trained water sector professionals <p>2. Planning strategically</p> <ul style="list-style-type: none">2.1 Collecting, managing, storing and utilizing water-relevant data2.2 Projecting future supply and demand for water2.3 Designing strategies for matching expected long-term water supply and demand and dealing with shortfalls (including drought mitigation strategies)2.4 Developing planning and management tools to support decision-making <p>3. Allocating water</p> <ul style="list-style-type: none">3.1 Awarding and recording water rights and corollary responsibilities3.2 Establishing water and water rights transfer mechanisms3.3 Adjudicating disputes3.4 Assessing and managing third party impacts of water and water rights transactions

² More details on the project approach and framework can be found in the document “MENA Regional Water Governance Benchmarking Project Concept and Approach Framework” (Part I) (2009), available at www.rewab.net.

4. Developing and managing water resources

- 4.1 Constructing public infrastructure and authorizing private infrastructure development
- 4.2 Forecasting seasonal supply and demand and matching the two
- 4.3 Operating and maintaining public infrastructure according to established plans and strategic priorities
- 4.4 Applying incentives and sanctions to achieve long and short term supply/demand matching (including water pricing)

- 4.5 Forecasting and managing floods and flood impacts

5. Regulating water resources and services

- 5.1 Issuing and monitoring operating concessions to water service providers
- 5.2 Enforcing withdrawal limits associated with water rights
- 5.3 Regulating water quality in waterways, water bodies, and aquifers (including enforcement)
- 5.4 Protecting aquatic ecosystems
- 5.5 Monitoring and enforcing water service standards

Water governance is, in essence, a series of interlinked decisions. The way in which decisions are made can be an important determinant of the quality and content of the decisions actually reached. After reviewing the literature on the subject and critically discussing the decision-making features characteristic of “good governance,” ReWaB posited a set of five decision process dimensions for use in assessing water governance (Table 2).

Table 2. Decision-making process features characteristic of good water governance

- 1. Transparency.** Information should flow freely within a society. The various processes and decisions should be open to scrutiny by the public.
- 2. Participation.** All citizens, both men and women, should have a voice, directly or through intermediate organizations representing their interests, throughout water governance policy formulation and decision-making.
- 3. Accountability and Integrity.** Governments, the private sector and civil society organizations should be accountable to the public or the interests they represent.
- 4. Rule of law.** Legal frameworks should be fair and enforced impartially.
- 5. Responsiveness.** Institutions and processes should serve all stakeholders and respond properly to changes in demand and preferences, or other new circumstances.

In the resulting framework policies, laws, and organizations provide the institutional structure in which water governance takes place. Effectiveness in water governance stems from effective performance of a set of standard functions. Finally, the characteristics of governance decision making provide a way of assessing the degree to which governance reflects the will of the public, its fairness, and its self-awareness and ability to adjust to changing conditions.

2.2 ANALYTIC TOOLS

In the ReWaB approach, water governance capacity is evaluated by a combination of policy, legal, and organizational analyses. The way in which capacity is employed to reach decisions, and the processes and values used in making those decisions, are assessed by expert-based in-country assessments.

ORGANIZATIONAL ANALYSIS

During preliminary interactions with local informants, significant water governance-related organizations in each country, both public and private, were identified and their roles, based on

their official mandates, were outlined. These organizations were then examined, relative to the standard water sector functions, to map the *de facto* organizational coverage of the functions.

This analysis employs a matrix-based assessment tool in which panels of water-experts in the country rated the degree of *de facto* involvement of particular organizations in carrying out the water functions in that country³. Participants assign scores assessing the degree to which particular organizations influence decisions relating to each of the five standard water governance functions. During the process, participants discuss in groups, and then evaluate individually, the roles of the various organizations. The resulting O&F Matrix is presented and discussed in Section 4.2 of this document and in the Summary at the beginning of the profile.

POLICY AND LEGAL ANALYSIS

The policy and legal analysis provides document-based information on the policy and legal context for water governance decision-making in the target country. This analytic component is a desk study consisting of a systematic analysis of a set of water-related policy and legal documents retrieved early in the assessment process⁴. The documents considered include national policy papers and laws that either are specifically aimed at water, or are focused on other issues but have a direct impact on water management and governance, such as environmental or human health regulations.

The document analysis considers the water governance functions that deliver available water to the water-depending uses, including environmental uses, and the formally mandated characteristics of the decision-making processes used in making water governance decisions. The policy and legal assessment includes independent analysis based on three groups of criteria: (1) functions, (2) process features, and (3) cross-cutting categories (water types and water uses). Each of the three sets of criteria is applied to policy and legal material separately. The analysis produces a qualitative assessment of the policy and legal documentation and two sets of scores that characterize each set of materials using numerical values.

To produce the numerical scorings, a team of three analysts evaluates “tags” for each framework element to assess its extent of coverage, and assigned two scores – one for policy and one for law – between 1 (framework element is not covered in the provided documentation) and 4 (extensive documental coverage). The three analysts assign their scores independently and then reach consensus on the assigned scores through one or more reiterative deliberation meetings. The results of the policy and legal analysis are summarized in Section 5 and in the Summary.

EXPERT-BASED WATER GOVERNANCE RATING

The expert-based assessment evaluates the overall level of effectiveness in performing the five standard water governance functions (functional effectiveness rating) and the extent of application of five characteristics of good governance decision-making (process features rating)⁵. Both ratings are derived from questionnaires completed by national water experts at a Rating Session in the

³ See *Fieldwork Protocol* at www.rewab.net for detailed description of methodology employed.

⁴ See *Desk Study Protocol* at www.rewab.net for detailed description of methodology employed.

⁵ See *Fieldwork Protocol* at www.rewab.net for detailed description of methodology employed.

country. To assess functional effectiveness, participants in the Rating Session are asked to complete the questionnaire using a 4-value rating scale. Respondents discuss and assign the scoring in groups by consensus.

A second questionnaire is used to rate the degree of application of the five good governance decision-making features defined in the ReWaB framework. Country performance was assessed against the highest conceivable level of each of the five features while considering a common set of five water-related challenges that are used in all countries in which the assessment is conducted. These challenges are: (1) increasing demand for drinking water; (2) decreasing groundwater levels; (3) strategic planning for a national water policy; (4) regulating water quality in rivers, aquifers and waterways; and (5) matching supply and demand in agriculture. For each challenge, participants are asked to use a 4-value scale to score two to five statements related to the five decision-making features. Participants discuss the scoring in groups and then complete the questionnaire individually.

The resulting scores of both ratings together with their analysis are presented in Section 6 and in the Summary.

3. WATER RESOURCES CONTEXT

This section gives a brief overview of the political, economic, and social situation in Morocco to provide a context for Moroccan water resource governance and management. In addition, it outlines water availability and the main water users in Morocco.

3.1 POLITICAL STRUCTURE

Following decades of foreign control due to its proximity to Europe and its location on the Strait of Gibraltar, Morocco gained independence from France in 1956 and is since then ruled by a hereditary monarchy. Political reforms beginning in the 1990s led to the establishment of a bicameral legislature, though ultimate power still rests in the hands of the monarch (Freedom House 2006). USAID notes that the country has made “substantial progress in extending and implementing democratization and good governance reforms” in recent years, and that there has been “increased devolution of authority and decentralization of decision-making” (USAID 2008).

3.2 ECONOMY

Morocco is classified as a middle-income country with a Purchasing Power Parity per-capita GDP of US \$4263 (World Bank 2008). Morocco has recently sought to liberalize its economic policies through International Monetary Fund programs and it signed a Free Trade Agreement with the United States in 2004. However the Moroccan economy is not without problems. The urban unemployment rate is nearly 20% and is likely to increase because of urbanization (US Department of State 2007). Furthermore, the Moroccan economy is especially dependent on agriculture, making it susceptible to droughts (Diao et al. 2008).

3.3 GEOGRAPHY AND POPULATION

Morocco occupies 446 thousand square kilometers in the northwest coast of Africa. It experiences primarily Mediterranean weather patterns, though it is extremely hot and dry in the interior. Morocco is characterized by a fertile coastal plain on the Mediterranean sea and, on the west of the country, wide coastal plains facing the Ocean and bounded by the Er Rif and Atlas mountain ranges. The Atlas Mountains extend across the country from southwest to northeast. South of the Atlas Mountains, semiarid grasslands merge with the Sahara desert. Morocco has a population of about 32 million people (World Bank 2008), which is nearly evenly split between rural and urban areas. The Moroccan population is growing at a rate of 1.1% annually and urbanization is taking place at a rate of almost 2% per year (CIA 2010).

3.4 WATER AVAILABILITY

Morocco has a fairly large renewable freshwater resource of 29 cubic kilometers per year, of which less than half is used each year (FAO 2005). The World Bank has called Morocco a “champion [of water policy] in the MENA region” (World Bank 2008). This is due to a variety of

factors including development of water laws, decentralization of water management, public-private partnerships in water development, and demand-side policies. Despite its seemingly large water supply and good water management, Morocco experiences severe water problems as a result of erratic weather conditions and high frequency of droughts (Bennis & Sadeq 1998). When droughts occur, groundwater is over-used leading to saline intrusion and water quality problems (Diao et al. 2008). These problems are further complicated by population growth, and current freshwater supply will be inadequate to serve the population in the future (World Bank 2008).

Domestic water use accounts for 10% of water withdrawals in Morocco, while industry uses only 3% of freshwater withdrawals (CIA 2010). Municipal water use is expected to increase markedly in coming years because of urbanization. Research and development is beginning in areas such as desalination and wastewater reuse to increase supply to meet the demands of the municipal sector.

Morocco has 19% of its surface is covered by arable land, and agriculture provides a significant share of the country's income and employment. Forty percent of the population relies on agriculture as its primary source of income, and agriculture is responsible for nearly one fifth of the GDP (Diao et al. 2008; US Department of State 2007). It also accounts for 87% of freshwater withdrawals, coming from both surface and groundwater, primarily in the Oum Rbia and Sebou basins where most of the irrigated land is located (FAO 2005).

In response to an increased occurrence of droughts in the late 1980's and early 1990's the government passed the 1995 Water Law, which established water as a public good and reorganized water management in the country. The law placed the following resources in the public domain:

Surface and underground waters, watercourses and springs of whatever nature, lakes, ponds, lagoons and marshes, including those which, while not permanently covered by water, are not, in normal years, suitable for agricultural use; artesian wells, public wells and drainage canals; dykes, dams, aqueducts; beds and sources of permanent and temporary rivers and navigation and irrigation canals. (FAO Water Law and Standards)

Furthermore, the law bestows complete authority on the government to regulate, distribute, and monitor water in Morocco (FAO Water Law and Standards). The restructuring of the water sector placed responsibility for planning and policymaking at the national level, but implementation and management at the regional level (Tsur et al. 2004). This was followed up by pollution control legislation, which establishes standardized water quality standards for the country.

For most of the 20th century Morocco's water policy agenda has been to expand access to water by building infrastructure (Tsur et al. 2004). Due to this policy focus, Morocco's irrigation network is well developed, and it has a storage capacity of 16.1 cubic kilometers (World Bank 2008; FAO Aquastat 2005). Morocco also uses large-scale basin transfers of water to alleviate regional unequal distribution of water (Tsur et al. 2004).

At present Morocco's priorities have shifted towards improving water supply and sanitation as well as looking for new water sources. Despite this shift in priorities and the strong institutional backing that such policies receive, Morocco's urban sanitation access has decreased from 87 to 83% from 1990 to 2002. Over the same period, rural access to safe drinking water decreased from 58 to 56% (Globalis 2002).

Since it has already tapped most of its potential water development options, Morocco is now investing in projects for wastewater re-use and desalination to meet rising levels of water demand. The use of raw wastewater for irrigation is a current and long-standing practice (Choukr-Allah 2010) in Morocco, one which poses serious health risks for those using it as irrigation water and for those consuming crops that are irrigated by the wastewater (Baroudy et al. 2006). To ensure that the use of treated wastewater complies with health quality standards, the government has increased investment in wastewater treatment capacity. However operations and maintenance lags. In 2004 there were 69 wastewater treatment plants in Morocco, but only 42% were in an operating state (Fatta et al. 2004).

The second area of expansion is desalination. In 2003 Morocco had two desalination plants with a combined capacity of 7800 cubic meters per day (Hafsi and Boughriba 2003). Desalination plants are particularly important in interior areas where they can improve the quality of brackish groundwater to make it suitable for drinking (Saadi & Ouazzani 2004).

3.5 TRANSBOUNDARY ISSUES

Morocco does not share a primary waterway with any neighbors, meaning that its transboundary water issues are relatively unimportant. It shares one river with Algeria, but it is not a primary freshwater source for Algeria (FAO Aquastat 2005).

4. ORGANIZATIONAL ANALYSIS

This section describes the organizations most prominently involved in water management in Morocco and their roles in the water sector. Then, it assesses the level of *de facto* influence of these organizations in decision-making related to the five standard water governance functions using an Organizations and Functions (O&F) Matrix.

4.1 MAIN ORGANIZATIONS IN THE WATER SECTOR

State Secretariat in Charge of Water and the Environment (Secrétariat d'Etat chargé de l'Eau et de l'Environnement, SEE, in French). The SEE operates under the broader umbrella of the Ministry of Energy, Mines, Water, and Environment. It is the government body most directly responsible for water resources in Morocco. Its tasks include: water resource assessment, monitoring, transfer, management, security, capacity building, and research and development. It also monitors meteorological events and evaluates past and future climate trends. These tasks and others are undertaken through four General Directorates, the National Meteorological Directorate (DMN, in French), the Hydrological Basin Agencies (ABH in French), the National Drinkable Water Office (Office National de l'Eau Potable, ONEP) and regional delegations of the State Secretariat.

Among the Directorates, the General Directorate of Hydrology (DGH) is in charge of the elaboration and implementation of government policy for water resources planning, mobilization, management and preservation, and management and maintenance of large hydraulic infrastructures. The General Directorate for Water Research and Planning is charge of water resource management, while the Directorate for Hydraulic Infrastructure is in the charge of implementation and the maintenance of large hydraulic infrastructures. It is also in charge of the construction of small dams, in collaboration with the Ministry of Agriculture.

Organized as an autonomous public service under the umbrella of the SEE, the National Meteorological Directorate (DMN) is in charge of (i) providing information and technical assistance in the area of meteorology for the sectors of hydraulics, agriculture, aeronautics, and maritime activities, (ii) conducting research in the areas of climate and environment, (iii) elaborating and implementing regulation in the area of meteorology and (iv) participating in the elaboration and the implementation of international agreement related to meteorology and climate.

Department for the Environment (Secrétariat d'Etat Chargé de l'Environnement in French). This department is in charge of initiating, promoting and coordinating government action relative to the environment. This includes developing a legal and institutional framework for environmental protection, protection of resources during development, environmental monitoring, conducting impact assessments, pollution prevention, improving urban living

conditions, fostering public awareness of environmental issues, and developing international cooperation and support for environmental initiatives.

River Basin Agencies (*Agences du Bassin Hydraulique, ABH*). The ABHs were created by the Water Law (Law #10-95) and one ABH was established for each of the nine main river catchments in the country. The ABHs are public organisms that benefit from legal personality and financial autonomy, and are in charge of water resources management in the basin. Their role includes implementation of water management plans, enforcement of water rights, financial and technological assistance to private operators, water monitoring, studies, water resources protection, and flood control. Each ABH operates under the supervision of a board that sets its general policy and approves its action plan. In particular, the board is in charge of (i) examining the yearly action plan prior to its submission the governmental body in charge of water resources, (ii) setting the ABH budget and allocating budget lines to specific actions, (iii) proposing to the government body in charge of water resources the level of tariffs for ABH services, (iv) approving agreements established by the ABH. The Board is composed of one third government representatives, one fourth public organizations and the remainder of representatives of corporate chambers, regional and local councils, ethnic collectivities and water user associations.

Ministry for Agriculture and Fishing (*Ministère de l'Agriculture et de la Pêche Maritime*). This Ministry is in charge of developing and implementing Government policy in agricultural production and rural development. It plays also a major role in water resource management, since 87% of the nation's water resources are allocated to irrigation. The Ministry of Agriculture is responsible for irrigation policy, on which it coordinates with the SEE.

High Council for Water and Climate (*Conseil Supérieur de l'Eau et du Climat*). The High Council for Water and Climate is in charge of outlining the national water and climate policy and of assessing the national strategies related to this subject. Moreover, it revises the national water plan and the integrated water management plans. The High Council remains at the disposal of the government to provide advise on any other issue related to national water policy.

High Commissariat for Planning (*Haut Commissariat au Plan*). This Commissariat is in charge of coordinating policy planning at the national level. Its tasks include the collection and analysis of statistics on economic, demographic and social issues, the identification of past trends and the formulation of future projections that are relevant to the establishment of national policies.

Industry Department (*Direction de la Industrie* under the *Ministere de la Industrie, Commerce et des Nouvelles Technologies*). One of the responsibilities of the Department of Industry is to supervise industrial water use.

Department for Land Management (*Département de l'Aménagement du Territoire*). The Department for Land Management interacts only peripherally with the water sector. It is involved in water decisions when they affect land use planning projects.

Tourism Department (*Ministère du Tourisme*). The Department of Tourism is also only peripherally involved in the water sector. It might be consulted in cases where water management decisions affect tourist attractions, or when tourism affects water use or quality.

Health Department (*Ministère de la Sante*). This department is in charge of the elaboration and implementation of government policy in the area of health. In relationship to water, it contributes

to the definition of global objectives and priorities for planning of water supply and sanitation programs. It is also consulted for establishing quality norms for drinking water and limits for wastewater disposal. Finally it initiates and implements outreach campaigns for public awareness with respect to water and sanitation.

Economy Department. This can influence the strategy adopted for the water sector when, for instance, elaborating the yearly finance law or when promulgating laws on water, especially ones that deal with tariffs on water abstractions and wastewater effluents.

Ministry of Finance (Ministère de l'Économie et des Finances). The Ministry of Finance is a member of all advisory committees dealing with water and environment and sits on the boards of all publicly-owned organizations.

Ministry of Justice (Ministère de la Justice). The Department of Justice is rarely involved in water issues. Its role is to run the courts system, so it becomes involved in legal disputes concerning water.

Legislative bodies (Instances législatives). The legislative bodies of Morocco are responsible for passing laws and therefore they are involved in formulating and passing pieces of legislation related to water resources.

Drinking Water Supply Office (Office National de l'Eau Potable, ONEP). ONEP was created in 1972 and is in charge of providing drinking water to populations, under the umbrella of SEE. Its mission includes: planning the drinking water supply for the country according to the evolution of the needs and by reserving the water resources; planning and setting up drinking water systems; managing drinking water systems for municipalities that ask for ONEP's assistance; providing technical assistance in monitoring drinking water quality; and providing third parties with technical support in managing drinking water systems.

National Electricity Office (Office National de l'Électricité, ONE). The National Electricity Office is in charge of producing hydroelectric power and protecting water resources against pollution due to mining activities and related industries.

Regional Agricultural Development Authority (Offices Régionaux de Mise en Valeur Agricole, ORMVA). The management of the large irrigation area is implemented through the various ORMVAs, autonomous bodies that operate under the umbrella of the Ministry of Agriculture. The ORMVAs are in charge of managing irrigation waters at the irrigation district level. Their mission includes: management of the irrigation districts; exploitation and the maintenance of irrigation equipment at the irrigation district level; providing technical assistance to farmers; and collection of irrigation water fees.

High Commissariat for Water and Forests and Fight against Desertification (Haut Commissariat aux Eaux et Forêts et à la Lutte Contre la Désertification). This High Commissariat is in charge of natural environment, forestry, wetlands, fresh water bodies, reforestation, preventing desertification, and conservation of natural ecosystems.

Private Sector. The private sector is growing in importance in Morocco's water sector. As part of its move towards public-private partnerships, many Moroccan government agencies have begun to rely more on consulting companies for advice and technical support. These consulting companies

tend to be either home-grown Moroccan companies or foreign firms that work directly with Moroccan consulting companies.

Universities. Universities have a small role in Morocco's water sector. They carry out water-related research through public grants and are responsible for training future water managers and practitioners. However, their role is limited to these two areas, and not much official collaboration occurs between universities and other water organizations.

NGOs There are numerous NGOs active in Morocco. These NGOs are involved in activities from water and sanitation to community management of water resources or environmental preservation.

Agricultural Water User Associations (Association d'Usagers de l'Eau Agricole, AUEA). Though AUEAs were established shortly after independence, they wielded very little power until the 1990's when a government decree gave them more power over local water distribution (Bennis & Saeq 1998). Their current role is to oversee service levels, charges, and water allocation (World Bank 2007a). Each member pays dues to cover the expenses of their AUEA, which also results in more personal involvement in the water sector and more incentive to maintain the system (Meinzen-Dick 2000). The AUEAs in Morocco also give farmers some influence in national irrigation policies (Tsur et al. 2004). An association for irrigation water users can be created on the demand of two-third of the farmers in an irrigation district. They aim to help farmers in implementing irrigation and drainage programs and in managing irrigation infrastructures. AUEA sits in the board meetings of ABH and contribute therefore in formulating water policy at the basin level.

Ministry for Domestic Affairs (Ministère de l'Intérieur). In relation to water, this Ministry is in charge of monitoring the performance of the *Régies* and the private companies that provide water supply, sanitation and electricity to local communities. This task is undertaken through two specific Directorates: the *Direction Générale des Collectivités Locales* and the *Direction des Régies et Services Concédés*. The Ministry of Domestic Affairs also collaborates with the SEE on water development projects.

Public Companies for urban water supply (Régies). *Régies* are in charge of water supply, sanitation and electricity to a number of cities and municipalities in Morocco. They are public bodies, mainly owned by municipalities.

4.2 ORGANIZATION AND FUNCTION MATRIX

This section presents the results of a Rating Session held in Morocco in February 2010 and attended by 20 water experts active in the Moroccan water sector and representing a range of backgrounds and institutional affiliations (Annex 1). Participants in the workshop evaluated the roles of different organizations by assigning a score assessing the degree to which an organization influences decision-making in each of the five standard functions. They discussed and rated in groups the roles of the various organizations. Their scores were then averaged to yield the value shown in Table 3. Listed vertically are the assessed organizations. Listed horizontally are the five standard water governance functions.

Each cell in the interior of the table provides a score that reflects the degree to which a particular organization influences decisions about a particular function. The scale ranged from 1 to 5, where

5 indicated the highest level of influence. To give a quick visual picture of the relative magnitude of the scores, individual cells have been shaded such that darker cells indicate stronger influence and lighter cells indicate less influence.

Table 3: Organizations influencing decision-making in the Moroccan water sector; grey tones correspond to the following scoring intervals, from lighter to darker levels of shading: 1.0-1.9, 2.0-2.9, 3.0-3.9, 4.0-5.0.

	Organizing	Planning	Allocating	Developing	Regulating	Average	
Secrétariat d'Etat chargé de l'Eau et de l'Environnement	5.0	5.0	4.3	5.0	4.7	4.8	State Secretariat in Charge of Water and the Environment
Secrétariat d'Etat Chargé de l'Environnement	3.7	2.3	1.3	2.7	4.3	2.9	Department for the Environment
Agences du Bassin Hydraulique	4.0	5.0	5.0	4.3	4.3	4.5	River Basin Authorities
Ministère de l'Agriculture et de la Pêche Maritime	4.3	5.0	5.0	4.0	3.7	4.4	Ministry for Agriculture and Fishing
Conseil Supérieur de l'Eau et du Climat	4.0	2.5	2.0	2.5	1.5	2.5	Higher Council for Water and Climate
Haut Commissariat au Plan	1.7	2.3	1.3	1.3	1.3	1.6	High Commissariat for Planning
Ministère de la Industrie, Commerce et des Nouvelles Technologies	1.7	1.3	1.0	1.3	2.0	1.5	Industry Department
Département de l'Aménagement du Territoire	1.7	2.7	1.3	1.0	1.0	1.5	Department for Land Management
Ministère du Tourisme	1.3	1.3	1.0	1.0	1.0	1.1	Tourism Department
Département de la Santé	1.3	1.3	1.0	1.0	2.3	1.4	Health Department
Département de l'Économie	2.3	2.3	1.0	4.0	1.7	2.3	Economy Department
Ministère de l'Économie et des Finances	1.3	1.0	1.7	1.0	1.0	1.2	Justice Department
Instances Législatives	3.3	1.0	1.3	1.3	2.0	1.8	Legislative bodies
ONEP	4.3	4.7	3.7	3.7	4.3	4.1	National Agency for Drinking Water and Sanitation
ONE	1.7	2.7	1.3	2.7	1.7	2.0	National Agency for Electricity
ORMVA	3.0	4.3	4.0	4.0	3.3	3.7	Regional Agencies for Agricultural Development
Haut Commissariat aux Eaux et Forêts et à la Lutte Contre la Désertification	2.3	2.7	1.3	2.0	3.0	2.3	High Commissariat for Water and Forests and Fight against Desertification

Secteur privé	2.0	1.3	1.0	1.7	1.3	1.5	Private Sector
Universités	2.0	1.3	1.0	1.0	1.7	1.4	Universities
ONG	1.7	1.0	1.3	1.0	1.0	1.2	NGOs
Associations des usagers de l'eau	1.7	2.0	1.7	1.3	1.3	1.6	Water Users Associations
Ministère de l'Intérieur	3.3	3.0	2.0	2.0	2.3	2.5	Ministry for Domestic Affairs
Régies	2.0	3.5	2.0	3.0	3.5	2.8	Local Water Agencies
Average	2.6	2.6	2.0	2.3	2.4		

Planning and Organizing had the greatest collective organizational involvement, as can be seen in the average degree of involvement for both functions. *Planning* sees three organizations obtaining the maximum score (5), while two others score over 4. The two main water-using sectors – agriculture and domestic supply – show a high level of involvement in this function, both at national (Ministry of Agriculture and ONEP) and local levels (ORMVA and *Régies*). The SEE has a predominant influence (5) on decisions related to the *Organizing* function, but shares part of its power with the High Council for Water and Climate, the ABHs, the Ministry of Agriculture and ONEP.

Allocating has the least collective organizational participation, with an average organizational involvement score of 2, 0.3 below the next lowest functions. The most influential organizations are the ABHs and the Ministry of Agriculture (with a score of 5), and the SEE and the ORMVA, which are involved in this function to a slightly lesser extent.

Regulating sees lower levels of involvement across the board and is the only function without an organization that scores 5. Nevertheless, Four organizations scored above 4. These are the SEE and the ABHs, and, in similar degrees, ONEP and the Ministry of Environment, which is in accordance with their mandates of urban supply provider and environment protection, respectively. Interestingly, the agricultural sector, which is the main water user in Morocco, has a relatively low influence on this function, as shown by the scores obtained by the Ministry of Agriculture (3.7), the ORMVA (3.3) and the AUEAs (1.7).

Developing had one organization scoring a five (SEE), and four additional organizations that scored more than 4. These include the Economy Department, the Ministry of Agriculture, the ABHs and ORMVA.

Several organizations have high level of influence in the Moroccan water sector. Three different organizations were rated as having the highest level of influence in at least two areas each. Furthermore, each function had at least four organizations that scored four or higher. This shows that a diverse set of actors have a high amount of influence in each of the functional areas. This likely requires a high level of inter-organizational coordination to maintain effectiveness and also suggests that there are plenty of opportunities for interaction in decision-making and implementing processes.

The Water Secretariat, the Ministry of Agriculture, and the Basin Agencies are the most influential organizations in the water sector. The Water Secretariat is the most involved organization, with an average involvement of 4.8, and with the highest levels of involvement in *Organizing*, *Planning*, and *Developing*. Both the River Basin Agencies and the Ministry of Agriculture are heavily involved in *Planning* and *Allocating*, and appear quite influential in other functions as well. This suggests that the Water Secretariat is the coordinating body for the water sector, especially in the areas of *Organizing* and *Developing*. It shares its influence with the Basin Agencies and Ministry of Agriculture in *Planning*, and has less influence than either of them in *Allocating*.

ONEP and ORMVA are both highly influential in the water sector and each of these organizations deals with a niche aspect of water management in the country. ONEP deals with drinking water supply, and even though it only has influence over a small amount of the country's water, it affects all five functions. ORMVA was created to deal with irrigation specifically, and operates under the Ministry of Agriculture. As a result, it has high levels of influence in each of the five functions.

Many organizations in Morocco have one primary function in the water sector. The Department of the Environment is the first of these, but they also include the Supreme Council for Water and Climate, which is highly influential in *Organizing*, but marginally influential in other areas. The Department of Economy also falls into this category, displaying high levels of influence in *Developing*, but relatively low levels of influence in other functions. This is likely because it plays a large role in implementing water development projects that have a direct influence on the economy, including dams. The Legislative Bodies are the final organization that fits in this category. They are highly involved in the *Organizing* function and have low levels of involvement in other functions.

Several organizations show lower but substantial involvement in most of the functional areas. The first of these is the Water and Forests Department, which has the most influence in *Regulating*, and the least in *Allocating*. The Ministry of the Interior and the *Régies* each have areas in which they are more influential, but maintain a moderate level of influence in each of the functions. The Ministry of the Interior is more influential in *Organizing* and *Planning*, and the *Régies* are most influential in *Planning*, *Developing* and *Regulating*. The Ministry of the Interior plays a primarily advisory role in the water sector, accounting for its influence in decision-making functions.

Several Organizations have very little influence overall. These include the *Planning Department*, which has a small amount of influence in the *Planning* function; the Industry Department, which has most influence in *Regulating*, a result of its regulation of industrial waste; the Department of Land Management, which has moderate influence in the *Planning* function because of its role in land management; the Tourism Department, which has virtually no connection with the water sector; the Health Department, which regulates sanitation resulting in a high level of influence in the *Regulating* function; the Justice Department, which has only a very small influence in the water sector; *ONE*, which is involved in hydropower projects, resulting in moderate influence on *Planning* and *Developing*; the Private Sector and Universities, which each are marginally involved in *Organizing*, but none of the other functions; and NGOs and Water Users Associations, which have a bit of influence in the *Planning* function, but little elsewhere.

4.3 SUMMARY

Morocco's water sector has a large number of important actors in it, many of which wield substantial influence in at least one function. Given the country's high reliance on water for agriculture and its economy, it is no surprise that so many actors are involved. Morocco is a monarchy that has been steadily devolving power, and its structure of water organizations seems to mirror this. The country has three main water organizations that hold most of the influence (the Water Secretariat, Basin Agencies, and the Ministry of Agriculture)—under the leadership of the Water Secretariat. The larger influential organizations like the Ministry of Agriculture have devolved power to organizations designed to fill specific tasks like ORMVA, which is in charge of irrigation and reports to the Ministry of Agriculture. Similarly, SEE has largely delegated the provision of potable water to ONEP, which appears as an influential organization in the water sector.

As one would expect, there are a variety of other actors in the water sector that are peripherally involved and either wield low influence overall, or are moderately influential in one area. An example is the Department of the Economy, which is peripherally involved in most water decisions, but becomes highly influential in activities related to the development and management of water resources.

5. POLICY AND LEGAL ANALYSIS

This section summarizes the analysis of water governance capacity for Morocco using available legal documents. The documents originate from a variety of institutions in Morocco. A total of 38 English-translated documents provided the data for this analysis (Annex 2). Though the documents themselves are all official, the translations are all unofficial. In addition to the legal documents, three policy documents were eventually provided, but, due to their late arrival, they could not be included in this analysis. The laws considered range in date from 1938 to 2006.

5.1 FUNCTIONS

ORGANIZING AND BUILDING CAPACITY IN THE WATER SECTOR

Under function one, all sub-functions are covered to some extent except for sub-function 1.5. The most frequently addressed sub-function is 1.2. Sub-functions 1.6 and 1.8 are less developed.

Table 4. Legal scores for Function 1, by sub-function; grey tones correspond to the following scoring intervals, from lighter to darker levels of shading: 1.0-1.9, 2.0-2.9, 3.0-4.0.

Sub-Functions	Legal Score
1.1 Creating and modifying an organizational structure	3
1.2 Assigning roles and responsibilities	4
1.3 Setting national water policy	3
1.4 Coordinating among sub-sectors, levels, and sub-regions	4
1.5 Establishing linkages with neighboring riparian countries	1
1.6 Building public and political awareness of water sector issues	2
1.7 Securing and allocating funding for the sector	3
1.8 Developing and utilizing well-trained water sector professionals	2

Sub-function 1.1, creating and modifying an organizational structure, centers mainly on the creation of localized management units, which are created via agencies and commissions that focus

on water quality and the environment in the various hydrological basins (ABHs) and provinces (Provincial or Prefectorial Water Commissions, PWCs). In addition, Associations of Agricultural Users (AUEAs) and the High Council for Water and Climate are established.

Sub-function 1.2, assigning roles and responsibilities, is the most developed sub-function. The majority of water management responsibilities are decentralized to the basin level, in the hands of the ABH in each of the seven basins. In addition, responsibilities for the AUEAs, High Council for Water and Climate, and PWCs are outlined.

Sub-function 1.3, setting national water policy, is supported by the majority of the documents. Water is considered a public good in Morocco. There is a concerted focus on establishing and implementing a National Water Plan, as well as local, basin-specific plans, Integrated General Water Resources Development Plans (IGWRDPs), that clearly establish guidelines for: (i) optimal use of available water resources; (ii) development of water resources; and (iii) protection of water quality and pollution abatement.

Through sub-function 1.4; establishing linkages among sub-sectors, levels, and national sub-regions; Morocco's legal framework addresses both vertical and horizontal coordination among the competent institutions ABHs must coordinate with local communities through the prefectorial/provincial water commissions as well as with the national government. The diversity of sectoral representation within the HCWC is a reflection of horizontal coordination

Sub-function 1.5, establishing linkages with neighboring riparian countries, is not addressed in any of the analyzed documents.

Sub-function 1.6, building public and political awareness, is minimally supported (in terms of water-specific awareness) among the documentation. An exception is the public awareness initiated locally by the PWCs.

Sub-function 1.7, securing and allocating funding for the water sector, is addressed in several documents, with emphasis on securing (as well as some allocating) funding for the local-level water management agencies. The legal documents discuss securing funds for specific projects or organizations through financing plans, membership dues, and user fees.

Developing and utilizing well-trained water sector professionals, sub-function 1.8, is presented frequently within the documents, though language surrounding it is brief. Focus is on utilizing, rather than developing, well-trained professionals, typically as representatives in councils or commissions.

PLANNING STRATEGICALLY

Within function two, sub-function 2.1 is supported the most extensively, while sub-functions 2.2 and 2.3 are addressed only in select documents and 2.4 is not addressed at all. Overall, strategic planning in Morocco's water sector, as it is established through function 2, puts a heavy focus on data collection and use relative to water quality and quantity.

Table 5. Legal scores for Function 2, by sub-function; grey tones correspond to the following scoring intervals, from lighter to darker levels of shading: 1.0-1.9, 2.0-2.9, 3.0-4.0.

Sub-functions	Legal Score
2.1 Collecting, managing, storing and utilizing water-relevant data	4
2.2 Projecting future supply and demand for water	2
2.3 Designing strategies for matching expected long-term water supply and demand and dealing with shortfalls	2
2.4 Developing planning and management tools to support decision-making	1

Sub-function 2.1, collecting, managing, storing and utilizing water-relevant data, is well supported by Morocco’s legal documents. Periodic technical studies are part of the country’s efforts to determine and protect the quality and quantity of its water resources. Results are used for setting abstraction thresholds and quality standards, delineating protection zones, and regulating use and services.

Sub-function 2.2, projecting future supply and demand for water, is addressed in two legal documents, both which reference policy documents – the National Water Plan and IGWRDPs – that were not available for further analysis. Thus, it is marginally supported.

Sub-function 2.3, designing strategies for matching expected long-term water supply and demand and dealing with shortfalls (including drought mitigation strategies), is moderately supported. Regulatory measures, treated wastewater use and water pricing are the strategies allotted the most attention.

Sub-function 2.4, developing technological planning and management tools to support decision making, is not addressed in Morocco’s legal documents.

ALLOCATING WATER

The majority of content relating to allocation is concentrated within the Law on Water, though several additional documents support for this function. All sub-functions are supported to some extent, with sub-function 3.1 receiving the majority of attention. The documentation clearly sets out how water rights and responsibilities are awarded and recorded for various uses.

Table 6. Legal scores for Function 3, by sub-function; grey tones correspond to the following scoring intervals, from lighter to darker levels of shading: 1.0-1.9, 2.0-2.9, 3.0-4.0.

Sub-functions	Legal Score
3.1 Awarding and recording water rights and corollary responsibilities	4
3.2 Establishing water and water rights transfer mechanisms	3
3.3 Adjudicating disputes	2
3.4 Assessing and managing third party impacts of water and water rights transactions	2

Sub-function 3.1, awarding and recording water rights and corollary responsibilities, is well supported among the documents. In Morocco, water is considered a public good and all water resources not awarded prior to the Law on Water are considered part of the “hydrological public domain.” In order to use public water, users must be granted an authorization or concession (essentially a water use right).

Sub-function 3.2, establishing water and water rights transfer mechanisms, is marginally supported. In Morocco, water rights are non-transferrable unless an authorization is granted from the ABH or the AUEA managing the water distribution. This applies to water rights for surface water, groundwater and treated wastewater.

Sub-function 3.3, adjudicating disputes, is marginally supported. Courts and the AUEA Council are tasked with resolving disputes when necessary.

Sub-function 3.4, assessing and managing third party impacts of water and water rights transactions, is not directly addressed within the documentation.

DEVELOPING AND MANAGING WATER RESOURCES

Function 4 is supported by the majority of the documents. Overall, the focus is on irrigation networks, dams, public water supply, wastewater treatment and supply and water pricing for the various sectors. Sub-functions 4.1 and 4.3 are the most detailed, followed closely by 4.4.

Table 7. Legal scores for Function 4, by sub-function; grey tones correspond to the following scoring intervals, from lighter to darker levels of shading: 1.0-1.9, 2.0-2.9, 3.0-4.0.

Sub-functions	Legal Score
4.1 Constructing public infrastructure and authorizing private infrastructure development	2
4.2 Forecasting seasonal supply and demand and matching the two	1
4.3 Operating and maintaining public infrastructure according to established plans and strategic priorities	3
4.4 Applying incentives and sanctions to achieve long and short term supply/demand matching	2
4.5 Forecasting and managing floods and flood impacts	2

Sub-function 4.1, constructing public infrastructure and authorizing private infrastructure development, is well supported in Morocco’s laws, with the Law on Water containing the most content. In general, the focus in the set of documents is on smaller scale infrastructure, located on specific properties or within a hydrological basin, rather than on major national water development schemes. Irrigation works, drinking water distribution systems, wastewater treatment infrastructure, wells, dams and reservoirs are all topics that receive attention.

Sub-function 4.2, forecasting seasonal supply and demand and matching the two, is marginally addressed, with language surrounding the topic ambiguous, aside from one provision in Decree No. 2-05-1534. Development plans must consider spatial and temporal variation of water quality and quantity.

Sub-function 4.3, operating and maintaining public infrastructure according to established plans and strategic priorities, is well established, especially in documents that focus on water for human consumption. The emphasis is on maintaining infrastructure to protect public water supplies. In the irrigation zone the AUEA is responsible for the preservation and management of the constructed water use facilities.

Sub-function 4.4, applying incentives and sanctions to achieve long- and short-term supply/demand matching is well-supported in the legal framework. In order to protect water quality and quantity and promote its effective use, the legal documents establish water-pricing mechanisms, and delineate sanctions including monetary fines, imprisonment and closing down of facilities.

Sub-function 4.5, forecasting and managing floods and flood impacts, is discussed in five legal documents. The documents emphasize the use of technical studies to illustrate how infrastructure will stabilize watercourse banks and protect against flooding and mandates ABH Directors to create infrastructure to protect against floods.

REGULATING WATER RESOURCES AND SERVICES

Monitoring and enforcement of water service standards and water quality regulation are broadly addressed in Morocco’s legal material. Sub-function 5.3 is supported the most thoroughly, while 5.4 is supported the least. Sub-functions 5.1, 5.2 and 5.5 are moderately addressed.

Table 8. Legal scores for Function 5, by sub-function; grey tones correspond to the following scoring intervals, from lighter to darker levels of shading: 1.0-1.9, 2.0-2.9, 3.0-4.0.

Sub-functions	Legal Score
5.1 Issuing and monitoring operating concessions to water service providers	3
5.2 Enforcing withdrawal limits associated with water rights	2
5.3 Regulating water quality in waterways, water bodies, and aquifers (including enforcement)	3
5.4 Protecting aquatic ecosystems	2
5.5 Monitoring and enforcing water service standards	2

Sub-function 5.1, issuing and monitoring operating concessions to water service providers, is addressed primarily in the laws aimed at public water supply and irrigation. Concessions are authorized by ABH Directors and in the case of public water supply may include the authorization to treat water and operate water facilities.

Sub-function 5.2, enforcing withdrawal limits associated with water rights, is addressed moderately. Law on Water includes the most relevant provisions. Withdrawal limits associated with public infrastructure and irrigation are awarded attention.

Sub-function 5.3, regulating water quality in waterways, water bodies and aquifers (including enforcement), is supported extensively in the legal documentation. The Law on Water broadly addresses the topic, and in general confirms provisions within the various other laws. Water quality standards are established for surface and ground water. In addition, ambient water quality is regulated through the authorization required to discharge wastewater.

Sub-function 5.4, protecting aquatic ecosystems, is marginally supported in the legal material. While protection of water bodies is a priority, the ecosystems are not the focal point. However, four legal documents do contain relevant provisions.

Sub-function 5.5, monitoring and enforcing water service standards is well supported among the documents, First and foremost, it is prohibited to sell or distribute non-potable water for human consumption; water is considered potable when it fulfills the quality standards set through regulations. It is the responsibility of water service providers to continuously monitor water quality and adhere to treatment protocols set forth through regulations.

5.2 PROCESS FEATURES

Table 9 shows the results of the legal scoring, expressed on a 1-4 scale (4 maximum value).

Table 9. Legal scores for the five process features; grey tones correspond to the following scoring intervals, from lighter to darker levels of shading: 1.0-1.9, 2.0-2.9, 3.0-4.0.

	Legal Score
Transparency	3
Participation	3
Accountability & Integrity	3
Rule of Law	4
Responsiveness	3

TRANSPARENCY

Transparency is found in a number of Morocco's legal documents. Often, it takes the form of public notices of national or local legal formulations, amendments or water rights allocations. The majority of the provided legal documents were published in the Official State Gazette. In this way, the national government discloses and makes accessible emerging laws and evolving water policy. One objective of the Law on Water is to disclose decisions regarding water to public authorities and water users. Finally, decisions regarding agricultural water use are visible among AUEA members.

PARTICIPATION

Morocco's legal documents support wider participation. Participation primarily appears in the form of decentralized water management, through basin agencies and local committees and commissions that advocate participation by a wide variety of public and state representatives. In addition, public inquiries collect comments from interested third parties in relation to water use and regulation. One aspect of decentralization is the establishment and enhancement of AUEAs; this offers an important example of the increased levels of public participation in the agricultural sector.

ACCOUNTABILITY AND INTEGRITY

In the documentation, accountability for future actions and decisions is developed through open publication. A number of documents clearly illustrate this. Key considerations include environmental and societal impact assessments, with an emphasis on pre-project planning. Close monitoring provisions in drinking water and effluent discharge laws emphasize the importance of technological proof for water quality testing methodology and results. Averting conflicts of interest, through separation of water services and water monitoring responsibilities is noted as well.

RULE OF LAW

Rule of Law is less supported than the other process features among Morocco's legal documents. It is addressed in select laws, however. For one, the Law on Water states that authorizations and

concessions will only be approved if they are compatible with a basin's IGWRDP. This ensures the same rules are applied to all users in a given basin.

RESPONSIVENESS

This process feature is supported in a number of the legal documents, addressed primarily in the Law on Water. Morocco clearly aims to respond to changing needs of its citizenry, evidenced coherently through its documents as law review and modification. The quality, quantity, timing, etc. of many of the documents is a reflection of responsiveness. Many examples are present, including institutional restructuring and wastewater legislation, which appeared when it became evident that Morocco must seek alternative water development measures.

5.3 CROSS-CUTTING CATEGORIES

WATER SOURCES

The hydrological domain includes both surface water and groundwater, and both of these sources receive significant attention. Surface water is addressed in regard to meeting quality standards for drinking and irrigation. Sustainability of groundwater use also receives notable attention. In recent years, wastewater treatment and reuse – to meet increasing water demands – has been incorporated into water management, and thus several documents include or are aimed at this source as well. Overall, surface water receives the most attention, followed by groundwater, then derivative water.

WATER USES

Agriculture and human health are priorities in Morocco, and thus irrigation and municipal uses of water receive the most direct attention. Industrial uses are also addressed. There is minimal discussion of hydropower, navigation, recreation or social/religious uses; and no mention in any of the documents of environmental use. The Law on Water addresses water use in the broadest sense, mentioning irrigation, municipal, industrial, hydropower and navigation uses.

5.4 SUMMARY

Morocco has undergone a relatively recent restructuring of its water sector, and has taken many initiatives toward building its institutional capacity. The Law on Water is at the center of these changes, serving to consolidate and standardize water law in Morocco. This Law includes provisions on nearly every topic described above, and is referenced in the various decrees analyzed. The major structural change apparent in the documentation is the move towards decentralization, with the creation of Hydrological Basin Agencies. These agencies are responsible for all major water management tasks within their basin of jurisdiction, including water allocation, regulation, and water resources protection and development. Coordination between these agencies and the national government is emphasized, while regional coordination is not addressed. The water sector at both the national and local levels appears to have several mechanisms in place for cost recovery and project funding.

Strategic planning puts a heavy focus on data collection and dissemination, as well as innovative management strategies geared toward sustainability of the resource. Periodic technical studies are part of the country's efforts to determine and protect the quality and quantity of its water resources, and results of these studies are often used in monitoring and regulating water use and wastewater discharges. As public health is a priority, drinking water and water used in irrigation

receive the most regulatory attention. Sustainability of Morocco's water supply is also a major consideration; thus setting abstraction thresholds and ensuring compliance with water use rights are also emphasized.

In Morocco, water is considered a public good and all water resources not awarded prior to the Law on Water are considered part of the "hydrological public domain." In order to use public water, users must be granted an authorization or concession. Public and private infrastructure for water development must also be approved. Morocco emphasizes outsourcing some of the maintenance and construction of water infrastructure to the private sector, both as a cost cutting measure and as an incentive to stimulate private sector involvement in water development and management. Pricing, established for the various sectors that use water in the country, encourages conservative use of the resource. Sanctions are outlined for nearly every type of violation, primarily in the Law on Water. Basin agencies are responsible for creating infrastructure to mitigate flooding impacts.

Morocco demonstrates transparency through openness about government decisions, including publication of new laws and policies. Greater participation is encouraged by the move toward a more decentralized structure, reflected in part in the incorporation of agricultural water user associations into water management plans and the creation of hydrological basin agencies. These, along with provisions referring to stakeholder involvement, reflect an incipient participation. Accountability and integrity are also emphasized. In order to increase accountability, Morocco is now requiring environmental and health impact statements. Additionally, integrity provisions were included in some of the material. Responsiveness is demonstrated through reorganization of the water sector and a move towards adapting to the changing social structure, economy and environment.

In regard to water sources and uses, surface water is valued highly, both for municipal use and for use in agriculture, and ensuring its quality is a high priority. Although groundwater is mentioned less frequently in the documentation, it is also vital to Morocco, and safeguarding its quality and ensuring its continued supply is of great importance. Provision is made for the use of wastewater and its use is limited primarily to irrigation. Domestic and agricultural uses of water are the focal points of the legislation, and while several other uses were awarded some attention, environmental uses are not directly considered.

In conclusion, the documents do not fully address all of the standard water governance sub-functions and decision-making (process) features, but Morocco's water resource priorities are clearly evident in the 38 provided documents. The incomplete attention given to some sub-functions and process features may be attributed to the fact that no policy documents were available in time for the analysis. This would be especially true for Function 2 (Planning Strategically), and may also be the case with some of the process features, especially if their emphasis has been more recent.

6. EXPERT-BASED WATER GOVERNANCE RATING

This section presents the results of an Expert-Based Assessment (EBA) of water governance, undertaken in a Rating Session held in Morocco in February 2010. The Rating Session was attended by 20 Moroccan experts affiliated with different sub-sectors and different water-related organizations. The analysis considers the experts’ perception of effectiveness of the Moroccan water sector in the current (2010) and past (1995) performance of the five standard water governance functions. Also assessed is the extent to which five good governance decision-making features are present in actual decision-making related to key water challenges. The current Moroccan Water Act was passed in 1995 and for this reason participants selected that year as a baseline for the assessment.

6.1 FUNCTIONAL EFFECTIVENESS RATING

Table 10 presents averaged participant responses aggregated by function for the functional effectiveness exercise. Table 11 contains average scores drawn from the 20 questions in the functional effectiveness exercise. Standard deviations are shown in Annex 3.

Table 10. Aggregated responses to the functional effectiveness exercise; grey tones correspond to the following scoring intervals, from lighter to darker levels of shading: 1.0-1.9, 2.0-2.9, 3.0-4.0.

	1995	2010
F1: Organizing and building capacity in the water sector	2.7	3.1
F2: Planning strategically	2.7	3.2
F3: Allocating water rights	2.2	3.1
F4: Developing and managing water resources	2.8	3.0
F5: Regulating water resources and services	1.5	1.9

High functional effectiveness in all functions except Regulating. At present, the effectiveness with which three functions (*Organizing, Planning, and Allocating*) are performed is nearly equal. Each of these functions scored between 3.1 and 3.2 out of 4, and *Developing* was only slightly weaker. The function with highest score is *Planning*. *Regulating* was by far the weakest function, failing to receive even 2 out of 4.

Significant progress in the functional effectiveness of Morocco’s water sector since 1995. The experts perceived that the effectiveness of the five standard water functions has improved since the approval of the Moroccan Water Act in 1995. Effectiveness with which functions were performed in Morocco’s water sector saw an overall rating increase, with performance of each specific function growing noticeably.

Table 11. Averaged ratings of functional effectiveness; grey tones correspond to the following scoring intervals, from lighter to darker levels of shading: 1.0-1.9, 2.0-2.9, 3.0-4.0.

Question		1995	2010
F 1	1. Roles and responsibilities of each department or agency are clearly defined	2.9	3.6
	2. Policy goals for the water sector are clearly defined	2.5	3.2
	3. The water sector is provided with sufficient funds to function properly	3.0	3.0
	4. National governmental agencies consult each other when taking decisions that impact multiple sectors	2.8	3.3
	5. National governmental agencies cooperate in the implementation of their policies where appropriate	2.5	3.0
	6. Regional governmental agencies are consulted when decisions that affect their region are taken	2.9	3.5
	7. Governmental agencies are staffed with sufficient and trained personnel to perform the assigned tasks	2.7	2.1
F 2	8. Future water supply and demand forecasts are based on good quality data	2.7	3.2
	9. Water resources data are collected regularly, continuously throughout the country	3.0	3.3
	10. Current strategies for long-term matching of supply and demand have been effective at matching supply and demand	2.3	3.1
F 3	11. Rules and procedures for assigning and recording water rights are clearly defined and functioning	1.6	3.0
	12. Rules and procedures for transferring water rights are clearly defined and functioning	2.8	3.3
	13. Disputes among water users are resolved effectively	2.3	3.1
F 4	14. Government agencies are effective at forecasting seasonal supply and demand and matching the two	3.1	3.5
	15. Government agencies effectively operate public water infrastructure	2.7	3.1
	16. Government agencies effectively maintain public water infrastructure	2.5	2.3
	17. Current incentives and sanctions (including water pricing) are effective at achieving long and short term supply/demand matching	1.9	2.3
F 5	18. Government agencies are effective at enforcing withdrawal limits that are established	1.3	1.7
	19. Official water quality standards in waterways are met	1.6	2.2
	20. Aquatic ecosystems are protected to the level specified by the government	1.2	1.5
AVERAGE		2.4	2.9

Planning Strategically. As mentioned above, this is the function that is perceived to have the highest level of performance in Morocco's water sector (3.2 of 4). On aggregate, this function improved substantially since 1995, which seems to be consistent with the fact that the 1995 Water Act has put significant emphasis on planning processes. The strongest points of this function refer to the quality of the data collection programs and their use in supporting planning decisions (Table 11, q. 8 and 9).

Allocating Water. The expert-based assessment suggests a good level of performance of this function (3.1 of 4), especially in facilitating the interactions between water users, through clear water right transfer mechanisms and well functioning dispute resolution procedures. In terms of

change over time, this function seems to have evolved especially positively in the past 15 years. Progress in this area may be associated with an improvement in clarity in assigning water rights (Table 11, q.11).

Organizing and Building Capacity in the Water Sector. This function also presents a good overall level of performance (3.1 of 4). The definition of roles and responsibilities among the governmental bodies and the consultation among governmental agencies (national or regional) appear to be its strongest points, while the availability of adequate human resources in governmental water agencies may need special attention. The function as a whole saw improvement relative to the reference year, but there was substantial variation among the different sub-functions. The perception of the adequacy of staffing (number and/or skills) of agencies in charge of managing the water sector had a decrease (Table 11, q. 7), while the provision of funds to the water sector saw no variation. Other sub-functions all saw substantial improvement: the definition of responsibilities and policy goals for the water sector improved, as did the consultation on water-related between national agencies, and with regional and local governments.

Developing and Managing Water Resources. The overall performance of this function was 3 out of 4 in 2010. Its weakest aspects seem to be the use of incentives and sanctions for contributing to an efficient water use as well as the quality of the maintenance of Morocco’s public water infrastructure (Table 11, q. 17 and 16). On whole, this function improved only slightly since 1995. While the sub-function “Forecasting Seasonal Supply and Demand” improved along with “Operating Public Infrastructure”, “Maintaining public infrastructure” regressed to below 2.5 out of 4.

Regulating Water Resources and Services. Despite an improvement during the past 15 years, this function still scored below 2 out of 4. The weakest points in the effectiveness assessment are the protection of aquatic ecosystems (Table 11, q. 20), which scored a 1.5 out of 4 and the enforcement of withdrawal limits, scoring 1.7.

6.2 RATING OF PROCESS FEATURES

At the Rating Session, participants were also asked also to consider the extent to which five features were present in decision-making in response to five key water sector challenges (see Section 2).

The aggregated values of the averaged answers by challenge and process feature are shown in Table 12. The scale ranged from 1 to 4. A score of 1 indicates that the strength of a particular governance feature is low, and 4 indicates that the strength of a particular governance feature is high.

Table 12. Averaged ratings of decision process features; grey tones correspond to the following scoring intervals, from lighter to darker levels of shading: 1.0-1.9, 2.0-2.9, 3.0-4.0.

Challenge	Decision Process Feature					
	Participation	Transparency	Accountability and Integrity	Rule of Law	Responsiveness	Average
1. Drinking Water	2.6	2.4	2.0	3.3	3.0	2.7
2. Ground Water	3.4	3.1	2.1	3.4	3.3	3.1
3. National Water Policy	3.4	2.7	2.4	3.6	3.5	3.1
4. Water Quality	1.9	2.2	2.3	3.1	3.2	2.5
5. Matching supply-demand	3.2	3.3	2.2	3.4	3.3	3.1
Average	2.9	2.8	2.2	3.4	3.3	

Rule of Law and Responsiveness are the strongest process features. Both process features averaged well above 3 out of 4 on average, and didn't have any challenge areas that had scores below a 3. These two features scored highest in the context of *National Water Policy*, which could be related to the high functional effectiveness of *Organizing and Planning*. On the other hand, one might expect that *Rule of Law* feature ought to help ensure high levels of *Accountability and Integrity* in the decision-making process, but that feature received the lowest scores in the assessment.

Participation and Transparency receive mediocre scores. Both of these features scored slightly below 3 out of 4. However, both had interesting levels of variation across challenges. *Participation* had very high scores in *National Water Policy* and *Groundwater*, but an extremely low score in *Drinking Water*. *Transparency* was strong in both *Groundwater* and *Matching Supply and Demand* challenges.

Accountability and Integrity scored the lowest. *Accountability and Integrity* had low scores across the board. The causes of this weakness cannot be inferred from the functional effectiveness rating. However, this score seems to suggest that the water sector is not immune from challenges pointed out in a study by Transparency International (Chane, 2007).

National Water Policy, Matching Supply and Demand, and Groundwater scored highest among challenges. In three of the five challenges, the ReWaB process features scored relatively highly. These challenges were *National Water Policy*, *Groundwater* and *Matching Supply and Demand*. High scores in the *National Water Policy* challenge correspond to high effectiveness of function 1, *Organizing and Building Capacity* of the Water Sector (3.1 out of 4). Similarly, high scores in *Matching Supply and Demand* corresponded with an area that saw high functional effectiveness (function 4, *Developing and Managing Water Resources*).

Governance process features were weaker in the contexts of Water Quality and Drinking Water. Interestingly, *Water Quality* and *Drinking Water* presented diverging average scores in the application of the ReWaB process features although both are related to *Planning*, which showed

the highest functional performance in the assessment. The *Water Quality* challenge received the lowest scores in the process features assessment, which corresponds to the low performance in *Regulating*.

6.3 SUMMARY

Morocco's water sector displays a high level of variation both in functional effectiveness and governance features. Most of Morocco's water functions are fairly effective, with the exception of the *Regulating*, which may need particular attention. *Planning* is the most effective function. The consulted experts perceived a decrease in the adequacy of personnel staffing of governmental water agencies in the last 15 years. Other sub-functions whose performance was perceived as lower or unvaried since 1995 were maintenance of public water infrastructure, and amount of funding for the water sector. Governance process features had a variety of strengths in different challenges.

7. DISCUSSION AND CONCLUSION

The analysis presented in this report strives to give an overview of water governance in Morocco using a rigorously-developed conceptual framework and assessment methodology. When combining the results of the different analytic tools within the framework, interesting trends emerge. These observations do not purport to provide detailed diagnoses of the causes of problems identified, or “recipes” for change. Instead, they aim at (a) spurring discussion of problem drivers based on a standardized assessment of current water governance practices, and (b) identification of areas in which water governance in Morocco could be improved.

Overall, the Moroccan water sector has a strong regulatory framework and a good level of performance. A particularly strong point both in the documents and in practice is the identification of policy goals and the allocation of responsibilities to achieve them. In this context, three main water organizations have most of the influence: the Water Secretariat, which also provides primary leadership role; the Basin Agencies; and the Ministry of Agriculture. These organizations have devolved power to organizations, such as ORMVA, designed to perform specific tasks. Similarly ONEP has an important role, under the umbrella of the Water Secretariat, in the provision of potable water in the main urban areas.

Other strong areas, both in the legal documentation and in practice, are the programs for data gathering and their use for planning purposes (design of strategies to match demand and supply) and the construction and operation of public water infrastructure.

In some cases there is some discrepancy between the comprehensiveness of the legal norms and the functional performance on the ground. For example, the legal documentation broadly develops the system of allocation and management of water rights and the EBA confirms that the water rights system is clearly defined and functioning. However, the EBA also suggests that there are some problems in ensuring the enforcement of the withdrawal limits associated to water rights. The same happens with other strong points of the legal documentation, namely the regulation of water quality, the maintenance of water infrastructure, and sanctions and incentives to achieve long-term balance between supply and demand. Indeed all these sub-functions are broadly addressed in the legal texts but received relative low scores in the EBA.

In both the legal analysis and the EBA, the weakest function is, by far, “Regulating water resources and services”. In particular, the weakest point in the legal documentation is the protection of ecosystems, which finds correspondence in low scores in the EBA. As mentioned above, other aspects of this function (water quality and enforcement of withdrawal limits) are well regulated but poorly implemented. When looking at the O&F matrix, it is interesting to observe that while the water providers and regulators (SEE, ABH and ONEP) have a good level of influence in this function, the agricultural sector (Ministry of Agriculture, ORMVA and AUEAs) has relatively low involvement, despite the fact that it is the main water user in Morocco.

In some cases, limited legal support does not seem to affect the functional effectiveness on the ground. This is the case in the management of disputes and impacts of water transfers on third parties, which are marginally addressed in the legal texts but received positive EBA scores. This could be due to the fact that we could not access the relevant legal texts for the analysis or that mechanisms exist that are not coded in the legal documentation. Other sub-functions, like the development of decision-making support tools and the projection of future supply and demand, probably are marginally addressed in the legal documentation because they are more typical of policy and technical documents than of legal texts.

The five process features have similar good legal support. However, their implementation in the decision-making processes is not always as good. Rule of Law and Responsiveness received high ratings in all the considered challenges, while the scores for Integrity and Accountability show that there is substantial room for improvement in relation to this process feature. Participation was positively rated in most of the challenges, suggesting that efforts are being made to improve the involvement of stakeholders and the general public in decision-making processes. The O&F matrix, however, reflected a limited influence of NGOs, universities, private sector and AUEAs in the decision-making processes, confirming that there is still progress to be done to achieve a full participation of the Moroccan civil society. The scores for transparency were moderately positive, suggesting that this feature, which is essential for effective participation, may still need attention.

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ANNEX 1. WORKSHOP AND RATING SESSION: LIST OF PARTICIPANTS

Name	Organization
<i>M. Souliman Kaichoub</i>	SEEE/Dept Eau
<i>Mme. Ouiam Lablou</i>	IAV Hassan II
<i>Mme Mouna Sekkat</i>	SEEE/Dept Environnement
<i>M. El Ouahidi My Hassan</i>	SEEE/Dept Environnement
<i>M. Fekri Ahmed</i>	Faculté des Sciences Ben Msik
<i>M. El Bouazzaoui Rachid</i>	MICNT
<i>M. Omerani Abdesslam</i>	Haut Commissariat aux Eaux et Forêts
<i>M. Kassimi Abdessamad</i>	ORMVA Moulouya
<i>M. Lazaar El Bekkay</i>	AUEA Milli Haute
<i>Mme. Abani Naima</i>	HCP
<i>M. Mohamed Sinan</i>	EHTP
<i>M. Anwar Limouri</i>	SMIT
<i>M. El Kodja Mostafa</i>	ONEP
<i>Mme. Bouchra En-nia</i>	Ministère de la Justice
<i>M. El Issami Abdslam</i>	ONEP
<i>M. Alaoui Lamrani Abdelmalek</i>	Direction de l'Amenagement du Territoire
<i>Mlle. Nisrine El Azher</i>	Direction de l'Amenagement du Territoire
<i>M. Hajji Hamadi</i>	ONE
<i>M. Nassiri Hamid</i>	ORMVA Doukkala
<i>M. Ahmed Eddehbi</i>	AUEA Nour
<i>M. Aziz El Jami</i>	Ministère de la Justice

ANNEX 2. POLICY AND LEGAL DOCUMENTS

Decree No. 2-00-474: Establishing the Procedure for Recognizing Acquired Rights over the Hydrologic Public Domain (2000)

Decree No. 2-00-475: Regarding the Moulouya Hydrological Basin Agency (2000)

Decree No. 2-01-1343: Instituting the Committee on Pesticides for Agricultural Use (2001)

Decree No. 2-01-2813: Granting Approval of the Integrated General Water Resources Development Plan for the Tensift Hydrological Basin (2002)

Decree No. 2-01-2814: Granting Approval of the Integrated General Water Resources Development Plan for the Souss-Massa Hydrological Basin (2002)

Decree No. 2-04-553: Regarding Discharges, Spills, Disposals or Releases of Effluents into Surface Waters or Groundwaters (2004)

Decree No. 2-05-1326: Regarding Water for Human Consumption (2005)

Decree No. 2-05-1533: Regarding Independent Wastewater Treatment (2005)

Decree No. 2-05-1534: Regarding Terms, Methods and Procedures for Drafting and Revising the IWRDPs and National Water Plan (2005)

Decree No. 2-84-106: Setting the Methods and Procedures for Agreement Between the Administration and the AAWU and Approving the Model By-laws (1984)

Decree No. 2-93-1011: Regarding the Reorganization of the Organizations Responsible for the Protection and Improvement of the Environment (1995)

Decree No. 2-96-158: Regarding the Membership and Functioning of the High Council for Water and the Environment (1996)

Decree No. 2-97-178: Setting the Declaration Procedure for Revising and Updating the Water Resource Inventory (1997)

Decree No. 2-97-223: Regarding the Procedure for Drafting and Revising the Integrated General Water Resources Development Plans and National Water Plan (1997)

Decree No. 2-97-224: Setting the Conditions Governing the Artificial Accumulation of Water (1997)

Decree No. 2-97-414: Regarding the Methods and Procedures for Setting and Collecting the User Fee for the Use of Public Domain Water (1997)

Decree No. 2-97-487: Establishing the Procedure for Granting Authorizations and Concessions Relative to the Hydrological Public Domain (1998)

Decree No. 2-97-488: Regarding the Membership and Functioning of the Prefectorial and Provincial Water Commissions (1997)

Decree No. 2-97-489: Regarding the Delimitation of the Hydrological Public Domain, the Correction of Water Courses and the Extraction of Materials (1998)

Decree No. 2-97-657: Relative to the Delimitation of Protected Areas and Preservation of Prohibition Zones (1998)

Decree No. 2-97-787: Regarding Water Quality Standards and the Inventory of the Degree of Pollution of Waters (1997)

Decree No. 2-97-875: Regarding Wastewater Use (1997)

Joint Order 1180-06: Setting the Pollution Charge Rates Applicable to Wastewater Discharges and Defining the Pollution Unit (2006)

Joint Order No. 1607-06: Establishing the Specific Limit Values for Domestic Discharges (2006)

Joint Order No. 1606-06: Establishing the Specific Limit Values for Discharges from the Papermaking Pulp, Paper and Paperboard Industries (2006)

Joint Order No. 1608-06: Establishing the Specific Limit Values for Discharges from Sugar Industries (2006)

Joint Order No. 2283-03: Relative to the Royalties for Using Public Domain Water to Supply Water to Populations (2006)

Joint Order No. 548-98: Regarding the User Fees for the Utilization of Water from the Hydrological Public Domain for Irrigation (1998)

Joint Order No. 1275-01: Establishing the Quality Grid for Surface Waters (2001)

Joint Order No. 1276-01: Establishing the Quality Standards for Waters Intended for Irrigation Use (2001)

Joint Order No. 1277-01: Establishing the Quality Standards for Surface Waters Used to Produce Drinking Water (2001)

Order No. 1552-02: Relative to the Setting of Excavation Thresholds for Wells, Drilling Operations and Abstraction of Groundwater Inside the Souss-Massa Hydrological Basin Agency (2002)

Order No. 1650-00: Relative to the Setting of Excavation Thresholds for Wells, Drilling Operations and Abstraction of Groundwater Outside the Hydrological Basin Agency Action Areas (2000)

Order No. 2028-03: Establishing the Quality Standards for Fish Farming Waters (2003)

Royal Decree: Creating an Isolation Zone around Cemeteries in New Towns (1938)

Royal Decree No. 1-03-59: Promulgating Law No. 11-03 Relative to the Protection and Reclamation of the Environment (2003) (“Law on the Environment”)

Royal Decree No. 1-87-12: Promulgating Law No. 02-84 Relative to the Associations of Agricultural Water Users (“Law on AAWUs”)

Royal Decree No. 1-95-154: Promulgating Law No. 10-95 on Water (“Law on Water”)

ANNEX 3. STANDARD DEVIATIONS OF THE EXPERT-BASED ASSESSMENT SCORES

Question		1995	SD	2010	SD
F 1	1. Roles and responsibilities of each department or agency are clearly defined	2.9	0.74	3.6	0.51
	2. Policy goals for the water sector are clearly defined	2.5	0.64	3.2	0.86
	3. The water sector is provided with sufficient funds to function properly	3.0	0.76	3.0	0.38
	4. National governmental agencies consult each other when taking decisions that impact multiple sectors	2.8	0.86	3.3	0.49
	5. National governmental agencies cooperate in the implementation of their policies where appropriate	2.5	1.06	3.0	0.76
	6. Regional governmental agencies are consulted when decisions that affect their region are taken	2.9	0.64	3.5	0.64
	7. Governmental agencies are staffed with sufficient and trained personnel to perform the assigned tasks	2.7	0.46	2.1	0.83
F 2	8. Future water supply and demand forecasts are based on good quality data	2.7	0.80	3.2	0.77
	9. Water resources data are collected regularly, continuously throughout the country	3.0	0.76	3.3	0.62
	10. Current strategies for long-term matching of supply and demand have been effective at matching supply and demand	2.3	0.49	3.1	0.80
F 3	11. Rules and procedures for assigning and recording water rights are clearly defined and functioning	1.6	0.63	3.0	0.96
	12. Rules and procedures for transferring water rights are clearly defined and functioning	2.8	1.30	3.3	0.65
	13. Disputes among water users are resolved effectively	2.3	0.83	3.1	0.47
F 4	14. Government agencies are effective at forecasting seasonal supply and demand and matching the two	3.1	0.62	3.5	0.52
	15. Government agencies effectively operate public water infrastructure	2.7	0.80	3.1	0.70
	16. Government agencies effectively maintain public water infrastructure	2.5	0.52	2.3	0.49
	17. Current incentives and sanctions (including water pricing) are effective at achieving long and short term supply/demand matching	1.9	0.70	2.3	0.49
F 5	18. Government agencies are effective at enforcing withdrawal limits that are established	1.3	0.49	1.7	0.59

19. Official water quality standards in waterways are met	1.6	0.84	2.2	1.55
20. Aquatic ecosystems are protected to the level specified by the government	1.2	0.41	1.5	0.74

