

Water Laws and Customary Water Arrangements

TAREK MAJZOUB



I. INTRODUCTION

Water is essential not only for survival, but also for environmental and physical health, social stability, and economic growth. Government's endeavors to turn underperforming water utilities into sustainable service providers may - as one option among others - benefit from involving stakeholders and civil society institutions. However, experience throughout the last decade shows how difficult change processes in the water sector tend to be. Friction between stakeholders over priorities and means, lack of clarity about roles and responsibilities, and major concerns about private involvement often result in high transaction costs and hamper success. The critical lessons learned demonstrate the need to focus on integrated water resources management (IWRM) and water governance as decisive elements for water sustainability in the Arab region.

Although there is no agreed upon definition of good water governance, issues and basic principles for its achievement include participation of all stakeholders (government, private sector, and civil society), transparency, anti-corruption, promotion of water legislation, and regulations.

Legislation ought to emphasize the principles and concepts in support of IWRM, namely, holistic management, sustainability, equity, gender balance, economic value of water, and governance. It establishes the basis for the implementation of water policies and strategies and provides the context in which government and non-government entities and individuals take regulatory actions.

This chapter reviews possibilities for translating customary water arrangements and water laws into sound water legislation. It provides, where possible, some case studies to highlight success stories and/or lessons learned in water management. Furthermore, there is a broad discussion of what may constitute the core of water legislation. At the end, some conclusions and recommendations are drawn to facilitate legislative processes.

II. CUSTOMARY WATER ARRANGEMENTS

Ancient water systems or institutions are living monuments of the ingenuity of our predecessors:

the dams of Shaba, Mesopotamia, the gardens of Alhambra, the 'Tribunal de las Aguas de la Vega de Valencia' (Water Court of Andalusia), and the aflaj in the Sultanate of Oman all testify to the importance attached to water in the past. Throughout the centuries, Arabs have contributed much to the world's water civilization, working out some of the finest examples of good water governance. A better understanding of ancient water systems and institutions will no doubt help increase their relevance and contribute to addressing current global water challenges. In several Arab states, "access to land and water for irrigation is regulated according to customary arrangements of which most are unwritten and somehow flexible" (Majzoub et al., 2010a). In the following case studies, we focus on the application of customary arrangements to guide management of water resources.

a. Case study 1: The Aflaj

The Aflaj (sing. Falaj) or foggaras are considered the main traditional water system in the Sultanate of Oman. It is estimated to be 2,700 years old. Despite the introduction of underground and surface wells, the Aflaj still play the main role in the irrigation of agricultural land in the Sultanate, in securing drinking water, animal watering, and other domestic purposes (ROSTAS, 1986).

The Falaj is known as the Qanat in Iran. Comparable systems still exist in many parts of the world, including Afghanistan (Kariz), Algeria (Foggara), Canary Islands (Galerias), China (Kanjing, Karez), Italy (Ingruttato), Japan (Manibo, Mappo), Korea (Man-nan-po), Morocco (Khattara, Rhettara), and Yemen (Felledj).

The main structure of the Falaj consists of the mother well that may reach a depth of 65 to 200 feet, the main channel, and the access shafts that are built every 50 to 60 m along the channel. Each farmer has a share of water depending on the size of his farming plot(s) and on his contribution to the Falaj construction. Although most Aflaj are fully owned by farmers, some are owned, fully or partially, by the government.

At the very top of the Falaj, where the Falaj canal is opened, drinking water may be drawn (called Sharia). After drinking facilities, bathing places for men, then for women and children, water



passes through the forts and mosques until it reaches the Mughisla for washing the dead. In every Falaj, these water shares are not owned by individuals but allocated for the community. After domestic use, the Falaj is utilized first to irrigate permanent cultivated land (mostly date palms), then seasonal cultivated plots (called Awabi). If drought occurs farmers reduce the area of seasonal crops. In the Falaj irrigation system, water is distributed on a time basis. Only in a few cases is volume used as a basis. The system of water distribution is complex. But it is both fair and effective (Majzoub et al., 2010a).

Typical large Falaj administration consists of a director (Wakeel) to manage the Falaj organizational system, two foremen (Areefs) to deal with technical problems, one for underground services and the other for surface water services, a treasurer (Qabidh or Amin Al Daftar) to manage financial matters, an auctioneer (Dallal) to help the treasurer with water shareholders sale, and daily laborers (Beedars). The head of the village (Sheikh) assigns the Wakeel to his job based on a recommendation from the Falaj-owners. Selling water shares for one water rotation or one year is carried in an open auction (Majzoub et al., 2010a).

The Wakeel is in charge of the overall administration of the Falaj (e.g., water distribution, water rent, expenditure or Falaj budget, solving water disputes between farmers, emergencies, and other decision-making activities). In case of conflicts, either the Wakeel

BOX 1: WHY THE FALAJ SYSTEM WORKED SO WELL?

- Water is considered as a source of life within Omani society, and Aflaj play a major role to sustain life. Therefore, respecting the Falaj organization is a necessity to maintain and guard the main source of life.
- The Falaj system is managed and maintained by local communities through a time-honored administrative system embedded in a social structure derived from interdependence and communal values. With the advent of Islam, this hydro-political system became a social contract deeply rooted in religious principles.
- The system is based on the dominant sacrosanct religious obligation; honor for ancestral traditions; tribal loyalty; and basic human respect, person to person, family to family, and family to community.



BOX 2: WHAT ARE THE MAIN FEATURES OF THE WATER COURT?

- **Simplicity:** the Warden or injured party and the accused can put forward their case before the Official and bring evidence and witnesses with no complicated protocols and legal formulae.
- **Verbal:** all phases of the trial, including case submission, enquiries (made to clear up, explain, or justify the facts with the intervention of the President and officials who verbally question the parties), and sentencing are oral.
- **Speedy:** the court meets weekly and addresses infringements committed since the previous Thursday. Matters can only be postponed for at most 21 days, and only due to failure to appear by the accused.
- **Economic:** the trial does not involve any type of procedural costs. Officials do not receive any salary or expenses. The accused has to pay traveling expenses of the Warden or Court plaintiff. Compensatory damages are not procedural expenses

(Majzoub, 2005).

or the owners can lodge a complaint with the Sheikh. If the Sheikh cannot solve the problem, the matter is raised to the governor (Walee) who transfers the matter to ordinary courts applying Islamic law. One of the Areefs arranges the schedule of the Dawran (water rotation) among farmers or water shareholders. The Qabidh's job is to control the Falaj income (water shares, land, and/or crops). As the "Falaj book holder", the Qabidh organizes water shareholders sale auctions with the assistance of an auctioneer (Dallal) employed by him. The Beedars' duties consist of channel and tunnel cleaning, repair of minor collapses of rooting stones or walls. Generally, water rents provide most of the Falaj income. Those revenues are deployed to operate, clean, maintain, and upgrade the system, as well as to deal with emergencies like flooding or drought (Majzoub, 2005).

The government of Oman regularly takes steps to maintain and preserve the Aflaj systems in the country. The most recent law on conservation of water resources was promulgated by Royal Decree No. 29/2000 (15/04/2000), which abrogated Royal Decree No. 82/88. Five months later, a by-law, or a ministerial order, was issued to organize wells and Aflaj. Chapter 5 of the by-law regulates granting Aflaj permits (articles 29 and 30). This case study illustrates how formal legal arrangements interact with customary arrangements to manage water resources in Oman (Majzoub et al., 2010a). Box 1 summarizes why Aflaj have survived for a long time.

b. Case study 2: The Andalusian Water Court

The "Tribunal de las Aguas de la Vega de Valencia", better known by its shorter name of "Tribunal de las Aguas" (Water Court), is without any doubt the most ancient European institution of justice. We owe the organization of this water institution to the Cordoba Caliphate (Abd El-Rahman III and Al-Hakem II). This Court was in charge of preserving peace among farmers and ensuring fair water distribution (Majzoub et al., 2010a).

The Water Court revolves around the river Turia and its eight main canals, five on the right bank, and three on the left.

For Turia water distribution, a simple and efficient formula is applied: all farmers irrigating from a channel are the common owners of the water provided; water is granted in proportion to the land owned. The aggregate of all irrigated land, from the main canal via a system of smaller channels, form what is known as an Association of Irrigators. In times of little flow, a variable volumetric unit was invented, called “fila” which enabled a wise distribution (Majzoub, 2005).

The Canal Associations are governed by ancient Ordinances. Strict observance of the rules is supervised by an Administration Board, which is renewed every 2 or 3 years. The head of this Board, called the Official, is elected by all members of the Irrigators’ Association, and must directly farm his own plot(s), of a size that must be large enough to make him earn a living. The Official must also have a good reputation as an ‘honest man’.

The Court is made up of the eight canal officials. Cases are filed because of any number of the following transgressions: water theft in times of scarcity, breakage of channels or walls, pouring too much water into neighboring fields, altering of irrigation turns, keeping irrigation ditches dirty, or irrigating without asking for a turn. The accused is summoned by the Channel Warden on the following Thursday. If he does not appear, he is summoned two more times. If he fails to appear, the accusation is validated and he is sentenced. In order to guarantee maximum impartiality, the Official for the canal to which the party belongs does not get involved in the case. As a matter of a rule, if an accused belongs to a canal on the right bank of the river, the sentence is rendered by the Officials from the left bank, and vice versa. No appeals can be made, and sentence execution is secured by the Channel Official (Majzoub, 2005).

This Andalusian institution has survived centuries of political turmoil, and improvements were introduced over time. The main features of the Water Court are explained in Box 2.

Behind the Andalusian Water Court features lays a model of justice the Valencians have always respected. It has never been necessary to resort to ordinary Spanish courts to have court

sentences implemented. This is another example of how customary arrangements can act in concert with prevailing Spanish legislation. This Spanish customary Water Court gave birth to “statutory” Water Courts in several developed countries (Majzoub et al., 2010a).

c. What can we learn from the above case studies?

Both case studies focused on the complementarities between statutory and customary arrangements in the processes of water resources development, addressing water management problems and resolving conflicts. They are by no means offered as a toolkit or as ready-made answers for all cases in the Arab region, but rather as a suggestion that it is always useful to acknowledge other experiences. However, states can somehow benefit from this “living” customary arrangements crafted by tradition.

The Dutch “waterschappen” is an example of customary arrangement for water management that has become, de facto, legislation. This Dutch example may illustrate that some governments cannot do away with ongoing social processes affecting the best devised water legislation. Even determined policymakers and powerful legislators cannot ignore the power of customary arrangements.

But can every customary water arrangement be incorporated into IWRM related legislation? Multiple forms of oral/unwritten customary arrangements co-exist and sometimes may conflict with recognized standards of human rights (individual rights vs. community rights), legislation or laws. Mistakes or failures are tolerated if statutory arrangements are used, but mistakes or failures are prohibited in the case of customary arrangements.

In addition to those broad ideas, probable political manipulation of customary arrangements could lead to some ‘undesired’ consequences, such as political unrest by legally recognized minorities. Nevertheless, marginalized communities are often the least well served by statutory arrangement.

The next section explores the concept of water

users associations (WUA) and puts it in the framework of customary practices.

III. REACTIVATION OF WATER USERS ASSOCIATION

Until recently, water management in the Arab region was highly centralized and for the most part managed at the national level with little local stakeholder and civil society participation. Today, local community stakeholders and user associations are established in Egypt, Jordan, Libya, Morocco, Oman, Tunisia, and Yemen.

A water users association (WUA) is a non-profit organization that is initiated and managed by the group of water users along one or more hydrological sub-systems regardless of the type of farms involved (FAO, 2003). By water

users we mean the ordinary cultivators of land, individual members of lease-holding farms, and owners of home garden plots among others. The supply of water and payment of fees to the water service provider is based on contracts and/or agreements between the WUA and the irrigation service provider, where rights and obligations of both parties to the contract, time of delivery, and agreed-on volumes are specified.

The Arab region's fresh experience shows that some of the water users associations (WUAs) have been established through a bottom-up consultative approach, where authorities have conferred with ordinary water users. In these cases, water users took the initiative to kick off the process of establishing WUAs. In many cases, such WUAs have succeeded in recovering the costs of water and of operating and maintaining the irrigation and drainage facilities. Cost

BOX 3: THE ROLE OF WATER USER ASSOCIATIONS IN REFORMING IRRIGATION IN EGYPT

Extracted with adaptation from GWP Tool Box – Case study No. 110

Description

Egypt's water resources are severely constrained. This calls for increasing water use efficiency by improving irrigation management practices, as the agriculture sector is the primary user of water. Much of the irrigation infrastructure is old and in need of rehabilitation. The irrigation improvement program (IIP) is one of the large-scale projects to help Egypt sustain its ambitious development plan. The program involves a combination of technical changes and infrastructure investment, together with institutional and organizational changes in irrigation water management. A key component of the program is the major role of Water Users Associations in decision-making and in the operation and maintenance of the pumps and mesqas (irrigation ditches), with minimal assistance from Irrigation Advisory Service (IAS) staff. The fundamental change introduced by the IIP is to replace individual farmer pumping at multiple points along the mesqa by collective single point pumping. In addition, intensive training seminars and workshops are held for water users, IAS staff, and other involved personnel from all levels to help implementation of the program.

Lessons learned

The new program has benefited from the experience of earlier irrigation programs; there is a body of knowledge that has been tested and piloted which

provides underlying foundation to the new reforms.

In order to increase the efficiency as well as the performance of the system, users' participation in resource management is a must because users' decisions and ideas have a great impact on the operators and the modernization process of the system. Self-governance would assure the sustainability of the system. Increased crop production and attaining real water savings in the system is dependent on the awareness and understanding of users, operators, and managers of the system.

Enhancing the capacity of all these stakeholders requires intensive training. Today in Egypt a new generation of water farmers, operators, and managers have embraced the concept of users' participation in water management, and the Ministry of Water Resources and Irrigation has legalized the formation of Water User Associations.

Importance of case for IWRM

The case study demonstrates the importance of building appropriate institutional structures in parallel with the introduction of technical changes and sets the irrigation reforms in a broader policy context, e.g., general agricultural and economic liberalization. The case also illustrates the importance of testing and piloting programs over several years as a basis for strong institutional structures (GWP, 2008a).

BOX 4: COMMUNITY MANAGEMENT OF WATER RESOURCES IN THE IMLIL VALLEY NEAR MARRAKECH, MOROCCO

Extracted with adaptation from GWP Tool Box - Case study No. 77

Description

Amidst water shortages, seasonal fluctuations, and remote water point locations, five communities in the Imlil Valley came together to improve the availability and regularity of water supply with the support of Amrash, a Moroccan non-governmental organization. The project called for elaboration of a water code, drawing on the Jmaa`a tradition of community-based water organization. The new code defined conditions of access to and use of water. It also defined priorities of water users, lists of water committee members, rights and responsibilities, and fines. Consultation helped resolve conflicts over the location and type of water supply systems between private and collective lands, and over the type of organization that should be in charge of water management. Training was provided to local associations, which contributed to generating knowledge and acquiring technical, legal, health, and communication skills. As a result of payments, local associations were able to provide credit facilities to villagers.

Problems encountered:

Increasing demand for water due to improved availability has created stress on water resources during the dry season;
Women were insufficiently involved in decision making;
Improved supply of water was not linked to management of wastewater, causing public health problems (e.g.,

diseases);

Because of the migration of people from higher mountains to the valley, there is a larger population to be served with water resources;
Some conflicts arose when a foreign NGO overcame the Jmaa`a system and installed a water point in the house of the president of the association. Amrash did not have enough experience on integrated water management.

Lessons learned:

The case demonstrates the importance of setting up clear regulations at the outset (water codes) and building on existing institutions such as Jmaa`a, mutual aid, and solidarity mechanisms;
The case reveals the importance of looking at water resource management from a river basin perspective and not on a village base, and to link water supply with the management of wastewater;
Gender issues were not dealt with early in the process, because of resistance from elders and conservative segments of villages, which meant that women were little involved.

Importance of case for IWRM

The experience highlights the need to plan for increased water consumption when water supply is improved, and to set localized reforms in a wider socio-economic context (GWP, 2008b).

recovery was possible because ordinary grassroots water users do feel ownership and tend not to avoid fee payment.

There are still significant hurdles to overcome in the implementation of WUAs in the Arab region (World Bank, 2009). Taking regional challenges into account, water user associations can be revived in the Arab region by taking the following 9 steps:

- Recreating awareness about WUAs, and its benefits, role, organization, and functions;
- Identifying essential components of irrigation and drainage service plan;
- Consulting the water users on appropriate institutional arrangements (structure and organs of WUA, membership criteria,

tenure of representatives, election procedure, rules and by-laws), characteristics of the elected representatives, and representation along each watercourse for forming the representative assembly;

- Selecting a WUA council, WUA chairperson, and dispute settlement and revision commissions' members;
- Preparing the founding documents (charter, by-laws, various maps, service area);
- Adopting the normative charter, by-laws (cropping plans, water demand, water allocation, maintenance of the system, membership fee, eligibility for membership, termination of membership or from office, duties and functions of different office bearers, meeting time and procedures, fund raising, dispute settlement mechanisms,

- sanctions), and other relevant documents;
- Capacity building and training for managers;
- Developing indicators and benchmarking to measure progress in participatory management; and
- Transferring system management to the WUAs.

Two case studies are presented (GWP Tool Box-Case Studies). First, we showcase the role of water users' associations in reforming irrigation in Egypt (Box 3). Second, the community management of water resources in Morocco is described (Box 4).

The following case study describes community management of water resources in the Imlil Valley of Morocco.

Arab regional experience suggests that if WUAs are established using a top-down approach, they would be weak and would have a high risk of failure. WUAs should rather be established through a bottom-up approach. To revive water user associations in Arab countries, it is strongly suggested to work with farmers and water users

at the ordinary grassroots level in order to give them a stake in ownership, benefits, and success. By joining a WUA, water users may enjoy equitable water distribution, more reliable water supply responsive to crop needs, quick dispute settlement at the local level, well-maintained canals, and reduced water theft. The challenge for water legal drafting in the region lies in aligning customary arrangements and practices with the realities of integrated water resources management (IWRM).

IV. WATER LEGISLATION

Water scarcity has compelled most Arab states to focus attention on the need to implement measures to improve management of water resources, and formulate effective institutional arrangements and legal instruments (Majzoub et al., 2010b).

A number of problems and constraints characterize the performance of the water sector in most Arab states and threaten the sustainability of water resources in the near future. Some of the legal and institutional water constraints are hereby noted:

- Water responsibilities are scattered among many ministries, water authorities, committees, and entities, which has contributed to poor coordination, mismanagement, duplication of efforts, and inefficiencies in water distribution and use. Moreover, control of water pumping and extraction is either absent or very limited;
- Enforcement of water regulations is limited due to acquired water rights, political attitudes (such as confessionalism, tribalism, or nepotism), and the inflexibility and resistance of most farmers;
- Lack of accurate data and information about water resources, quantities, and quality; and
- Inadequate qualified technicians and maintenance personnel, the lack of funds to train staff, and political interference in staff recruitment, have all left their negative mark on the overall quality of manpower in the water sector.
- Sound water legislation (Box 5) is needed in most Arab States for several reasons:

BOX 5: WHAT IS WATER LAW? WHAT IS WATER LEGISLATION?

"Water law is made up of all the provisions which one way or another govern the various aspects of water management, i.e. water conservation, use and administration, the control of the harmful effects of water, water pollution and so on." Water law can be derived from the constitutional, administrative, civil, criminal, agricultural, mining, natural resources/environmental/public health legislation of a country, in addition to judicial precedents and scholarly opinions.

Until recently, there was no well-defined legislation passed in any Arab state by a law-making body (Parliament) called water legislation. Different water related legislation have been drawn up over time to deal with different water purposes. None of these was strictly about water.

The policy makers' challenge is to find a way to integrate the different water related legislation and to develop a coherent water policy that is conducive to effective national water legislation. In the last few decades, IWRM has become a central feature of any water legislation.

(Adapted from Caponera, 1992)

TABLE 1 WATER LEGISLATION IN SELECTED ARAB STATES

	Legislative status		Ownership	Use	Institutions
	Past	Present			
Jordan	Vestiges of Majalla and a few laws, 1937-1988	Fragmented, most recent laws are Nos. 18 and 19 of 1988	State property (explicit)	Regulation by permit for both surface water and groundwater	Single, Ministry of Water and Irrigation, with two water authorities, 1988
Lebanon	Vestiges of Majalla and French code and a few laws and decrees, 1925-1985	Fragmented, but there are plans for a comprehensive law	Public domain (implicit)	Regulation by permit and old irrigation code	Ministry of Hydraulic and Electric Resources; a few other ministries and many regional commissions
Oman	Sharia, customary practices, and well and aflaj registration laws, 1975-1988	Fragmented regulatory decrees for wells and aflaj, 1995	State property (explicit)	Extensive regulation by permit for development of groundwater and aflaj	Single, Ministry of Water Resources, 1989
Saudi Arabia	Sharia and customary laws, water conservation regulations and many decrees, 1932-1988	Planning for a comprehensive law	State property (implicit)	Regulation by permit, mainly groundwater	Single, Ministry of Water and Electricity (formed in 2002 and consolidated all water-related agencies: Saline Water Corporation, wastewater, etc.)
Syrian Arab Republic	Vestiges of Majalla code, sharia, and many decrees and laws, 1925-1995	Comprehensive water law under preparation	Public domain (implicit)	Elaborate permit system; regulation for both surface water and groundwater sources	Ministries, mainly of irrigation (1982) but also of housing, agriculture, public work and water resources
United Arab Emirates	Sharia, customary laws and a number of decrees, 1980-1994	Comprehensive water law drafted in 1995	Public domain (implicit)	Limited regulation by permit system for groundwater	Ministries, including agriculture and fisheries, electricity and water, and municipalities and the Higher Water Council, 1981

Source: ESCWA, 1997

- To establish a mechanism to control/regulate access to and abstractions from water resources;
- To promote water use efficiency (allocative priorities, incentives);
- To promote appropriate economic instruments and principles (e.g., water charges, cost recovery);
- To enable metering of abstractions;
- To enable pollution control and environmental impact assessment (EIA) enforcement;
- To set institutional arrangement for planning and coordination mechanisms (institution building, guiding principles such as demand management);
- To establish protected areas around water resources;
- To provide for control and planning of land use; and
- To set fines and penalties for violations which cause damages to water resources.

Many laws have been enacted by Arab states addressing specific concerns, but the coverage of most of their respective mandates tends to be

THE SOCIAL AND ECONOMIC VALUE OF WATER: THE CASE OF THE WEST BANK

Annette T. Huber-Lee

Water in a situation of competition or dispute is typically understood as a zero sum game. What one party gains, the other one loses. This represents a limited view of the role water plays in both society and ecosystems. Water has value that is dependent on the quantity available. The first liter of water for drinking is nearly priceless to an individual. But in the other extreme, during a flood, water has no value and in fact imposes a cost to that same individual.

Looking at the scale of a country, if it has a seacoast, the possibility of seawater desalination puts a ceiling on the value of water. And that ceiling can be surprisingly low – so low that, with rational thinking, the assertion that the next war will be about water is a myth. But the important lesson here is not that desalination is an answer to water disputes, it is that water is not beyond price and that thinking about water in terms of its value rather than in terms of quantities and ownership leads to powerful results. Together with colleagues, we have developed models on that basis: the first, called “WAS” for “Water Allocation System” was developed in the late 1990s for Jordan and Palestine; the improved version, “MYWAS”, for “Multi-Year Water Allocation System” is now in development and use by the Palestinian Water Authority. In both versions, water is treated as a special commodity with the user enabled to impose constraints reflecting social values that are not just private ones.

MYWAS takes a list of possible infrastructure projects and alternative hydrological conditions and returns advice on which ones should be built, at what time, in what order, and to what capacity. It also can be used to guide aquifer management and to study the effects of climatic uncertainty and climate change.

Beyond this, the models lead to a plan for cooperation in water – a plan in which all parties benefit, which could in theory take the form of buying and selling short-term permits to use each others’ water. Water disputes thus become win-win situations rather than zero-sum games. Further, while use of this system does not affect any party’s ability to assert claims to water rights and water ownership, we show that participation need not wait for such claims to be settled. Water is a soluble problem.

An early application has been created for Southern West Bank in Palestine, including Bethlehem, Hebron, and Jericho. A number of scenarios were developed to try to find ways to ease the current water crisis. Water is so constrained now – with per capita water use rates four times lower than that recommended by the World Health Organization – that the value of an additional cubic meter of water is more than 20 US\$ per cubic meter.

The Palestinian Water Authority is in the process of evaluating several infrastructure options to alleviate the crisis, particularly in Hebron and Bethlehem. One option involves putting in new wells near the Dead Sea where there is brackish groundwater, desalinating that water and pumping it up several hundred meters to a small holding reservoir to then supply Hebron and Bethlehem. This option is relatively expensive, but given the overall shortage and value of water, proves to bring benefits over and above the capital costs on the order of hundreds of millions of dollars.

As is well known, increased Palestinian access to water in the Mountain Aquifer and the Jordan River is one of the items on the agenda for final status negotiations. A much more cost effective way to increase water supply to Hebron and Bethlehem is to allow access to the Aquifer – with much lower capital (saving tens of millions of dollars) and operating and maintenance costs (saving \$0.50 to \$1 per cubic meter).

An awareness of the economic and social tradeoffs of different infrastructure and changes in access to water is key to informing any decision-making and negotiations. Looking at water from the perspective of its value increases the resilience of the system by allowing for more flexibility in allocation to higher value uses – using economics that is informed by social values. These values can range from prioritizing allocation to those who are poorest in society, to valuing water for agriculture or ecosystems. The key point is to see that it is not just the quantity of water one owns, but the social and economic value that can be derived from water. This way of thinking increases society’s ability to resolve disputes under changing climate and social conditions.

Annette T. Huber-Lee is Visiting Scholar, Tufts University.



limited as illustrated in Table 1. In most Arab states, there is either only minimal legislation dealing with water resources, or overlapping laws that are outdated and do not satisfy current requirements. Therefore, the preparation and proclamation of rational and up-to-date water legislation are the most important measures to be taken by decision makers in most Arab countries.

Several states in the Arab region have begun to realize the importance of sound water legislation and have consequently taken steps either to update and modernize existing laws or to introduce new legislation and laws and strengthen institutional arrangements. Egypt, Jordan, Morocco, Oman, Palestinian National Authority (PNA), and Yemen have made an effort to revise or modernize existing water laws during the last 15 years. In fact, “Morocco and Yemen have been two of the first countries [in the Arab region] to put in force a framework water law that reflects modern water principles and attempts to address the country-specific issues faced in these countries ... Of the two countries with framework laws, Morocco’s is the most complete” (World Bank, 2009).

In Arab countries, water use sectors in general are facing dramatic changes as the management focus shifts from sectoral approaches towards more integrated, inter-sectoral management principles. This has far-reaching consequences for how the sectors are being organized and

for managing implementation frameworks. Thus, IWRM will not take place if the legal framework is not adapted and the necessary institutional arrangements are not made. The enabling conditions for creating a strong IWRM framework are:

- Enabling institutional framework, including the legal roles and responsibilities of institutions and their inter-relationship;
 - Mechanisms to strengthen the role of women and other stakeholders to participate in water management;
 - Conflict resolution mechanisms;
 - Water services and associated rights and responsibilities (right to water, standards of service);
 - Tariff and water pricing systems, including principles of fairness, affordability, and protection of the poorest; and
 - Clear mechanisms for water markets to minimize conflicts and risk of social unrest.
- (Adapted from García-Pachón, 2005)

a. Water policy translated into legislation

A national water policy must exist with clear government objectives pertaining to IWRM. Water legislation will naturally take different positions on a number of water topics: water rights, water privatization or concession, public or private water use, among others (Box 6).

BOX 6: CATALOGUE OF WATER OWNERSHIP

Over the last two thousand years, six different water related legal systems (water law families) have developed: Roman, Islamic, Communist, Hindu, Civil, and Common laws.

Common law entrusts the ownership of water to the community. Private water includes rain and groundwater. In Roman law, water resources were of three kinds: water common to everybody, community, and municipal water. Civil law legal systems were influenced by Roman law. In Shari'a, running water was considered to be a common entitlement. People had two water rights: the right of thirst and the right of irrigation. In Communist law, water was owned by the State, except for very limited types of water. In Hindu/Buddhist law, private ownership of water could not exist.

The diffusion of these legal systems is encountered all over the world. However, there is still an ambiguity between the rights of the people and state ownership of water. Increasingly, water is becoming public property; individuals can only claim user rights (separating land ownership and water use). (Adapted from Gupta and Leendertse, 2005)

In order to frame such a water policy, a country must have a rough assessment of its water resources, present and future requirements, the extent of historical or acquired water rights.

A well-conceived water policy facilitates the implementation of water legislation and allows for necessary adaptation to unforeseen phenomena. The Arab region will face not only increasing temperatures but, more importantly, also disruption of the hydrological cycle, resulting in less or more erratic rainfall that will aggravate even further the already critical state of water scarcity and difficulties with water allocation among different development activities (AFED, 2009).

Good water policy incorporates scientific knowledge about nature and adapts to experience. Neither science nor water policy can deliver certainty in the age of climate change. The characteristics of water (surface or underground) is so diverse and uncertain that we cannot subject it to stringent legal provisions, nor build upon it a system of permanent rules, as is done in the case of normal conditions. As natural phenomena change, so does flexible water legislation and water rights allocation to

reflect changing realities (Majzoub, 2005).

If the stated goal of water policy is the application of integrated water resources management (IWRM) principles, this policy may not have considerable effect if it is not translated into sound legislation or strengthened by a robust institutional support. In a nutshell, effective water resources management must take into consideration the three major components of water resources management: policy, law, and institutions (Box 7).

Legislation ought to emphasize the principles or elements in support of IWRM such as polluter pays principle, equity, social justice, allocation, economic efficiency, financial feasibility, licensing, as well as the river basin management approach.

The appropriate institutional structure for a river management approach must answer a set of questions: how should the policy be developed by the river basin organization (commission, council, committee), implemented, and coordinated? Who does what for whom, and to whom are they accountable?

b. Components of national water legislation

Water legislation ought to be simple and drafted in broad terms. Though such legislation needs not to be immutable, it must be lasting and serve as a basis for government intervention (through by-laws, decrees, and administrative acts).

National water legislation has to define the core issues starting with definition of general provisions taking into account the use terms (*Omnis definitio in jure periculosa est* – Every definition in law is dangerous), and enforcement of the water legislation/Act. Ownership of water resources ought to be clarified and environmental considerations must be tackled (e.g. minimum flow). Institutional arrangements such as river basin committees, councils, commissions, and catchment management agencies need to be addressed. These arrangements should incorporate powers, mandates, and responsibilities as well as rights, obligations, and roles of stakeholders (e.g. water users associations, gender roles). Regulatory

approach, prioritization of water allocation, determination of framework for dispute resolution, and well-defined water infractions as well as transitional and final provisions should be made (Majzoub et al., 2010b). Components of a national water legislation are described in Box 8.

The water legislation should impart the proper guidance and provide a framework to be subsequently developed by means of by-laws/decrees/administrative acts that can be modified and adapted to changing circumstances.

The gathered experience teaches the following lessons:

- Comparison of water legislation and national experiences of selected Arab and non-Arab states has to be conducted before and during the drafting process;
- Inclination to use terminology which has been tested in previous controversies, and the desire to avoid uncertainty when more than one water related law may be involved;
- Water legislation should be socially acceptable and administratively feasible;
- Water legislation needs to strike a balance between completeness and flexibility;
- Relationship between land and water (quantity and quality) ought to be reflected in water legislation;
- Existing water rights ought to be smoothly revisited and transitional provisions made; and
- National water legislation has to take into account International Conventions.

V. CONCLUSION

Despite huge investments in water supply and sanitation sectors in the Arab region, overall immediate results have been unsatisfactory, whether in qualitative or quantitative terms. Full benefits from these investments have not been sustainable because the underlying institutional and legislative foundations have been lacking or ineffective.

In most Arab states, legislation is often unresponsive to the demands for stakeholders and civil society participation. Moreover, water management is usually in the hands of institutions implementing a top-down approach, which has increasingly been questioned for its lack of legitimacy and effectiveness.

This chapter has suggested that some Arab states are updating existing water laws or formulating new water legislation in order to strengthen their water institutions. However, the substance and scope of these water laws/legislation may fall short of what is needed for the implementation of an integrated approach, and for the application of optimal development and management of water resources.

Water legislation is multi-layered reflecting different national dynamics and priorities as well as customary and statutory arrangements. However, several Arab states have focused on the use of statutory arrangements, although some of them have relied upon diverse customary arrangements for getting access to and utilizing water resources. It has been suggested that few activities can be regulated by statutory arrangements alone, and

BOX 7: THREE MAIN COMPONENTS OF AN EFFECTIVE WATER RESOURCES MANAGEMENT

Issue:	Policy	Law	Institutions
Water resources management	IWRM	Water legislation/Act	- Centralized water management system - Decentralized water management system - De-concentrated water management system - National/Higher Water Council - River Basin Committees/Councils/Commissions - Water/River Basin Agencies

BOX 8: SUGGESTED CORE ISSUES IN A NATIONAL WATER LEGISLATION/ACT

Introduction (Statement of motives, with a brief summary of the underlying water policy principles and priorities)

Part I: GENERAL PROVISIONS

- (a) Definition of general terms used in the Act
- (b) Authorities responsible for enforcement of the Act

Part II: OWNERSHIP OF WATER RESOURCES/CLASSIFICATION OF WATER

- (a) Surface water (such as wadis)
- (b) Groundwater

Part III: CONSERVATION AND PROTECTION OF WATER RESOURCES

- (a) Flood control
- (b) Ecosystem protection and environmental sustainability

Part IV: MANAGEMENT OF WATER RESOURCES

- (a) Institutional arrangements (river basin management, catchment management agencies)
- (b) Powers, mandates, and responsibilities
- (c) Rights, obligations, and roles of the stakeholders (water users associations, gender role)

Part V: REGULATION OF WATER SERVICES

- (a) Water pricing
- (b) Public-private partnerships (PPP), concessions, and privatization

Part VI: WATER ALLOCATION

- (a) Domestic water and right to water
- (b) Agricultural, aquaculture, coastal management, and industrial water
- (c) Water permits, licenses, and authorizations
- (d) Dam control
- (e) Water trade/allocation/transfer

Part VII: DISPUTE SETTLEMENT

- (a) Courts and tribunals
- (b) Arbitration and alternative disputes resolution (ADR) techniques

Part VIII: INFRACTIONS TO WATER RESOURCES AND SANCTIONS

- (a) Police powers of water services officers
- (b) Procedures
- (c) Penalties

Part IX: TRANSITIONAL AND FINAL PROVISIONS

- (a) Existing water rights and entitlements of indigenous communities
- (b) International cooperation on shared watercourses (rivers)

(Majzoub et al., 2010b)

neglect of some customary arrangements may cause water legislation and/or water legal reforms implementation to fail.

VI. RECOMMENDATIONS

The role of water legislation is essential for enabling the implementation of water policies and strategies. Water legislation provides the legal frameworks for water governance, institutional reform, regulatory standards, management systems, and enforcement of regulations. The following recommendations are suggested to guide policy-makers in Arab countries introduce new water legislation and/or water legal reforms:

Preparation and proclamation of rational and up-to-date water legislation are the most important measures to be taken by decision makers in most Arab countries. A national water policy must

exist with clear government objectives pertaining to integrated water resources management (IWRM);

Institutional reforms need to be introduced through a participatory and consultative process, involving formal and informal arrangements, to develop understanding and ownership of the change process. Arab water managers are encouraged to rediscover and deepen their understanding of ancient water systems and institutions and benefit from the 'living' customary arrangements crafted by tradition, building on existing institutions such as Jmaa'a, mutual aid, and solidarity mechanisms;

Effective reforms require an appropriate legal framework to provide a sound basis for a more participatory form of bottom-up water governance involving water users and civil society institutions. Enhancing the capacity of

all stakeholders requires intensive training and public awareness campaigns;

Policy-makers in Arab states are urged to integrate the different water related laws into an overarching, holistic, and comprehensive legal instrument and to develop a coherent water policy that is conducive to effective national water legislation;

Care must be taken to build appropriate institutional structures in parallel with the introduction of technical changes to ensure their longevity; and

Water policy makers should conceive and set customized reforms within the wider socio-economic context.

A well-formulated legislation facilitates efficient water demand management, conserves its supply, and protects the environment. Yet, legislation has to be socially acceptable and administratively enforceable as well as sensitive to the prevailing political, technological, social, economic, institutional, and legal context in a given country. This is inherently true, for there is always a strong relationship between water and human activities.

To the degree that the Arab region's destiny is so tied up with water, we should be looking to our water past. Each country has yet to experience the influence of customary arrangements on its political culture and on the utilization of its water resources.

No civilization can create a sense of destiny without a sense of history. To an alarming degree, we have not called on one of our great resources, our water history, to help us build this new sense of destiny. There is an old adage: "There can be no destiny without a sense of History". Looking at the past is essential if we are to actively create promising water futures. Nevertheless, our debates are often mired in syndromes, which, unknowingly, cut us off from our celebrated water past.

We can be reactive or choose to be proactive. To do nothing is likely to be an invitation for a dysfunctional water management system. To be proactive carries awesome responsibilities and can be frightening, but we need to tap our rich water history of stakeholder participation.

REFERENCES

AFED (2009). *Arab Environment: Climate Change*. Arab Forum for Environment and Development (AFED), Beirut.

Caponera, D.A. (1992). *Principles of Water Law and Administration: National and international*. A.A. Balkema, Rotterdam.

ESCWA (1997). *Water Legislation in selected ESCWA member countries*. Economic and Social Commission for Western Asia (ESCWA), United Nations, New York.

FAO (2003). *Legislation on water user's organizations: A comparative analysis*. Legislative Study, No. 79. Food and Agriculture Organization, Rome.

García-Pachón, M.P. (2005). "Perspectivas generales de la gestión integrada de recursos hídricos en el proyecto de ley 365 de 2005 de Colombia." Aplicación de los principios de Dublin. Incorporación de los principios de la gestión integrada de recursos hídricos en los marcos legales de América Latina, Universidad Externado de Colombia.

Gupta, J. and Leendertse, K. (2005). "Legal reform for integrated water resources management – A multi-level, dynamic approach to water law and policy." In Incorporación de los principios de la gestión integrada de recursos hídricos en los marcos legales de América Latina. Universidad Externado de Colombia.

GWP (2008a). "Egypt: The Role of Water Users' Associations in Reforming Irrigation." Global Water Partnership – Toolbox. http://www.gwptoolbox.org/index.php?option=com_case&id=66&Itemid=15 [Accessed July 10, 2010]

GWP (2008b). "Morocco: Community Management of Water Resources in the Imilil Valley near Marrakech." Global Water Partnership – Toolbox. http://www.gwptoolbox.org/index.php?option=com_case&id=42&Itemid=15 [Accessed July 10, 2010]

Majzoub, T., García-Pachón, M.P., Mkorosi, P.S., Leendertse, K. (2010a). "Customary Water Arrangements." *In Streams of Law - A Training Manual and Facilitators' Guide on Water Legislation and Legal Reform for Integrated Water Resources*. Cap-Net, Pretoria, South Africa.

Majzoub, T., García-Pachón, M.P., Mkorosi, P.S., Leendertse, K. (2010b). "National Water Legislation." *In Streams of Law - A Training Manual and Facilitators' Guide on Water Legislation and Legal Reform for Integrated*

Water Resources. Cap-Net, Pretoria, South Africa.

Majzoub, T. (2005). "Potential 'Legislative Water Governance' in the ESCWA Region." Seminar on Water Governance: The Role of Stakeholders and Civil Society Institutions, November 14-18, November, Beirut.

ROSTAS (1986). "The major regional project on rational utilization and conservation of water resources in the rural areas of Arab states with emphasis on traditional water systems." Translated from the original Arabic version. The Unesco Regional Office for Science and Technology for the Arab States (UNESCO-ROSTAS) and the Arab Center for Studies of Arid Zones and Drylands (ACSAD). Paris, ROSTAS/HYD/1/86.

World Bank (2009). *Water in the Arab World: Management Perspective and Innovations*. The World Bank, Washington, D.C.

Further Reading

Al-Ghafri, A., Inoue T., Nagasawa, T. (2001). *Irrigation Scheduling of Aflaj of Oman: Methods and Modernization*. Graduate School of Agriculture, Hokkaido University, Japan. <http://www.unu.edu/env/land/AlGhafri.pdf>

Bani Hani, M. (2005). *Aflaj water systems in the Sultanate of Oman*. ESCWA, New York.

Burchi, S. and D'Andrea, A. (2003). *Preparing national regulations for water resources management*. FAO Legislative Study No. 80. Food and Agriculture Organization, Rome.

Chanock, M. (1985). *Law, custom and social order: the colonial experience in Malawi and Zambia*. Cambridge: Cambridge University Press.

Chave, P.A. (2001). *The EU Water Framework Directive: An Introduction*. IWA Publishing, London.

Food and Agriculture Organization database of national legislation and international agreements concerning food and agriculture (including fisheries, forestry and water) <http://faolex.fao.org/faolex/index.htm>

GWP (2000). *Integrated water resources management*. TEC Background Papers, No. 4. Global Water Partnership, Stockholm.

Legal Pluralism and Integrated Water Resources Management. <http://www.nri.org/projects/waterlaw/>

Meinzen-Dick, R. and Nkonya, L. (2005).

"Understanding legal pluralism in water rights: lessons from Africa and Asia." International Workshop on "African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa", January 26-28, 2005, Johannesburg, South Africa. <http://www.nri.org/projects/waterlaw/AWLworkshop/MEINZEN-R.pdf>

Ramazzotti, M. (1996). *Readings in customary African Water Law*. FAO Legislative Study, No. 58. Food and Agriculture Organization, Rome.

Salman, S.M.A. and Bradlow, D.D. (2006). *Regulatory frameworks for water resources management: A comparative Study*. The World Bank, Washington, D.C.

Scanlon, J., Cassar, A., Nemes, N. (2004). *Water as a human right*. IUCN Environmental, Policy and Law Paper, No. 51. International Union for the Conservation of Nature, Bonn.

Solanes, M. and Jouravlev, A. (2007). *Revisiting privatization, foreign investment, international arbitration, and water*. United Nations, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago.

Tazi Sadeq, H. (2007). *Du droit de l'eau au droit à l'eau, au Maroc et ailleurs*, éd. UNESCO, Université des Nations Unies et Eddif.

Teclaff, L.A. (1985). *Water Law in Historical Perspectives*. W.S. Hein, Buffalo, New York.

Water Law and Indigenous Rights (WALIR) <http://www.eclac.org/DRNI/proyectos/walir/>

World Bank/UNDP/FAO (1995). *Water sector policy review and strategy formulation – a general framework*. FAO Land and Water Bulletin 3. Food and Agriculture Organization, Rome.

World Health Organization <http://www.who.int/waterlaw/>