



**ECONOMIC AND SOCIAL
COUNCIL**

Distr.
LIMITED
E/ESCWA/SDPD/2003/WG.4/3
6 June 2003
ORIGINAL: ENGLISH

Economic and Social Commission for Western Asia

Workshop on Legal Framework for Shared Groundwater Development
and Management in the ESCWA Region
Beirut, 10-13 June 2003

UN Document No. E/ESCWA/SDPD/2003/WG.4/3
10-13-2003

**MANAGEMENT OF SHARED GROUNDWATER:
INTERNATIONAL VERSUS ISLAMIC LAW**

Note: This document has been reproduced in the form in which it was received, without formal editing. The opinions expressed are those of the author and do not necessarily reflect the views of ESCWA.

Management of Shared Groundwater : International vs. Islamic Law¹

Iyad Hussein

The Hashemite University , Institute of Land, Water and Environment

P. O. Box 830368 Amman 11183 Jordan,

ABSTRACT:

Water problems in the Middle East region are diverse and changing as the gap between supply and demand is widening. Water issues are linked to scarcity, misdistribution, and sharing. The development and management of regional water resources in the Middle East region presents a challenge for water managers and experts.

The Middle East is a good example of a region facing relatively acute water shortages. In 1992, the per capita availability of water from existing national sources in West Bank and Gaza 111 m³, in Kuwait 180 m³, in Tunisia 200 m³, in Yemen 210 m³, in Jordan 233 m³ and in Sudan 550 m³ (Rogers et al. , 1993).

Besides scarcity and misdistribution, the third basic aspect of water as a resource is that it crosses national boundaries. In the Middle East, the Disi Groundwater aquifer is shared by Jordan and Saudi Arabia, the Tigris and the Euphrates cross three nations, the Orontes (*Asi*) also directly involves three.

Thus, if we consider the combination of these major features of water (scarcity, misdistribution, and sharing), one outstanding implication emerges the great need for cooperation among national riparian states, indeed even among groups within nation states, and the correspondingly great likelihood of potential conflict.

The significance of this paper stems from the fact that future options for water management in the region include the development and management of shared groundwater resources. These options must meet specific conditions with regard to building consensus on basic assumptions, procedures, benefits and externalities of future regional projects in the region. The paper will address these aspects along with identifying relevant Islamic laws and principles to establish binding agreements among riparian states.

1. BACKGROUND

The international water resources or named as "shared water resources" incurs surface resources as rivers and lakes and their tributaries, and ground resources as aquifers and ground basins which lie within the jurisdiction of two or more States.

Managing shared water resources should take into consideration many factors which include current laws, existing legal and institutional framework, and present and future water resources and uses, climatic conditions and water availability in the planning basin or region, water cost from different sources and users' ability to pay.

However, it is argued that the conceptual legal framework, which exists in theory, might serve the purpose. But we have seen that on water issues, particularly international water issues, the law is not inclusive (Naff and Matson, 1984). Moore (1992) argues that in the realm of international water law, there is no universally accepted definition of equity in the division of waters between users.

Due to the specific characteristics of each international rivers in terms of the hydrologic, institutional and legal aspects, it is not realistic to draw up rules and regulations of universal applicability unless they are kept broad and flexible. And due to the share in water resources, conflicts have arisen over years among the riparian due to the different approaches to the issue of sovereignty. Its always the conflict between the upstream and downstream states.

With reference to international law, there are five doctrines of law with regard to the allocation of shared water resources:

- absolute territorial sovereignty (Harmon Doctrine);
- absolute territorial integrity;
- limited territorial sovereignty;
- limited territorial integrity; and
- community of interests theory.

¹ This paper was submitted on behalf of the Inter-Islamic Network on Water Resources Demand and Management (INWRDAM) www.nic.gov/inwrdam

2. INTERNATIONAL LAW

Policy is more likely to be influenced by a country's upstream or downstream position within a basin than by international law. The only constraint imposed on national water policy is the fear of setting unfavorable precedents in further dealings with neighboring countries and the disapproval of the international community.

Traditionally five theories governing the use of international rivers exist in the literature (Utton and Teclaff, 1978):

- 1- **Absolute Territorial Sovereignty (Harmon Doctrine)**, which advocates absolute sovereignty to upper riparian states.
- 2- **Absolute Territorial Integrity**, which guarantees to the lower riparian the use of the river in an unaltered state.
- 3- **Limited Territorial Sovereignty or Equitable Utilization Theory**, which permits use of a river's waters to the extent of doing no harm to other riparian countries.
- 4- **Limited Territorial Integrity**.
- 5- **Drainage Basin Development or the Community of Interests Theory**, which stresses mutual development of a river's waters by all riparian states.

The last theory has become the most widely advocated by the international legal community (Utton and Teclaff, 1978). The principle of community in the waters, by virtue of which rights are either vested in the collective body of riparian states or are divided proportionally. The community of interests theory recognizes that both upstream and downstream States have a legitimate interest in the water resources and tries to balance the use of the resource to the mutual benefit of all parties concerned (Wilson, 1996).

The International Law Association (ILA) has formulated the Helsinki Rules in 1966. The Helsinki Rules on the Uses of Waters of International Rivers embodied this concept and adopted the notion of equitable utilization.

Since 1971, the International Law Commission (ILC) of the United Nations (U.N) has been working on comprehensive principles (which are currently in the form of 33 draft articles) on the law of the non-navigational uses of international watercourses. A framework convention was planned by the U.N 6th Committee to refine the draft articles.

The same concept was adopted by the International Law Commission in 1991 in the Draft Articles on the Law of the Non-Navigational Uses of International Watercourses. These draft rules were reviewed by UN member states' governments and experts in the field and were reassessed in light of these comments in the 1993 and 1994 meetings of the ILC. The commission finally adopted a final text of 33 articles in the summer of 1994 and submitted then for approval by the General Assembly. These guidelines were finalized on May 1997 by the UN General Assembly under the resolution 51/229. The main concepts and principles included in the ILC articles (1997) may be summarized as follows:

The articles aimed to achieve a balance between the "equitable and reasonable" utilization of a shared watercourse (Article 5) from one side, and the desirability of avoiding "significant harm" to the other riparian that are already using the watercourse (Article 7), or might want to use it in the future, from the other side.

The articles stress the riparian states' obligation to protect international watercourses and associated eco-systems (Art. 5, 8, 20, 21).

The articles oblige riparian states to co-operate in the optimal utilization and protection of the watercourses which they share (Art. 8).

The articles recognize that agreements between riparian states may cover the entire watercourse basin, or only part of it (Art. 3). In the latter case, however, the agreement should not "adversely affect", to a significant extent, other riparian states' use of the waters in the basin.

The first paragraph of the article 7 reads " *Watercourses states shall, in utilizing an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse states*" .

Under Article 10, relationship between different kinds of uses, it reads " *In the absence of agreement or custom to the contrary, no use of an international watercourse enjoys inherent priority over other uses*". And, " *In the event of a conflict between uses of an international watercourse, it shall be resolved with reference to articles 5 to 7, with special regard being given to the requirements of vital human needs.*"

3. REAL EXAMPLE OF SHARED GROUNDWATER

Groundwater at Disi Aquifer

The area of shared groundwater resources in this case study is the Rum Aquifer in southern Jordan, shared with Saudi Arabia. It stretches 400 km from beyond Tabuk/Saudi Arabia in the south and southeast to the northern tip of the Dead Sea.

Exploitation of fossil water at Rum aquifer amounts to drawing on "capital" and it would be prudent to manage carefully the rate and duration of this exploitation and to work towards alternative, long-term, and sustainable resource development. This is particularly important as the issue of sustainable development is further complicated in such case. In their evaluation of alternative sources to meet long-term national demand, Thames Water (1988) identified 50-70 MCM/Y as the Rum aquifer annual yield as an economic resource to supply Amman. Other studies approach the required yield of the Rum aquifer from a resource balance point of view, indicating that the 100 years safe yield would be 110 MCM/Y.

At present there are water development projects for mainly agricultural use and domestic use by Saudi Arabia and the Jordanian side, contacts were established between the two countries but no agreement was reached. It can be seen that the lack of joint legal and institutional between Jordan and Saudi Arabia necessitates the adoption of a joint water agreement based on international or Islamic law principles.

4. INTERNATIONAL VERSUS ISLAMIC PRINCIPLES

Islamic perspective: Islam distinguishes between the God's rights and mankind rights. God (*Allah*) created the mankind as his witness in the earth (*Khalifa*), and asked him to build, construct, utilize, explore and enjoy the life in God's state within the boundaries of the Islamic Law. (*Allah*) owns all that is in Heaven and Earth and in Between. Mankind's role and responsibility is to ensure that all resources, including water, are utilized in a reasonable, equitable, and sustainable manner. The relationship between Man and Nature is based on harmony, since all creatures obey the laws (*Sunan*) of God. Man is urged to explore and utilize the natural resources in a sustainable manner. Islamic definitions of the Arabic words are available at the end of the paper. These definitions were quoted from the book of "Water Management in Islam" that was published in the year 2001 by the

Some basic Islamic concepts and principles are fixed and others may change in response to changing conditions. This implies that the general framework and guiding principles are defined, but the specific details and applications may vary to respond the changing needs of life. In Islam the main source of ruling is jurisprudence (*Shari'a*), which is based on Quran (*revelation*) and prophet's sayings and acts (*Sonmah*). These sources of passing judgments are by no means exhaustive. A fundamental source for devising rulings is called innovation (*Ijtihad*) which means the strive to develop new laws, rules, and judgments due to changing conditions (Naff, 1983)

The philosophy of developing new laws and rules in Islam is based on assimilation by innovation and selective imitation from the accumulated knowledge of all mankind. The task of the Muslims in every generation must be to exercise innovative solutions to reaffirm and rediscover Islamic rules and apply them through legislative consensus. The basic methods of understanding, interpreting, and devising new rules are through the following judgmental tools. These include:

- 1- Analogy or relevance (*qiyas*): Islamic scholars are entitled to pass judgments for new events or issues by making analogies from historical incidences.

- 2- Common preference (*istihsan*): In cases where no ruling exists, judgments may be based on the common preference and common sense of jurists.
- 3- Public interest (*maslaha*): If none of the above means of passing judgment exist, then the collective benefit of society or public interest is considered as a means to devise new rulings.
- 4- Custom (*urf*): Custom is authoritative in Islam, and the matter established by custom is like a matter established by a legal text.

Definition of the policy of the Islamic Water Law System: Islam both as a reforming and innovative force acknowledged most that was practiced in the past but rejected any notion promoting full ownership of water and exclusive rights. Basically, water is regarded as God's property, freely available to all man kind. It stipulates that all men and beasts have the right to (*shirb*), that is use of water for that is free for all wayfarer, and encouraged the endowments of water resources as (*waqf*) for public use.

Irrigation practices continued to function under Islam as they were before but the rights of the individual were guaranteed against the tribe, the rule, or the Amir. The Islamic State aimed at achieving fair distribution of water, not for ultimate purpose of enriching itself but for treating all members of the community equally.

Generally speaking, all schools of thoughts agree that water is a thing that is (*mubah*). As such, it is free of all restrictions of ownership and conditions which in any way undermine the basic requirement of its free availability for all mankind. This is based on the tradition of the prophet which proclaims the common ownership of man of three things: brushwood for fuel, water and grass for grazing. This led to the development of the legal concept of state ownership of major water resources.

The classical classification of waters put forward in (Al-Ahkam Al - Sultaniyah) by the famous jurist Al-Mawardi remain the best in Islamic Law to date. This deals with water under three headings according to its sources: rivers, springs and wells.

More about the principles of Islamic water law will be elaborated in the following section while comparing it with the ILC guidelines.

5. COMPARISON OF INTERNATIONAL AND ISLAMIC WATER LAWS

To be more practical and objective, the comparison exercise will be carried on between the Islamic Water principles and the latest articles/principles of international waters stemmed from the International Law Commission of the United Nations that were elaborated previously, which are considered as a reasonable domain for comparison with the Islamic Water law.

Selected Islamic maxims which have specific implications to water planning and management will be presented and analyzed in the following paragraphs. These include topics related to equitable and reasonable utilization, ownership, significant harm, duty to consult and reserving public interest and eco-system.

The main principles of the International Water Law with more emphasis on the ILC Articles can be summarized as follows:

- a. equitable and Reasonable Utilization;**
- b. ownership and sovereign right;**
- c. significant harm and compensation;**
- d. duty to consult;**
- e. protection of public health or safety; and**
- f. protection and preserve the ecosystem.**

In the following paragraphs, more elaboration will be presented for these principles.

a. Equitable and Reasonable Utilization

In Islam, beneficial use of water is best viewed through the broad provisions against misuse of rights. Use of rights is governed by moral and legal regulations. The former require good conduct and consideration for others as well as confirming to accepted norms.

Furthermore, waste of any kind is strictly forbidden by Islamic law but above all in respect to water use. Muslim jurists stipulates that every individual has the right to benefit from a thing that is (*mubah*), thus men make use of rivers and lakes that are not owned just as one makes use of air and light. While the use of water may be applied to a variety of purposes the user is not free to dispose of it or to benefit from it in a manner detrimental to others.

Large expanses of water which present no problem in allocation of water are shared equally. Small streams or lakes are allocated in the first instance to those dwelling in the vicinity of the water source. If, however, the water is not in sufficient quantity water rights are allocated in the following manner:

- a) Where the water of the stream or source required no artificial means, those nearer to the source take first and then the ones after and so on. Higher ground takes before lower ground.
- b) Where efforts are required to make the water flow allocation is determined on the basis of expenses and efforts contributed for that purpose. In other words the waters of such a source are shared by those who contributed each according to his share. Shares themselves are in the first instance determined by the space of the land of the subscriber.

In both cases, the Islamic law provisions regarding offer of surplus water to others strictly applies. Islam law also requires that the watering of land should not reach above the foot's ankle but this was overruled by jurists such as Al - Mawardi who explained this provision as functioning for general guidance and not strict application.

Islamic law recognizes the following priorities:

- a) Haq Al shafah or shirb right to quench thirst.
- b) Domestic use including watering animals.
- c) Irrigation of agricultural lands.
- d) Commercial and industrial purposes.

In international law, there is no accepted definition of **equity**. However, the Helsinki Rules on the Uses of the Water of International Rivers identified several factors thought to have bearing upon equity. Chapter 2 of the ILC Rules dealing with equitable utilization of the waters of an international drainage basin at Article5

"Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilization thereof and benefits therefore, taking into account the interests of the watercourse States concerned, consistent with adequate protection of the watercourse."

The factors that should be taken into account when determining a reasonable share of basin waters for each basin state are geography of the basin, hydrology of the basin, climate affecting the basin, past utilization of the waters of the basin, economic and social needs of each basin state, population dependent on the waters of the basin in each basin state, comparative costs of alternative means of satisfying the economic and social needs of each basin state, availability of other resources, avoidance of unnecessary waste in the utilization of waters of the basin and degree to which the needs of a basin state may be satisfied, without causing substantial injury to a co-basin state.

b. Ownership of Water

From the Islamic point of view, ownership of water is difficult to establish. The law considers water as a thing which is fundamentally incapable of ownership. The Prophet Mohammed (S.A.W) cleared in the *hadith* to the nearest meaning that " He who withholds water in order to deny the use of pasture, God withholds from him his mercy in the Day of Judgment." (Mawardi, 1983). Also the Prophet Mohammed (S.A.W) said in the *hadith* " Mankind are co-owners in three things: water, fire and pasture." (Al Nabhan, 1970). Thus it was documented that the state of ownership of water is deep-rooted and is recognized where there are strong grounds for it. Such grounds must consist of possession in the narrowest sense. This means storage in a cistern, pool or any means which arrests the water within well defined bounds. Anything short of this is not to be regarded as ownership. Thus while wells and artificial springs may be claimed as private property the water in these is never regarded as private property until it enters possession (*hiyazah*).

It is, therefore, generally understood in Islamic law that while the right of the public to benefit from (*mubah*) water is well established, it nevertheless remains under the supervision and direct protection of the law. In this sense any member of the public may seek a judicial decision to establish a water right or protect it. Such claim may be instituted against a person claiming private ownership of water or a member of the public preventing him from use of water.

Ownership of water under the International Water Law was elaborated previously in “International Law “ section, where it consistently accepted that States have the **sovereign right** to explore and exploit their own natural resources. However, there is a **balancing obligation** upon States to be aware of the Trans-boundary impact of their activities, and to be liable for pollution for which they are responsible.

c. Significant Harm and Compensation

In Islam the well known script (*Hadith*) by the Prophet Mohammed (S.A.W) to the nearest meaning “ Don’t commit any harm or injury to yourself, and not to cause harm or injury to others” narrated by Abu Said Saad Bin Sinan Al Khudri (Al Baghdadi, 1982). The other well known rule of “ *Determine of damages takes priority over import of interest*”. These are the broad base for dimensioning the harm and damages. Preventing damaged is more prior than importing interest.

From the Islamic code, there is a strict application of public interest and observance of the following:

- Harmful practices must be eradicated.
- Harmful practices may be tolerated only where they form a deterrence to other practices considered to be more harmful.
- Determine of damages takes priority over import of interest.
- Necessity permits contravening prohibitions where harmful practices must be eradicated and may be tolerated only where they form a deterrence to other practices considered to be more harmful.

All provisions of Islamic law are implemented either directly by strict supervision of application or by means of judicial remedies. Thus, waters which fall under the general category of public ownership are directly supervised by the government. All provisions relating to them are implemented by government officials. Contravening these provisions entails punishment by either jail or fine but more often by fine.

Back to the international water law, Article 7 of the Final Articles of ILC provides that States must take all appropriate measures to ensure its activities do not cause **significant harm** to other watercourse States. Further, where significant harm is caused, the State which causes the harm has the obligation to consult with the State suffering the harm to determine whether the use is reasonable and equitable, to make ad hoc adjustments to its use to eliminate or mitigate the harm, and , where appropriate, **make compensation**.

d. Shuraa and Consultants

In Islam shuraa which means consulting the public, is one of the basis for decision making by the government and the governor. It has been an order from God to his Prophet to consult your group, your people in the public matters before taking a decision.

In the International water law, States also have a **duty to consult** with their neighbor if they are intending to exploit a transboundary water resources and there is potential that the activity will have a trans-boundary impact.

e. Reserving the Environment and Eco-system

Islam recognizes the environment and preserving the ecosystem, that was clear from the texts of the (*Quran*) and the (*Hadith*), where God make the man his witness (*khalifa*) in the earth. In one of the Prophet Mohammed texts narrated by Jaber (R.A.A) relates that the Holy Prophet (S.A.W) said: “ A Muslim does not plant a sapling but a man or an animal or a bird eats of it, it is a charity for him till the Day of Resurrection.” (Abbasi, 1983).

The ILC Articles provide that watercourses States shall individually or jointly **protect and preserve the ecosystem** of an international watercourses (Art 20), prevent, reduce and control pollution of an international watercourse (Art 21).

6. CONCLUSIONS AND RECOMMENDATIONS

After reviewing the International water laws with more emphasis on the ILC guidelines, and the Islamic water principles with regard to shared groundwater, it can be concluded that a number of common bases are existed and a mutual platform can be established. Reasonable shares, equity, public interest, consulting, and preserving the public interest and ecosystem are the main titles that interlinked between the two bases. One of the main constraint in preparing this document was the lack of literature with regard to the Islamic perspectives related to the shared waters. More work need to be done with regard to developing an Islamic Water Management policy that entails the management of shared groundwater. It is recommended that a workshop should be organized between Muslim scholars and Water experts in the Islamic World to maintain a consensus with regard to the Islamic Law platform. Afterwards a Consultation Council of selected credentials as jurists, scholars and water experts from the Islamic World should be established to set up the Islamic water policies and formalize the Islamic Water Law. After establishing the bases of the Islamic water Law with regard to shared waters, a pilot project can be selected from the different cases in the Islamic countries to translate the theory into actions in the real world.

REFERENCES

1. Abbasi, S.M., 1983. "English Translation with Arabic Text of *RIYADH - US- SALEHEEN*" by Imam An-Nawawi., *Hadith* by the Prophet Mohammed (S.A.W), number 135, chapter 13 (On different ways of doing good), pp. 92, Vol.1. *Dar Ahya Us Sunnah Al Nabawiya*, Karachi.
2. Al-Baghdadi, A., 1982. '*Jamma Al Uloum Wal Hikam.*', *Hadith* by the Prophet Mohammed (S.A.W) , number 32, pp.285. *Dar Al-Maarifah*, Beirut, Lebanon. (in Arabic).
3. Al-Mawardi, A., 1298 Hijri. '*Al-Ahkam Al - Sultaniyah.*' *Al Watan Press*, Egypt (in Arabic).
4. Al-Mawardi, A.H., 1983. '*Al-Ahkam Al-Sultaniyah.*' Cairo: *Dar Ashababli*, Tibaa. (in Arabic).
5. Al-Nabhan, M.F., 1970. '*Al- Itijah Al-Jama'I Fi'l Tashr'I Al Iqtisadi Al Islami.*' Cairo: *Dar Al Fikr*. (in Arabic).
6. Caponera, D.A., Principles of Water Law and Administration, National and International.
7. Faruqi, N., Biswas, A., and Bino, M., "Water Management in Islam," 2001, United Nations University Press, Tokyo, Japan.
8. Flint, C.G., 1995. 'Recent Development of the International Law Commission Regarding International Watercourses and Their Implications for the Nile River.' *Water International*, Vol. 20, pp. 197-204.
9. Frey, F.W. 1993. 'The Political context of conflict and cooperation over International River Basins.' *Water International*., Vol. 18 No. 1.
10. Butrico, et al. 1971. 'Resource Management in the Great Lakes Basin.' Battelle Memorial Institute.
11. Ibn Katheer, 1969.' *Tafseer Al Quran Al Karim.*' *Dar Ihiaa Al Turath Al Arabia*, Beirut, Lebanon (in Arabic).
12. ILC, 1997., 'Convention on the Law of the Non-navigational Uses of International Watercourses.' United Nations General Assembly Resolution 51/229, U.N., NY.
13. Joudah, O., 1996. 'Water Law in Islam.' ESCWA proceedings of the Water Experts' Meeting on 24-26, November 1996, Amman (in Arabic).
14. Lund, J.R et al. 1995. 'Water Transfers in Water Resource Systems.' *Journal of Water Resources Planning and Management*, ASCE, Vol. 121, No.2, pp. 193-204.
15. Maktari, A.M., 1978. 'Islamic Water Law.' *Unpublished text*.
16. Moore, J. 1992. 'Water Sharing Regimes in Israel and the occupied Territories - a Technical Analysis.' *Project Report 609 Dept. of National Defense, Operational Research and Analysis Establishment.*, pp. 16. Ottawa, Canada.

17. Naff, T., R. Matson, 1984. 'Water in the Middle East-Conflict or Coordination?', *Westview Press*, pp. 236, Boulder, Colorado.
18. Rogers, P., and Lydon, P., 1993. 'Water in the Arab World; Perspectives and Progress.' Papers from the Conference sponsored by the Arab Fund for Economic and Social Development and Harvard University, Harvard University Press, Center for Middle Eastern Studies, USA.
19. Sayed, S., 'Fiqh Al Sunnah.' Dar Al Kitab Al Arabi, Beirut, Lebanon (in Arabic).
20. Smith, S.E., Al-Rawahy, H.M., 1990. 'The Blue Nile: Potential for Conflict and Alternatives for Meeting Future Demands.' *Water International*, Vol.15, No. 4, pp. 217-222.
21. The Holy Quran (*Al Quran Al Karim in Arabic*).
22. Utton, A.E., Teclaff, L. 1978. 'Water in a Developing World: The Management of a Critical Resource.' *Western Special Studies in Natural Resources and Energy Management*.
23. Wilson, P., 1996. 'The International Law of Shared Water Resources.' *UNEP Training Manual on Environmental Law, United Nations Environment Program*, Nairobi.
24. Wilkinson, J.C., 1978. 'Islamic Water Law with special reference to oasis settlement.' *Journal of Arid Environments*, Vol. 1, pp. 87-96.