
GLOBALIZATION AND WATER RESOURCES MANAGEMENT: THE CHANGING VALUE OF WATER

AUGUST 6-8 AWRA/IWLRI-UNIVERSITY OF DUNDEE INTERNATIONAL SPECIALTY CONFERENCE 2001

RULES AND TOOLS FOR NON-NAVIGATIONAL USE OF INTERNATIONAL WATERCOURSES

Mohamed Asheesh¹

ABSTRACT: Transboundary water resources management is one of the biggest global challenges for the 21st century manifested in water resources management, planning and implementation and one of the reasons behind the long-term and short-term water conflicts. Several attempts have been made to devise a set of rules and tools for distribution of water to avoid international conflicts over water resources. The first important international instrument on the uses of waters of international river was adopted by the International Law Association (ILA) in the Finnish capital. It revolves primarily around the concept of equitable utilization and addresses also the issues of pollution, navigation and settlement of disputes. It was followed by the Convention on the Law of the Non-Navigational Uses of International Watercourses in 1997. In river basin conflicts, possible and alternative solutions should be based on international legitimacy and principles of efficient and sustainable use of water resources. Two basic things are needed for a lasting solution. The first one is the realisation that negotiations in good faith are the way to solve a conflict. The second is that every solution should be comprehensive and integrated. The rules and tools that should be applied in solving a conflict also should be integrated include adoption of a water charter for a region, optimisation and reduction of water use in agriculture and industries, and proper pricing policies of water.

KEY TERMS: International Rules, Tools, Transboundary, Conflict, Water Management.

INTRODUCTION

There are 214 river basins in the world shared by two or more countries. Moreover, nearly fifty countries have seventy-five percent or more of their total land area within shared river basins. Thirty-five to forty percent of the world's population lives in these basins. Since environmental problems do not respect national boundaries, nations are searching for appropriate legal and institutional rules and tools to protect and manage these resources (Asheesh, 2001). The ecological and developmental threats to the world's rivers such as the Danube are rapidly transforming natural resource problems from national to international ones. The *Washington University* study (1997) indicated that any river basin managerial system should be based on international water law. However, international water law, as a branch of international law, does not have any clear mandates. No international convention creates laws that bind all states. In the case of the Middle East water conflict, international law has not so far found any real solution for improving the work of the international Joint Commission (IJC). Standards of conduct have developed based on several sources, including the states' customary practice, actions of international tribunals, and writings of various legal institutions (Washington University Law Quarterly, 2001). However, those standards are binding upon states only if they have been accepted by those states or if a practice is regarded as general customary law. Additionally, if an injured state is unwilling or unable to take action for a violation of such a standard of conduct, and assuming that no other state can or will do so, the standard of conduct can be, and often is, violated with impunity (PLO, 1999) (Asheesh, 2001). The standards of conduct concerning international water law have devolved through actions by international tribunal, international regulations and state practice, various conventions, and various states. Figure 1 illustrates the development of international law, which concerns the right of sharing water resources between riparian states.

¹ P.O. Box 541, FIN-33101 Tampere; e-mail::mohamed.asheesh@tut.fi

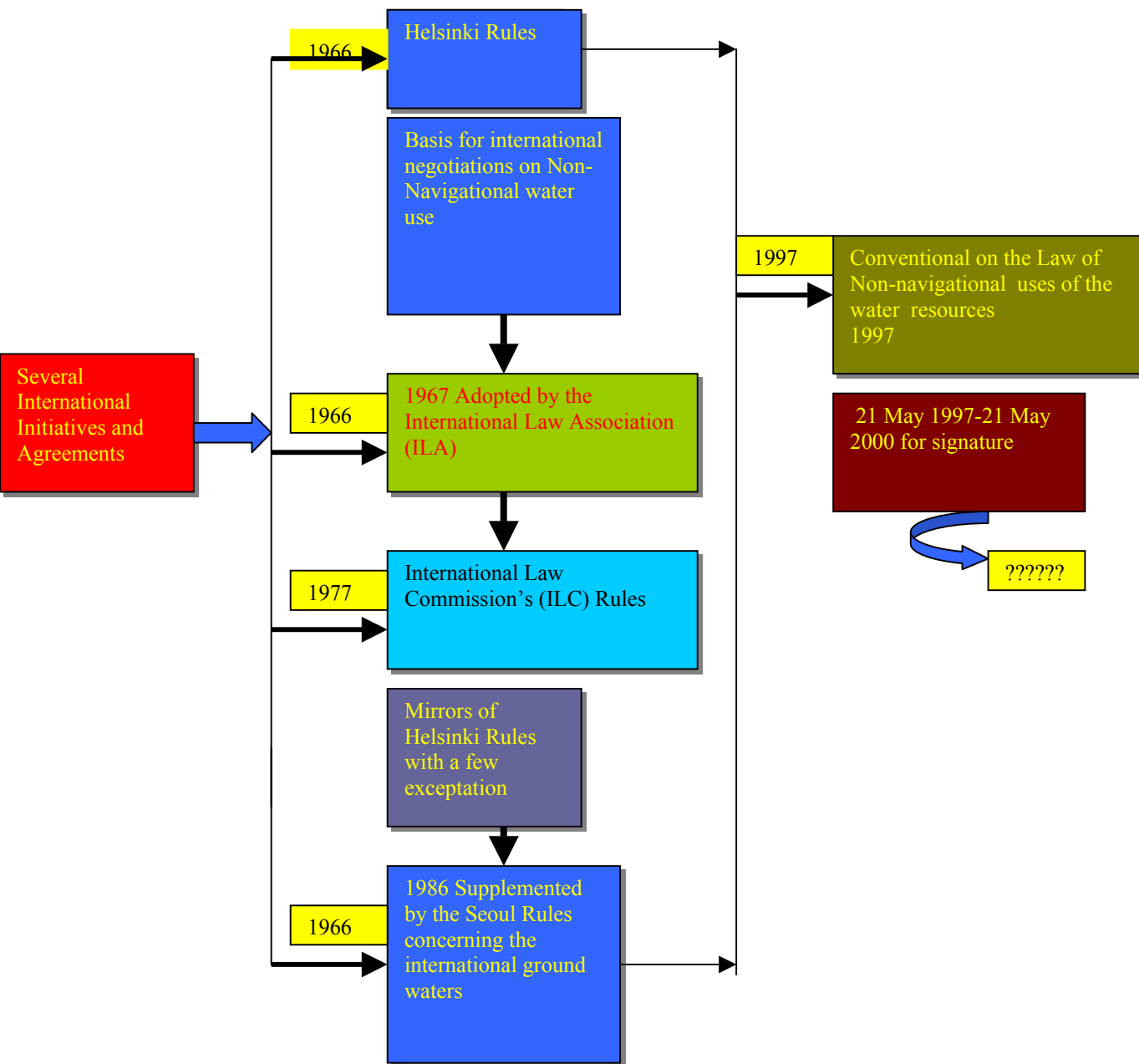


Figure 1. Overall development of the International Water law and international conventions.

Being able to clearly communicate how water is being used and the rationale for allocation can help avoiding conflicts over water. This is especially important in cases where the competition for water is intense and giving more water to one user necessarily means taking it away from another. the tools of a Water Equality Accounting System Suggested in the paper provide a common language for understanding and describing the use and conservation of water. Policy makers and water resources planners can use those rules and tools to make decisions based on the actual amount of water available in a basin.

Evolution of the Law of Natural Resources and International Environmental Law

According to Kuokkanen, the relationship between the international law, the environment and natural resources into

three epistemological categories. He defines the categories from both a chronological and a substantive point of view to indicate particular time periods during which particular doctrines dominated. (Kuokkanen, 2000). Kuokkanen separates the categories in time as follows: the traditional approach dominated from 1850 to 1939, the modern era between 1950 and 1980 and the postmodern era from 1980 onwards. From substantive point of view, the traditional approach refers to classical functions of law, the modern approach to international regulations and the postmodern approach to technical and management-oriented approach (Kuokkanen 2000 p. xii-xiii). Applying the above categorization, Kuokkanen deals with the issues relating to the international watercourses in conjunction with each of the three categories. For example, bilateral river disputes reflect traditional approach. Regulations on the boundary waters represent the modern approach and the sustainable water management the postmodern approach.

In those three periods of development some goals were attained. International environmental and water resources management has succeeded in binding the parties involved to sharing the rights and obligations related to international environmental and water resources. Table 1 shows the historical development in this area: achievements, agreements, conventions and rules.

Table 1. Selected key agreements, rules and conventions on transboundary water resources (Asheesh 2001, Kuokkanen 2001, Manner & Metsälampi 1998).

Date	Agreements & Related, Rules	Basin/Global
1815	Vienna Navigation agreement	The Rhine
1856	Paris first international joint commission (IJC)	The Danube
1900	Agreement concerning water construction	Dom
1921	Barcelona, general international declaration	The Danube
1923	Multilateral treaty/hydro-electric power stations	Global
1926	Portugal-South Africa	Kunene river
1929	Egypt-United Kingdom	The Nile
1931	Canada-USA	Columbia river
1956	China-USSR	Amur river
1960	Indus water treaty India-Pakistan	Western river
1950-1960	Transboundary water resources/ protection	e.g. Mosel-Rhine
1966	Helsinki Rules	Global
1966	International Water Resources Law Committee	Global/ Helsinki/ Manner
1967	International Law Association (ILA)	Global/ Helsinki/ Manner
1972	UN, Stockholm environmental conference	Global
1980	Agreements (the use of natural resources, environmental protection)	Global
1986	Seoul, international groundwater Rules .	Global
1992	ECE, Convention on the Protection and Use of Transboundary Watercourses and International Lakes	European
1992	Rio de Janeiro international conference, UNCED	Global, environmental
1994	Sofia, agreement on the protection of the Danube	The Danube
1997	UN, C Use of International Water Courses	Global

The Helsinki Rules were adopted in 1966 by the International Law Association (ILA). Supplemented in 1986 with the Seoul Rules concerning international groundwater resources (Asheesh, 2001), the Helsinki Rules form the basis for most modern negotiations on non-navigational uses of international waterways.

The Equitable and Reasonable Utilization Principles (Equitable Use and No-Harm): Case of Israel and Palestine

In articles IV and V of the Helsinki Rules (Manner and Metsälampi, 1988), equitable and reasonable use is clearly expressed. Article V of the Draft Articles specifies the principle of "equitable and reasonable utilization and participation". This principle reflects the emerging shared natural resource view of regulating the use of the international environment so as to manage the resource, as opposed to managing the individual disagreement. "Equitable utilization" in the Draft Articles stands for the idea that each state in an international drainage basin has an equal right to use the waters of that basin. Article 5 of the Helsinki Rules sets out these principles as twofold: *first*, that international watercourses shall be used and developed to attain optimal utilization consistent with adequate protection of the particular watercourse; *and second*, that watercourse states shall participate in the use, development, and protection of international watercourses in an equitable and reasonable manner. Article V expressed the duty to cooperate in the protection and development (Asheesh, 2001). The watercourse states "shall participate" in the use and protection of an international watercourse. The Draft Articles expand upon the Helsinki Rules' view of equitable use as a right to use a watercourse reasonably by creating a positive duty also to protect that watercourse.

In 1994 the international law commission approved the Draft Articles of the Law on Non- Navigational Uses of International Water Courses. These articles provoke more profound discussions than the Helsinki Rules. In many world water conflicts application of the equitable and reasonable utilization principle can assist the parties in solving the conflict over their water resources. For example, the most constructive approach to the Israeli-Palestinian water conflict is to enter into agreements based, not on brute force, not on sovereign rights held in an adversarial zero-sum context, but on a reasonable attempt to arrive at a fair and equitable solution which can be based on compiling the appropriate data (e.g the demands projection related to population growth) for applying the equitable and reasonable use principle (Asheesh, 2001). This approach is gaining increasing acceptance, and is reflected in the behaviour of states in a number of disputes. It is becoming codified as a result of the painstaking efforts of the International Law Association, under the name of the Helsinki Principles. These principles have not yet been fully transformed into binding legal obligations and norms, although they are most useful as tools for furthering the prospects of negotiated agreements between the parties in conflict. The parameters required for applying the equitable utilization principle shown in Table 2 mean that it will be difficult to achieve the goal of the Water Vision 21 Programme (Vision 21, 1999).

Table 2. Water demand projection related to population growth rate in Israel and the West Bank. (Asheesh, 2001)

Location	Population		Pop. Growth Rate	Water supply		Water Demand	
	2001 (Millions)	2020 (Millions)		1985 (Mm ³)	2020 (Mm ³)	1987-91 (Mm ³)	2020 (Mm ³)
Israel	5,9	6,7 ^a	1,4%	1950 ^c	1600 ^e - 2060	2100 ^c	2800
West Bank Drought ^d	1,96	4,7 ^b	3,5%	650	450- 550	125 ^d	321 ^f

Sources: Washington University Law Quarterly, 2001; modified by the author, 2001

a: this estimate does not include massive immigration.

b: this estimate does not include refugees or other returnees nor the Gaza strip

c: includes Jewish settlers in the West Bank and the occupied Golan Heights.

d: Demand of the Arab population in the West Bank alone

f: Source: Ziad Mimi, 150 l/c/d is the typical WHO average rate for house connections in small communities which are to be met in the year 2020 (WHO 1993).

TOOLS FOR IMPROVED WATER MANAGEMENT

Tools can often be used to minimize the scarcity and overuse of water resources, which leads to water conflicts, thereby helping the riparian states solve such conflicts over resources. In order to be able to develop tools for solving such cases, current problems should be analyzed and water resources allocated. The problems can be classified as inequality in distribution of water resources, excessive use, high water usage for food production,

growth of tension, evaporation, the drylands aspects and economic and political aspects (Asheesh, 2000).

According to research carried out by the Water Management International Institute (2001), as more of the developing world's river basins become 'closed,' with all their available water used, it is increasingly important to plan water resources development. We have to develop rules for allocation, and tools for management, in the context of multiple uses of water. Policy makers and water resources planners can use those tools and rules to make decisions based on the actual amount of water available in a basin and with an understanding of the potential impacts on all users. In general, the tools related to the problems can be divided into two groups: the first group is related to technology and the second to social and cultural aspects. (IWMI, 2001)

Water Equality Accounting System

The Water Equality Accounting System (WEAS) monitors the inlet and outlet of available water; the model was developed based on IWMI 2001 *Water Accounting For Integrated Water Resources*. The WEAS uses the water balance approach to quantify the amount of water entering an area (through precipitation, river and groundwater flows) and the amount leaving an area (through evaporation, plant transpiration, river and groundwater flows or other water losses).

The amount of unused water flowing out of the system is classified according to whether it is committed for downstream use. Non-committed outflows are further subdivided into water that is currently utilizable and water that is not utilizable without additional infrastructure. In order to be able to understand the model, the inlet and outlet parameters should be defined and exchanged, and the following question should be answered and analyzed for each riparian state: how is water being used, where can water be saved and how efficiently are the utilities managing water resources?.

How is water being used? In several parts of the world, especially in the developing countries, the biggest share of water resources is used for irrigation and agriculture. Most of those countries still use traditional methods of irrigation and have traditional social and religious beliefs. Sharing of water resources requires a water accounting system to clearly designate all the users of water in a basin, to indicate the amount of water being used for various purposes including unplanned, and often unaccounted for water (UA)(Asheesh,1998), in the system or during the distribution.

Where can water be saved? Especially in developing countries, strategies and planning should focus on reducing the flow of irrigation and drainage water into the sea (IWMI). One of the biggest problem in developing countries is irrigation and the use of water for food production. Planning of upstream downstream irrigation system for equal reasonable use, and to improve water conservation at penetration areas, well drilling should be controlled. Other alternatives can be also applied to conserve more water. For instance, social and religion aspects in Saudi Arabia during the Hajj season can be an opportunity to save water by reducing the flow in the Mosques and by recycling treated wastewater to the flushing system for almost three million Hajjis during their visit to the Mecca and Medina Mosques. This requires some flexibility on the part of religious laws and societies. Reduced price support for wheat, importing of food stuffs and introduction of new crops types are alternatives for conserving water. Controlling of all types of losses in the networks or evaporation, in general, are also to be considered.

CONCLUSION

During the traditional, modern and postmodern periods, the development of environmental water resources law, conventions, rules, tools, theories and principles, have evolved in all their variations and means to deal with international water and environmental conflicts. Some of those rules and laws have been applied while some are still waiting to be put into practice. It took two centuries for this process to be recognized and elevated to the United Nations level. The challenge will be how to implement those rules, tools and principles and how to achieve the goal of Water Vision 21. There is still no law or convention that can force the riparian parties to implement those principles.

The principles of sharing transboundary water resources need to be modified, clearly interpreted and the obligations and rights of riparian parties. This means that power should be given to international observers to

execute the enforcement limitation by influencing the decision makers and the international joint commission to implementing the rules and make the mechanism of sharing function.

ACKNOWLEDGEMENTS

Financial support from the Academy of Finland is acknowledged. I wish to thank my advisor Dr. Tapio S. Katko from Tampere University of Technology, Dr. Tuomas Kuokkanen from the Finnish Ministry of the Environment as well as experts from the mentioned riparian countries for their support, consulting and advice.

REFERENCES

Asheesh M. August 2000. Management Approach To The Middle Eastern Water Resources And Services, International Peace Research Association (IPRA), In the 18th IPRA Conference; Tampere, Finland, <http://www.copri.dk/ipra/papers/html>

Asheesh M. June 2001. River Basins and International Rules on Non-Navigational Use of International Watercourses. In Management of Northern River Basin Conference. 5-8 June 2001, Oulu Finland.

Faruqi N. I., Biswas A. K. & Bino M. J. (eds.) 2001. Water Management in Islam. IRDC, United Nations University press. 149 p.

Joint Finnish-Russian Commission on the Utilization of Frontier Watercourses 1995. 68 p.

Just R. & Netanyahu S. 1998. The International Water Resources Conflicts: Experience And Potential. p(1-26), In Conflict And Co-Operation On Transboundary Water Resources. 1998. pp432. Kluwer Academic Publishers.

Manner E. J. & Metsälampi V-M. (eds.) 1988. The work of the International Law Association on the Law of International Water Resources. Finnish Branch of International Law Association.

Kuokkanen T. 2000. International Law and the Environment: Variations on a Theme. 2000. Faculty of Law, University of Helsinki. 322 p.

Kuokkanen T. 2001. Tonavan yleissopimus. Vesitalous 2/2001. In Finnish, pp. 24-25.

40 vuotta rajavesiyhteistyötä. 1999. 156 s. (In Finnish, Norwegian and Russian).

Rogers P. 1990. International Rive Basins: Pervasive Unidirectional Externalities. Presented at The economic of Transnational Commons, University Di Siena, Italy.

Water Management International Institute, <http://www.cgiar.org/iwmi/>, <http://www.cgiar.org/iwmi/press/IBSRAM/IBSRAM.htm>Tools for improved water management, June,2001. (m.devlin@cgiar.org).

Vision 21. 1999. A Shared Vision for Hygiene, Sanitation and Water Supply, A Framework for Mobilisation of Action “Water for People”, Component of the World Water Vision 20, December 1999.