MISCELLANEA JURIDICA HEIDELBERGENSIA 3

Editor:
Juristische Fakultät der
Ruprecht-Karls-Universität
Heidelberg

Ute Mager

International Water Law

Global Developments and Regional Examples

2015

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This volume is based on the author's expert opinion as written for the working group "Society-Water-Technology" of the Berlin-Brandenburg Academy of Sciences and Humanities.

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Preface

The foundation for interdisciplinary work is knowledge of the state of the art of all disciplines that are relevant for the project to be examined in an interdisciplinary manner. This foundation is usually not established when an interdisciplinary working group is starting its project, it must first be built. That was the situation from which this paper originated. The interdisciplinary working group Society – Water – Technology of the Berlin-Brandenburg Academy of Sciences and Humanities which is investigating the efficiency and sustainability of major water engineering projects[1] wanted to know what relevance law has in international water conflicts. To answer this question the following expert opinion presents global developments in international water law and analyzes the legal framework of two international river catchment areas which are notorious for the water conflicts between their riparians: the Jordan River basin and the Aral Sea catchment area. It details the contents and shortcomings of the existing treaties and makes evident that water law is indispensible although not sufficient to avoid conflicts and to assure a rational use of water.

I am grateful to Anton Zimmermann for research assistance, to Lars Fischer for assistance in translating part IV of this text and to Joel Maupin for assistance in editing this text for English fluency.

Heidelberg, March 2015
Ute Mager

1 The results of the activities of the working group will be documented in: Reinhard F. Huettl/Oliver Bens/Sebastian Hoechstetter/Christine Bismuth (ed.), Society – Water – Technology: A Critical Review of Major Water Engineering Projects and Perspectives for Sustainable Water Management, Springer 2015.

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I Introduction

Water is fundamental for life and economy. Water Law is indispensable although not sufficient to assure a rational use of water. Today the main problem is scarcity of clean water due to population growth that accompanies intensive agricultural and industrial utilization. In a historical and comparative perspective it becomes evident that the focus of regulation is moving slowly but clearly from different water uses to the water resource itself. Water Law is evolving more and more into a part of environmental law under the leading principle of sustainability[2]. This is true for both national and international law, and indicates that rational water law must be compatible on all levels of regulation, as flowing water does not stop at political borders[3].

Integrated water management within the limits of river basins is today's most advanced water law concept. However, tradition or water egoism often inhibits the necessary reforms. Additionally, the concept requires a high level of scientific knowledge as well as technical and administrative means, which are not always available. Even where reforms have been undertaken, there are often deficits in the process of implementation. Therefore the water law in force is fragmented[4] and in many cases very different from the advanced water management concept.

2 Farrajota, Maria Manuel, International Cooperation on Water Resources, in: Dellapenna, Joseph W./Gupta Joyeeta (ed.), The Evolution of the Law and Politics of Water, 2009, 337, 339; Mager, Ute, Die Entwicklung des Wasserwirtschaftsrechts – Referenzgebiet für ein materiell-rechtlich fundiertes internationales Verwaltungsrecht, ZaöRV 70 (2010), 789, 816.

3 Mager (note 1), 797 et seq., 816 et seq.

4 Dellapenna, Joseph W./Gupta, Joyeeta, The Evolution of Global Water Law, in: Dellapenna, Joseph W./Gupta Joyeeta (ed.), The Evolution of the Law and Politics of Water, 2009, 3, 10: "today there are 192 different national water law systems, each with country specific characteristics".

II Global Developments in Water Law

The global developments in water law affect the international, regional and national level. This part provides a short overview on principles and concepts on all levels.

1 International Water Law

International Water Law comprises customary law, framework treaties with a universal scope of application, regional framework treaties and regional or bi-national water law treaties for specific water resources. International Water Law, regardless of its source, shares the weaknesses of all international law: There is no institution with undisputed power to enforce its rules. Ultimately, the enforcement is a question of self-commitment or power. Furthermore, content and scope of international customary law rules are often a matter of dispute[5]. Despite these specific weaknesses, international water law is indispensable for the management of international water resources. This is also true for customary law rules as over a third of the more than 200 international river basins are not covered by any international agreement[6]. Moreover, the principles of customary water law constitute important arguments in water diplomacy. The binding character and reliability of a treaty regarding water use and/or protection of a specific water resource depends – in addition to the interests and the commitment of the parties – on preciseness of the mutual obligations, on the institutional coverage of the implementation and enforcement of the obligations as well as on the existence of control and dispute settlement mechanisms.

5 Jägerskog, Anders, Why states cooperate over shared water: The water negotiations in the Jordan River Basin, 2003, 90.

6 Draper, Stephen E. (ed.), Sharing Water in Times of Scarcity. Guidelines and Procedures in the Development of Effective Agreements to Share Water Across Political Boundaries, 2006, Preface, VI.

a. Customary International Water Law

There are only three undisputed rules of customary international water law concerning non-navigational uses of international water resources. These are the rules of equitable and reasonable utilization, the no-harm rule and the duty to cooperate[7]. The concept of territorial sovereignty (Harmon-Doctrine) and the concept of territorial integrity are still used as arguments in water diplomacy, but are not approved as legally binding rules because the idea that a riparian can proceed at will with his part of an international river ignores the fundamental character of a shared resource[8]. Nevertheless, the content and scope of the aforementioned customary rules are doubtful. Particularly controversial is the relationship between the two substantive principles[9].

In addition to these principles, it is worth noting that in the last 20 years the human right to water has evolved considerably. This right is increasingly linked to international water law, even though doubts remain regarding its status as a legal principle in international water law[10].

7 Dellapenna/Gupta (note 3), 11; Brown Weiss, Edith, The Evolution of International Water Law, in: Recueil des Cours 2007, 163, 199 et seq.; McCaffrey, Stephen C., Some Developments in the Law of International Watercourses, in: Kohen, Marcelo G. (ed), Liber Amicorum Lucius Caflisch, 2007, 781, 784.

8 See Caponera, Dante A., Prinicples of Water Law and Administration. National and International, 2nd edition, revised and updated by Marcella Nanni, 2007, 216; Brown Weiss (note 6), 163, 184 – 186, 188 – 189.

9 Helal, Mohammed S., Sharing Blue Gold: UN Convention on the Law of the Non-Navigational Uses of International Watercourses Ten Years On, Colorado Journal of International Environmental Law and Policy 2007, 337 et seq.; Fitzmaurice, Malgosia, General Principles Governing the Cooperation between States in Relation to Non-Navigational Uses of International Watercourses, Yearbook of International Environmental Law 14 (2003), 3, 17 et seq.; Yasuhiro, Shigeta, Some Reflections on the Relationship between the Principle of Equitable Utilization of International Watercourses and the Obligation not to Cause Transfrontier Pollution Harm, Asian Yearbook of International Law Vol. 9 (2000), p. 147 et seq.; Bourne, Charles B., The Primacy of the Principle of Equitable Utilization in the 1997 Watercourses Convention, Can. Y.B. Int'l L. 1997, p. 215 et seq.; see for the impact of the Equity Principle Lautze, Jonathan/Giordano, Mark, Equity in Transboundary Water Law: Valuable Paradigm or Merely Semantics?, Colorado Journal of International Environmental Law and Policy 17 (2005/06), 89 et seq., 110.

10 Thielbörger, Pierre, Governing international watercourses: implications of the human right to water, in: Kibaroglu, Aysegül/Kirschner, Adele J./Mehring, Sigrid/Wolfrum, Rüdiger, Water Law and Cooperation in the Euphrates-Tigris Region, 2013, 39 et seq.; McCaffrey (note 6), 751 et seq.; see also Art. 17 "The Right of Access to Water", Berlin Rules on Water Resources, proposed by the International Law Association in 2004.

Concerning large-scale projects the International Court of Justice pointed out in the case concerning the Gabcíkovo-Nagymaros project that the states have a duty to take into account the environmental aspects[11]. In the Pulp Mill case the Court developed, on the basis of the agreed duty to protect the Uruguay River, the duty to perform an environmental impact assessment in accordance with national law before implementing the project[12].

b. Framework Conventions

It took more than 25 years of preparation by the International Law Commission before the General Assembly of the United Nations adopted the UN Convention on Non Navigable Uses of International Water Courses in 1997[13]. It took 17 years before the Convention achieved the necessary approval of 35 State parties to enter into force[14]. These difficulties reflect the considerable opposition of interests between upstream and downstream riparians[15]. The Convention does not follow the river basin approach but puts the term "international water course" in the center of its regulations[16]. By this definition the land above groundwater is excluded. The Convention shapes in Art. 5 to Art. 7 the two substantive rules of customary international water law. According to Art. 5, the equitable and reasonable utilization rule is supplemented by equitable and reasonable participation in use, development and protection referring to the objective of sustainability. Art. 6 discloses a non-exhaustive list of relevant factors for the determination of equitable and reasonable utilization without stating any priority.

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11 Gabcikovo-Nagymaros Project (Hungary v. Slovakia), Judgement, 25 September 1997, ICJ Reports (1997), 7-84.

12 Case concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgement, 20 April 2010, IJC Reports (2010), 14-107.

13 There are many papers about this Convention. For further references: Behrmann, Christian, Das Prinzip der angemessenen und vernünftigen Nutzung und Teilhabe nach der VN-Wasserlaufkonvention, 2008; see also Wouters, Patricia, The Legal response to International Water Conflicts: The UN Watercourses Convention and Beyond, in: German Yearbook of International Law 42 (1999), 293 et seq.

14 The Convention entered into force on 17 August 2014 and to date has been signed by 36 States. United Nations Treaty Collection, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-12&chapter=27&lang=en.

15 See on the one hand: Rahman, Reaz, The Law of the Non-navigational Uses of International Watercourses: Dilemma for Lower Riparians, in: Fordham International Law Journal 19 (1995/96), p. 9-24; on the other hand: Schwabach, Aaron, The United Nations Convention on the Law of Non-navigational Uses of International Watercourses, Customary International Law and the Interests of Developing Upper Riparians, Texas International Law Journal 33 (1998), 257-279.

16 Art. 2 lit. (a) defines "Watercourse" as a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus.

The no-harm rule under Art. 7 asserts that Watercourse States shall, in utilizing an international water course within their territories, take all appropriate measures to prevent the cause of significant harm to other Watercourse States. If harm nevertheless occurs, the Watercourse States are legally bound to take all appropriate measures in consultation with the affected State, to eliminate or mitigate such harm, and where appropriate, discuss the question of compensation. In accordance with Art. 10, conflicts shall be resolved with reference to articles 5 to 7 and with special regard to the requirement of vital human needs. Art. 8 stipulates a general obligation to cooperate, proposing the establishment of joint mechanisms or commissions. The cooperation shall include the regular exchange of data and information. Besides the codification of customary international water law, the Convention covers information and notification duties as well as consultations and negotiations in the case of planned measures. Furthermore, it addresses protection, preservation and management of international watercourses in rather vague wording and includes provisions for emergency situations. Finally, the Convention details the protection of water resources in armed conflicts as well as in dispute resolution.

The convention has been criticized as already out of date at the moment of its adoption, because it is weak in environmental issues and ignores the human right to water[17]. An updated convention might resemble the Berlin Rules of the International Law Association from 2004[18]. Although it is quite doubtful that such a convention would come into force, "the Berlin Rules reflect the direction in which international water law is heading".[19]

A regional Framework Convention in force since 1992 is the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes, which was originally open for all Member States as well as States having consultative status with the Economic Commission of Europe[20]. Only recently the convention has been opened for all UN member States and therefore has lost

17 Dellapenna/Gupta (note 3), 11.
18 Berlin Rules on Water Resources, proposed by the International Law Association in 2004; for a summary see Mager (note 1), 814 et seq.
19 Dellapenna/Gupta (note 3), 13.
20 Beyerlin, Ulrich/Marauhn, Thilo, International Environmental Law, 2011, 96 et seq. with reference to Papaconstantiou, M., The ECE Convention on the Protection and the Use of Transboundary Watercourses and International Lakes and the UN Convention on International Watercourses, Revue Hellénique de Droit International 1999 (52), 263 et seq.

its regional limitation[21]. The emphasis of the convention focuses on protection of watercourses and on cooperation; for example in research and development, exchange of information and monitoring programs, warning and alarm systems as well as mutual assistance. The convention enhances institution-building. Art. 9 provides an exemplary non-exhaustive list of tasks for which joint bodies shall be responsible, covering inter alia data collection and evaluation, exchange of information including best available technology, elaboration of action and monitoring programs, establishment of warning and alarm procedures and participation in the implementation of environmental impact assessments.

c. Contents of Regional Water Treaties

Treaties of non-navigational uses of one specific water resource vary widely in purpose, content and comprehensiveness. In order to achieve an equitable, reasonable and sustainable utilization of a water resource all riparians should be parties to the treaty.

There are treaties on integrated water management, treaties on the coordination of the uses and allocation of the water which are sometimes accompanied by regulations on the protection of the water resource, and there are barter agreements which integrate other assets in the trade[22]. Many treaties install joint bodies which are responsible for the implementation of the treaty. The power of those bodies is often limited to a coordinating function; sometimes they have operational powers and very rarely regulatory or judicial functions[23].

21 Wolfrum, Rüdiger/Kirschner, Adele J., A survey of challenges and trends in the context of international water law, in: Kibaroglu,Aysegül/Kirschner, Adele J./Mehring, Sigrid/Wolfrum, Rüdiger, Water Law and Cooperation in the Euphrates-Tigris Region, 2013, 17 et seq.

22 For examples see: Dihar, Shlomi, International Water Treaties, Negotiation and cooperation along transboundary rivers, 2008; see also Part III and IV of this paper.

23 Caponera (note 7), 252.

2 EU-Water-Framework Directive (WFD)

By virtue of its legal nature, the EU-Water Framework Directive (WFD) provides a binding character for all EU-Member States[24]. The WFD explicitly pursues the river basin approach[25] and has become a model for the integrated management approach[26]. According to Art. 3 WFD the Member States have the duty to identify the individual river basins and to assign them to individual river basin districts, if necessary in cooperation with other Member States and to the extent possible in cooperation with non-Member States[27]. The WFD is part of EU environmental law. Therefore it focuses on problems of water quality and touches on questions of water quantity mainly via the perspective of sustainable water use. There are no explicit rules for water allocation.

The main goal of the WFD is a good water quality status for all water bodies if possible by 2015 and latest by 2027. In order to achieve its objectives "close cooperation and coherent action at Community, Member State and local level" is needed "as well as information, consultation and involvement of the public, including users".[28] The WFD pursues the integration of sustainable water management into other policy sectors like energy, transport, agriculture, fisheries, and tourism[29]. For each river basin the States concerned have to produce a River basin management plan (Art. 13) which includes all relevant data on the basin[30]. The Member States are obliged to undertake an analysis of the characteristics of the river basin, a review of the impact of human activity on the status of surface waters and groundwater, and an economic analysis of water use. This data is to be reviewed and updated on a regular basis (Art. 5). Furthermore, the plan en-

24 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework of Community action in the field of water policy, L 327/1.

25 Art. 2 No. 13 defines: River basin means the area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta.

26 Mager (note 1), 790; see also: Beyerlin, Ulrich, EU Water Law and its relevance for the Euphrates-Tigris Region, in: Kibaroglu, Aysegül/Kirschner, Adele/Mehring, Sigrid/Wolfrum, Rüdiger, Water Law and Cooperation in the Euphrates and Tigris Region: A Comparative and Interdisciplinary Approach, 2013, 257 et seq.; see also Canelas de Castro, Paulo, European Community Water Policy, in: Dellapenna, Joseph W./Gupta, Yoyeeta (eds.), The Evolution of the Law and Politics of Water, 2009, 227, 232 et seq.

27 Art. 2 No. 15 defines: River basin district means the area of land and sea, made up on one or more neighbouring river basins together with their associated groundwaters and coastal waters, which is identified under Article 3 (1) as the main unit for management of river basins.

28 Explanatory statement No 14.

29 Explanatory statement No 16.

30 For example the Donau River basin management plan: http://www.icpdr.org/main/publications/danube-river-basin-management-plan.

compasses a program of measures on the basis of the aforementioned analyses in order to achieve the objectives of the WFD. The measures are listed in Annex VI. They incorporate the observance of all relevant legislation, for example the Drinking Water Directive, the Urban Waste Water Treatment Directive or the Nitrates Directive. Other measures include economic or fiscal instruments, negotiated environmental agreements, abstraction controls or demand management measures as promotion of adapted agricultural production (e.g., low water requiring crops in areas affected by drought), and many others. Not only the data, also the program of measures has to be updated regularly (six-year periods). The public has the opportunity to participate in the establishment of the management plan through information and consultation procedures.

The WFD contains many exemptions from its obligations. There are, for example, extensions of the 2015 deadline if measures are disproportionately expensive as well as less stringent objectives for specific waterbodies affected by human activity, or in the case of unforeseeable circumstances. Due to its weak substantive obligations its success is highly dependent on the Member States commitment and willingness to succeed[31]. In summary, the significance of the WFD lies in its management approach, namely in the duties to collect and monitor all relevant data of a river basin as an indispensable precondition of water use planning, as well as in the cooperation and coordination of the administration in the framework of a river basin including public information and consultation.

31 Scheuer, Stefan/Naus, Joerl, 10 Years of the Water Framework Directive: A Toothless Tiger? A Snapshot Assessment of EU Environmental Ambitions, Report published by the European Environmental Bureau, 2010, available at http://www.eeb.org.

3 National Water Law Concepts

National water legislation regulates the legal status of water resources, the right to use water, priorities between the uses, water services, water quality and pollution control including waste water management, control and protection of waterworks and structures, protected zones or areas, data collection and planning, fees, penalties and sanctions, administration and administrative procedures of water resources.[32] Due to the increasing scarcity of clean water, there is a strong trend in national water law all over the world to put water resources under the control of public authorities.[33] This is also true for groundwater resources[34].

There are different approaches in water law:[35] Similar to international regulatory trends, national legislators have adopted the modern concept of resource-oriented integrated management. The different uses and the environmental aspects are completely integrated in the territorial framework of a river basin. The appropriate administrative structure is a river basin administration[36].

Nevertheless, use-oriented approaches are especially prevalent. The focus of the regulation lies on the different uses and their preconditions but does not integrate these uses in a river basin perspective[37]. The consideration of environmental aspects can differ considerably. The administration follows political borders.

In the common law system there are two different approaches to allocate the right to use water: the riparian doctrine and the prior appropriation doctrine. According to the riparian doctrine the riparian landowners have the right to use the water for all reasonable uses not inconsistent with the rights of the other riparians[38]. The prior appropriation doctrine states that the first person to use a water resource acquires the right to its future use under the precondition that the water use is beneficial[39].

32 Caponera, (note 7), Chapter 7: „Possible contents of and reasons for water law", 133 et seq.
33 Caponera, (note 7), 139.
34 Caponera (note 7), 259.
35 Mager (note 1), 798 et seq.; Caponera (note 7), Chapter 5 "Existing systems", 59 et seq. and Chapter 6 "Development by region", 91 et seq.
36 For example the Water code of Kyrgystan: http://faolex.fao.org/docs/texts/kyr49854E.doc.
37 For example the Water code of Kasachstan: http://faolex.fao.org/docs/pdf/kaz5256E.pdf.
38 Caponera (note 7), 75, 125 et seq.
39 Caponera (note 7), 127 et seq.

Finally an institutional approach can be found[40]. The legislation covers the powers and duties of special bodies and authorities concerning water-related issues, but does not regulate the uses or management of the actual water resources in a comprehensive manner. In this case the right to use is often subject to customary law or religious water law principles.

Regarding legal instruments, planning on the basis of a comprehensive data collection is fundamental to the integrated management concept. The planning process encompasses public information and participation and is reiterated on a regular basis[41]. All relevant uses require a permission, license or concession, which are terminable or otherwise limited. Also in the framework of the use-oriented approach, under state control all relevant water uses depend on permissions[42].

Protection of the water quality can be realized by water quality standards or emission standards. Emission standards are usually part of the permission to use the water.

Water use fees are a common economic instrument in water legislation[43]. The amount of the fees usually differs according to use – domestic, agricultural, industrial – or is based on the quantity of abstracted water. In this way the fees work as an economic incentive or as a subsidy for a special sector, mostly the agricultural sector.

Water user organisations are an important organisational element of water legislation. They have a long tradition in irrigation farming[44]. Water user organisations are usually responsible for the local water distribution structures as well as for the water distribution itself.

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40 Harald Ginzky characterizes the Jordanian Water Law that way. Ginzky, Harald, Jordanian Water Law, Current state, major shortcomings and proposals for amendments, unpublished legal expert opinion 2009.

41 See for example the Water Framework Directive; see also the Kyrgiz Water Code faolex.fao.org/docs/texts/kyr49854E.doc.

42 For examples: the Water codes of the Central Asian Republics, the German water code.

43 For examples: the Water Codes of the Central Asian Republics, the Jordan Underground-water-By-Law 85 of 2002, faolex.fao.org/docs/texts/jor63017E.doc.

44 See Dukhovny, Viktor A./de Schutter, Joop, Water in Central Asia, 2011, 57 et seq., 107 et seq., 125 et seq., 238, 254, 330.

4 Conclusion

Modern water law and legislation has to ensure sustainable resource allocation and management. For this purpose the legislator has to take into account not only the political and cultural background and the economic needs, but also the natural laws that govern the natural resource water. Data collection and monitoring are essential. Planning as well as instruments and procedures for adaption are indispensible. The water law on all levels still requires significant improvement.

III Interstate Water Law in the Jordan River Basin

The Interstate Water Law in the Jordan River Basin gives an example of the powerful influence of politics in water resource management and allocation. However, it illustrates how extreme water scarcity problems in this region can enhance agreements even between political enemies.

1 The Hydro-geographical and Political Situation in the Jordan River Basin[45]

The Jordan River Basin is formed by two rivers: the Jordan and the Yarmouk. The Jordan extends from the hills of Lebanon, Syria and Israel in the north to the Dead Sea in the south. It has at its source three spring-fed streams:

- the Hasbani begins in Syria with a small part of its watershed in Lebanon,
- the Banyas begins in Syria and
- the Dan begins in Israel. It contributes 50% of the water to the Jordan at this point[46].

These three tributaries form the Jordan River in the north of Israel, which then flows south into Lake Tiberias. This lake, also known as the Sea of Galilee or Lake Kenneret, is the most important surface water storage source in Israel. Roughly 25% of Israel's total water consumption is pumped from the

45 Sources of the following description are Haddad, Marwan, The Jordan River: Legal and Institutional Aspects, in: Kibaroglu,Aysegül/Kirschner, Adele J./Mehring, Sigrid /Wolfrum, Rüdiger, Water Law and Cooperation in the Euphrates-Tigris Region, 2013, 302, 306 et seq.; Dombrowsky, Ines, Water Accords in the Middle East Peace Process: Moving Towards Cooperation?, in: Brauch, Hans Günter/ Liotta, Peter H./Marquina, Antonio/ Rogers, Paul/Selim, Mohammed El-Sayed (Eds.), Security and Environment in the Mediterranean – Conceptualising Security and Environmental Conflict, 2003, 42, 730 et seq.; Wiczyk, Omer, An Analysis of the Treaty of Peace between Israel and Jordan in the Context of International Water Law, in: Yearbook of International Environmental Law 14 (2003), p. 139, 140 et seq.; Zawahri, Neda A., Governing The Jordan River System: History, Challenges, And Outlook, in: Journal of Transboundary Water Resources 2010, 125, 126 et seq. ; Jägerskog (note 4), 69 et seq.; Hudes, Karen, Shared Water Resources in the Jordan River Basin, 1 Across Borders, Gonz. Int'l L.J. 6 (1997-1998), available at heinonline.org; Giannios, Susanne, Ein Wasserregime im Nahen Osten, 2003, 104 et seq.

46 Wiczyk (note 44), 140.

Sea and transported by the Israel National Water Carrier to coastal areas and to the Negev[47]. This pipeline of longer than 100 km was put into operation in 1964[48].

South of Lake Tiberias the Jordan converges with the Yarmouk River, which is the major tributary of the Jordan River[49]. The Yarmouk begins in Syria and forms the border between Syria and Jordan. Before the two rivers converge, Jordan extracts water from the Yarmouk River to feed into the King Abdullah Canal (East Ghor Main Canal, construction began in 1959 and was completed by 1979) and runs parallel to the Jordan River. The Jordan River then forms the boundary between Jordan and Israel (respectively the Palestinian Territories/West Bank) and finally flows into the Dead Sea.

Another important part of the basin system is the water stored in underground aquifers. The largest is the Mountain Aquifer which is located in the West Bank[50]. 5/6 of the water of this aquifer are used by Israel. It is the source of 35% of Israel's total annual consumption[51]. The remaining 1/6 is used by the Palestinians in the West Bank and provides 90% of their annual consumption[52].

On the basis of these hydro-geographical facts, the riparians of the Jordan River Basin are Lebanon, Syria, Israel, Jordan and Palestine.

Longstanding difficulties in the political relationships of these parties are well documented. Despite several attempts sponsored by the United Nations and the United States to work out a basin-wide agreement, there is currently not a treaty in the Jordan River Basin that includes all riparians. The famous Johnston Plan from 1955[53] was accepted on the technical and expert level

47 Wiczyk (note 44), 140.
48 Wiczyk (note 44), 146.
49 Wiczyk (note 44), 141.
50 Wiczyk (note 44), 141. Hudes, (note 44), 2.
51 Hudes (note 44), 3.
52 Hudes (note 44), 3.
53 For the content see Phillips, David J.H./Attilib, Shaddad/McCaffrey, Stephen/Murrayd, John S., The Jordan River Basin: 1. Clarification of the Allocations in the Johnston Plan, Water International 2007, 16, 28 et seq.; Zawahri (note 44), 129 et seq.; Elmusa, Sharif S., Toward a Unified Management Regime in the Jordan Basin: The Johnston Plan Revisited, in: Yale F&ES Bulletin Series Nr. 103, 1998, 297, 298, 301 et seq.; Sabel, Robin, The Jordan Basin: Evolution of the Rules, in: Dellapenna, Joseph W./Gupta, Joyeeta (eds.), The Evolution of the Law and Politics of Water, 263, 267 et seq.

after three years of negotiation, but failed for political reasons[54]. Nevertheless, its content had a certain influence on the national water policy of the countries, especially in the context of water development projects like the National Water Carrier (Israel), the King Abdullah Canal (Jordan) and the Al Wehda (Unity; Maqarin) Dam (Syria), because these projects needed international funding and the donors put their contributions under the condition of an accepted water sharing between the riparians which was represented by the allocations and development projects of the Johnston Plan[55]. Furthermore, the plan served as a guideline for later bi-national negotiations[56].
The water allocation of the Johnston Plan was based on the water needs for all irrigable land in the Jordan River Basin taking into account the existence of alternative water resources in the different countries. Groundwater resources were not considered[57].

There are to date no water-related agreements concerning the upper Jordan River between Israel and Lebanon or Israel and Syria[58]. To the contrary several agreements have been concluded between the riparians of the lower Jordan River Basin. Relevant are the treaties between Jordan and Syria concerning the development and water allocation of the Yarmouk River, the Peace Treaty between Israel and Jordan and agreements between Israel and Palestine.

54 Haddad (note 44), 305; Dombrowsky (note 44), 735; Wiczyk (note 44), 145; Zawahri (note 44), 131.
55 See Dombrowsky (note 44), 735; Wiczyk (note 44), 145 et seq.; Zawahri (note 44), 131; Lowi, Miriam, Water and Power. The Politics of a Scarce Resource in the Jordan River Basin, 1995, 79 et seq.; see for the works in Israel (National Water Carrier) and Jordan (King Abdullah Canal) Sabel (note 52), 268 et seq.
56 Zawahri (note 44), 131; Haddadin, Munther, Evolution of Water Administration, in: Haddadin, Munther J. (ed.), Water Resources in Jordan, Evolving Policies for Development, the Environment and Conflict Resolution, 2006, 31, 32, 42.
57 Elmusa, Sharif S., Dividing Common Water Resources According to International Water Law: The Case of the Palestinian-Israeli Waters, in: 35 Nat. Resources Journal, 1995, 223, 226.
58 Haddad (note 44), 313.

2 Agreements between Syria and Jordan

Jordan and Syria have signed three bilateral agreements to develop the Yarmuk River, all aimed at the same goal of constructing a huge dam for hydropower generation and water storage[59]. They reached the first agreement in 1953. The treaty was never implemented due to Israel's protest and the 1967 June War[60].

In 1987, Syria and Jordan made a second attempt to realize the construction of a dam at the Yarmuk River and signed the "Agreement concerning the utilization of the Yarmuk waters"[61]. They reaffirmed the necessity to build a dam at Maqarin, a project already envisaged by the Johnston Plan. The treaty consists of 15 articles regarding the costs of construction and maintenance of the dam – borne by Jordan – allocation of generated hydropower – 75% for Syria, 25% for Jordan –, allocation and use of the Yarmouk Water, ensuring the existing Syrian uses along the riverbank, and allocating the overflow of the dam to Jordan. A Joint Syria-Jordan Commission was established for the implementation of the provisions of the Agreement. But: "The project works were again delayed due to contentions with Israel but also political tensions between Jordan and Syria.[62]"

In 2001 Jordan and Syria reached a third bilateral agreement with the same purpose. Due to financial and technical constraints the dam's size was reduced significantly from 300 mcm storage capacity to 110 mcm[63]. The construction works started in 2004[64] and the dam was completed in 2010. But the dam's reservoir remains unfilled as droughts and increased consumption in Syria have reduced the annual flow of the Yarmouk River considerably[65]. It has to be noted that since the agreement of 1987 more than 20 dams were constructed on the Yarmouk River and more than 3000

59 Haddad (note 44), 313 et seq.; Rosenberg, David E., The Yarmouk River Agreements: Jordan-Syrian Transboundary Water Management, 1953 – 2004, in: The Arab World Geographer Vol 9 No 1, 2006, 23, 28; Zawahri (note 44), 136 et seq.

60 Haddad (note 44), 314; Rosenberg (note 58), 28; Zawahri (note 44), 137.

61 http://www.internationalwaterlaw.org/documents/regionaldocs/syria-jordan-1953.html; see Rosenberg (note 58), 28; Hudes (note 44), 5 et seq.

62 Haddad (note 44), 315; for reasons of the failure see also Elmusa, Towards a Unified Management Regime (note 52), 305.

63 Rosenberg (note 58), Table p. 29.

64 BBC News "Jordan joins Syria in dam project", http://news.bbc.co.uk/go/pr/fr/-/hi/middle_east/3473483.stm.

65 Haddad (note 44), 315; Zawahri (note 44), 138.

wells have been drilled[66]. Jordan complains that Syria is violating the water sharing agreement from 1987. The complaint is that Syrian farmers use more water for irrigation along the riverbank than they are entitled to[67]. Despite the existence of a Joint Committee, a reliable and satisfactory water-sharing solution does not currently exist between Jordan and Syria. Art. IX of the 1987 treaty states: "In the event of any difference arising between its (the Commission's) members which they are unable to resolve conclusively to the satisfaction of the representatives of both Parties, its members shall report the matter forthwith to their Governments, which shall settle the difference and find an objective solution that will ensure the smooth continuation of work while guaranteeing the rights of both Parties under the terms of this Agreement." It is obvious that such a dispute settlement regulation does not offer much assistance once a real problem occurs.

66 Hana Namrouqa, Yarmouk water sharing violations require political solutions, in: The Jordan Times, April 28, 2012, http://jordantimes.com/yarmouk-water-sharing-violations-require-political-solution; Haddad (note 44), 315.

67 Namrouqa (note 65).

3 Peace Treaty between Israel and Jordan

In 1994 Israel and Jordan agreed on a Treaty of Peace[68]. Art. 6 of the treaty concerns "WATER". Annex II of the Treaty contains the detailed water-related provisions of the agreement.

Art. 6 starts with the declaration that the parties intend to achieve a comprehensive and lasting settlement of all water problems between them. For this purpose they declare in paragraph 1 the mutual recognition of the "rightful allocations of both of them" in Jordan River and Yarmouk River waters as well as the Araba/Arava Groundwaters as set out in Annex II. In Art. 6 paragraph 2 they agree that the management and development of their water resources do not, in any way, harm the water resource of the other Party. In paragraph 3 they admit the fact that the water resources are not sufficient to meet their needs and agree, that projects of regional and international cooperation should be used to alleviate the situation. Admitting that water issues along the entire boundary must be dealt with in their totality the two parties agree to cooperate in the development of existing and new water resources, the prevention of contamination of water resources, mutual assistance in the alleviation of water shortages and transfer of information and joint research and development in water-related subjects, and review of the potential for enhancement of water resources development and use.

To sum up, Art. 6 gives a special version of the three main water law principles of international customary water law: the mutual recognition of the water rights of each Party in compliance with the rightful allocation they have agreed on substitutes the rule of equitable utilization; it follows the no-harm rule in a very strict version; and finally offers several promises to cooperate that go further than the minimum prescribed by international customary law.

Annex II contains regulations on water allocation and storage of waters, on water quality and protection, as well as on cooperation.

In Art. I and II the Parties agreed on a summer/winter exchange of waters of the Jordan River and the Yarmouk River including the transfer of desalinated water from Israel to Jordan, storage projects, and regulations for operation

68 http://www.jewishvirtuallibrary.org/jsource/Peace/isrjor.html; see Haddad (note 44), 316 et seq.; Dombrowsky (note 44), 736 et seq.; Wiczyk (note 44), 150 et seq. ; Zawahri (note 44), 133 et seq. ; Jägerskog (note 4), 103 et seq.; Hudes (note 44), 5 et seq.; Giannios (note 44), 139 et seq.

and maintenance of the water supply system[69]. The Joint Water Committee, established by the treaty, shall survey existing uses for documentation and prevention of appreciable harm.

Compared with the allocation under the Johnston Plan, Jordan gets an average of 125 mcm/year less water than Israel.[70] However, the allocations to Jordan under the Johnston Plan were made when Jordan was in control of the West Bank[71]. A cause for future conflict was laid by the lack of rules for adaptation in the case of major changes in water supply. Furthermore, the states, agreeing to cooperate to find an additional 50 mcm/yr of drinkable water for Jordan, had no idea of likely sources of this water[72].

Art. III contains regulations on Water quality and protection. The parties have the duty to protect the waters of the rivers and the groundwater against any pollution, contamination, harm or unauthorized withdrawals of each other's allocations. These duties are monitored by jointly established monitoring stations. The parties agree explicitly on the duty to prohibit the disposal of wastewater in the rivers before it is treated to standards allowing their unrestricted agricultural use within three years. Saline springs diverted to the Jordan River shall be earmarked for desalination within four years.

There are special regulations for the Groundwater Wadi Araba in Art. IV of the Treaty. The use and, if necessary, replacement of existing wells, the quality, and quantity of water extracted by these wells was to be specified in an Appendix to be established by the end of the year 1994. Israel was allowed to increase

69 Art. I:
- allocation of Yarmouk River Waters: Israel: summer 12 mcm, winter 13 mcm + 20 mcm, Jordan: the rest of the flow
- allocation of Jordan River Waters: summer: transfer of 20 mcm from Israel to Jordan; winter: storage of 20 mcm by Jordan (see Article II); excess floods can be used by both parties;
- Israel is entitled to maintain its current uses of the Jordan River waters between its confluence with the Yarmouk and its confluence with WadiYabis; Jordan is entitled to the same quantity, provided however, that this use will not harm the use of Israel.
- 10 mcm/year of 20 mcm of desalinated water are transferred from Israel to Jordan
- development of a plan within one year to find sources for the supply to Jordan of additional 50 mcm water/year.

Art. II:
- construction of a diversion structure at the Yarmouk River near Abadassiya
- construction of storage capacities on the Jordan along the common boundary in order to implement provisions on allocation.

70 Hudes (note 44), 7.
71 Hudes (note 44), 7.
72 Zawahri (note 44), 134.

the abstraction rate from wells in Jordan by up to 10 mcm/yr under the condition that this undertaking does not harm existing Jordanian uses. The parties agreed on operation and maintenance regulations of wells and supply systems and the equivalence of water quality in the case of cross-border water supply.

Art. V contains an accentuation of the no-harm rule. It states that artificial changes in the course of rivers require mutual agreement. Furthermore, projects that are likely to change quantity or quality of the flow of the rivers must give notice six month in advance and be discussed by the Joint Water Commission.

Furthermore, the parties agreed on the exchange of relevant data on water resources and the development of plans for purposes of increasing water supplies and improving water use efficiency within the context of bilateral, regional or international cooperation (Art. VI).

Finally, the parties agreed on the establishment of a Joint Water Committee comprised of three members from each country (Art. VII). Competences of the Joint Water Committee are not specified besides the assigned monitoring and planning competences in the Articles mentioned above. The Committee does not have the competence of decision making, implementation or dispute settlement. "Some claim that the JWC is simply an extension of the former picnic table summits, meant to encourage an open dialogue and cooperation but little else."[73]

It is not surprising that problems arose due to the lack of clarity of several provisions[74]. "In particular, there was a disagreement between the two sides about the additional water quantities and resources promised to Jordan ... which had not been specified in space or time".[75] "Another crisis arose in 1999 when there was a severe drought. ... Israel requested a reduction for its water deliveries to Jordan which Jordan rejected. Both Israel and Jordan were exchanging accusations of breaching the agreement. However, both parties worked out their differences and the treaty has been in effect during all crises including the operation of the JWC and other water and financial commitments."[76]

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73 Wiczyk (note 44), p. 153; see for the picnic table talks Zawahri (note 44), 132 et seq.; for the work of the JWC Zawahri (note 44), 135 et seq.; Haddadin, Munther J., Diplomacy on the Jordan: International Conflict and Negotiated Resolution, 2002.

74 Dombrowsky (note 44) 736.

75 Haddad (note 44), 316 et seq.; see also van Edig, Annette, Rechtliche Schwierigkeiten und Möglichkeiten eines multilateralen Wassermanagements im Nahen Osten, Verfassung in Recht und Übersee 1998, 371, 378 et seq.

76 Haddad (note 44), 317.

4 Interim Agreements between Israel and the Palestinian Authority

At the beginning of the nineties a new attempt began in the peace-process between Israel and the Palestinians. The main outcome of the negotiations were the Declaration of Principles on Interim Self-Government Arrangements (Oslo I) September 13th, 1993, the Agreement on the Gaza Strip and Jericho Area, May 4th, 1994 and the Israeli-Palestinian Interim Agreement (Oslo II) September, 28th, 1995. The Agreements were intended to last for 5 years and to be replaced by a final status agreement. This has not happened yet[77].

a. Declaration of Principles on Interim Self-Government Arrangements (Oslo I)

Concerning water-related issues the *Declaration of Principles*[78] envisages the establishment of a Palestinian Water Administration Authority (Art. VII). In its Annex III on cooperation in economic and development programs the two sides agree to establish a Committee for Economic Cooperation focusing on, among other things, listed as Nr. 1: "Cooperation in the field of water, including a Water Development Program prepared by experts from both sides, which will also specify the mode of cooperation in the management of water resources in the West Bank and Gaza Strip, and will include proposals for studies and plans on water rights of each party, as well as on the equitable utilization of joint water resources for implementation in and beyond the interim period."

Annex IV concerns cooperation in regional development programs. It proposes, among other things, a possible element of a regional economic development program: "The development of a joint plan for coordinated exploitation of the Dead Sea area, the Mediterranean Sea (Gaza) – Dead Sea Canal, regional desalinization and other water development projects, a regional plan for agricultural development, including a coordinated regional effort for the prevention of desertification."

77 Haddad (note 44), 318.
78 http://www.jewishvirtuallibrary.org/jsource/Peace/dop.html; see Haddad (note 44), 317; Dombrowsky (note 44), 738.

These declarations sound more promising than reliable. In essence the declaration gives the Palestinians the right to establish a Water Administration authority and acknowledges for the first time, in principle, Palestinian water rights.

b. Agreement on the Gaza Strip and the Jericho Area

By the *Agreement on the Gaza Strip*[79] and the Jericho Area the responsibility for water issues was transferred in principle to the Palestinian Authority. Paragraph 2 states an exception to this principle that the existing water systems supplying water to the Settlements and the Military Installation Area and the water systems and resources inside them continue to be operated and managed by Mekoroth Water Company, Israel's National Water Company. The Palestinian Authority shall pay Mekoroth for the cost of water supplied from Israel and for the real expenses incurred in supplying water to the Palestinian Authority. The other paragraphs also strive to secure the status quo under the new circumstance of a Palestinian Authority in place. Israel shall provide the Palestinian Authority with all data concerning the number of wells in the Settlements and the quantities and qualities of the water pumped from each well on a monthly basis. On the other hand the Palestinian Authority shall take the necessary measures to ensure the protection of all water systems in the area. This agreement became part of the Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip (Oslo 2).

c. Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip (Oslo 2), September 28th, 1995

The Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip (Oslo 2), September 28th, 1995[80] is an important and complex document in the peace process between Israel and Palestine. Article 40 of the Agreement concerns "Water and Sewage". It consists of 25 paragraphs subdivided into the topics: Principles, Transfer of Authority, Additional Water, The Joint Water Committee, Supervision and Enforcement Mechanism,

79 http://www.mfa.gov.il/mfa/foreignpolicy/peace/guide/pages/agreement%20on%20gaza%20strip%20and%20jericho%20area.aspx.

80 http://www.mfa.gov.il/mfa/foreignpolicy/peace/guide/pages/the%20israeli-palestinian%20interim%20agreement.aspx; see Haddad (note 44), 318 et seq.

Water Purchases, Mutual Cooperation, Protection of Water Resources and Water and Sewage Systems and finally the Gaza Strip.

Details concerning the Joint Water Committee, the Supervision and Enforcement Mechanism as well as Data concerning Aquifers, are listed in Schedule 8 to 10.

Israel recognizes in principle that the Palestinians have water rights in the West Bank whose exact allocation is postponed to the Permanent Status Negotiations and Agreement.

Both sides recognize the necessity to develop additional water resources. They agree to coordinate the management of water and sewage resources and systems in the West Bank during the interim period in accordance with the principles of maintaining existing uses, protection of the water resources, sustainable use, adjusting the utilization of the resources according to variable climatological and hydrological conditions.

Israel transfers the Water and Sewage Administration to the Palestinian side, except for issues that will be settled in the permanent status negotiations as the issue of ownership of water and sewage-related infrastructure in the West Bank.

Both sides estimate the future needs of the Palestinians in the West Bank at between 70 to 80 mcm/year. In order to meet the immediate needs of the Palestinians for domestic use, both sides agree to make available to the Palestinians during the interim period a total quantity of 28,6 mcm/year from different sources, listed in detail below. Israel shall assist the Council in the implementation by making available all relevant data and by determining the appropriate locations for drilling of wells.

A permanent Joint Water Committee is established for the interim period. The Joint Water Committee shall be comprised of an equal number of representatives from each side. It has far-reaching administrative responsibilities concerning the management of the water resources in the West Bank. As listed in Schedule 8 all licensing and drilling of new wells and the increase of extraction from any water source by either side shall require the prior approval of the JWC. Prior approval of the JWC is also required for all development of water resources and systems. The JWC is also responsible for the supervision and control of the Joint Supervision and Enforcement Teams for the

West Bank which are part of the Supervision and Enforcement Mechanism.

Both sides recognize the necessity to establish a joint mechanism for supervision over and enforcement of their agreements in the field of water and sewage in the West Bank. For this purpose both sides establish no less than five Joint Supervision and Enforcement Teams (JSETs). Each Team shall be comprised of no less than two representatives from each side, each side in its own vehicle, unless otherwise agreed. These Teams are a sort of specialized police. They operate in the field to monitor, supervise and enforce the implementation of Article 40 and to rectify the situation whenever an infringement has been detected, for example unauthorized connections to the supply systems or unauthorized water uses. The JSETs control water and sewage facilities on a regular basis but also on demand. They have free access to all relevant sides and shall cooperate with the District Coordination Office[81].

The regulations aim at ensuring that water purchases between the two sides are operated on the basis of reliable data and control on quantity and quality of the water and that the purchaser pays the full real cost incurred by the supplier.

The paragraphs on mutual cooperation are quite vague. They refer to the promises of cooperation in the Declaration of Principles. Furthermore, they refer to cooperation in other existing or future bilateral and multi-lateral forums. Cooperation in the field of water-related technology transfer, research and development, and training and standard-setting is intended, as well as cooperation in the field of water-related emergencies and data exchange. In Schedule 10 the extraction and recharge data of the three main Aquifers (Eastern, North-Eastern, Western) are listed.

Concerning protection of water resources and water and sewage systems, each side shall: 1) take all necessary measures to prevent any harm, pollution or deterioration of water quality of the water resources; 2) take all necessary precautions for the physical protection of the water and sewage systems in their respective sides; and 3) create measures to prevent pollution or contamination of the water and sewage systems including those of the other party. In case of unauthorized use or sabotage of water and sewage systems that

81 Dombrowsky (note 44), 738: "While they (JSETs) have been working reasonably well after some initial difficulties, they have stopped operating since the outbreak of the Al-Aqsa Intifada in September 2000."

serve the other side, the responsible party shall reimburse for the damage. In essence the agreement aims at securing the existing uses. All development projects are under the condition of prior approval of the JWC. The consequence is that the Palestinians are not able to develop water resources without the consent of Israel[82] whereas Israel, within its territory, is free to do what it wants. The control mechanism is regulated in detail whereas the statements on cooperation are quite vague. There is no dispute settlement mechanism with participation of a neutral party.

d. Israel-Jordan-Palestine Liberation Organization: Declaration on Cooperation on water-related matters February 13th, 1996

In 1996 there was a trilateral Declaration on Cooperation on water-related matters between Israel, Jordan and the Palestine Liberation Organization[83]. This Declaration is not listed as international water-related treaty and had no substantial effects on the water situation in the Jordan River Basin[84]. The declaration consists of three parts: Under the heading common denominators, the parties sum up their common understanding on water legislation. Part two contains principles of cooperation on new and additional Water Resources, and part three concerns cooperation on other water-related matters.

Most interesting in this declaration are the common denominators in water legislation which are state ownership or state control of all water resources, requirement of permits for water production and use, priority for domestic uses, standards for water quality, data and record keeping, enforcement of water legislation and proper sanctions, and periodically reviewed and adjusted water tariffs. In part two, new and additional water resources are defined as those that are not existing or already part of bilateral agreements. Principles for negotiation on future projects are established in very vague terms. In Part three areas for possible cooperation are listed including weather forecasting, data exchange, development of early warning systems, water-related technology transfer, and desalination.

82 Dombrowsky (note 44), 738: "Israel de facto maintains veto-power for any water development activities by PWA."; Giannios (note 44), 155.
83 http://www.jstor.org/stable/20698688?seq=1.
84 Dombrowsky (note 44), 740: "a piece of paper from which nothing has come".

5 Read Sea – Dead Sea Water Conveyance Project

The latest and most concrete project of cooperation between Israel, Jordan and Palestine is the Read Sea – Dead See Water Conveyance Project, supported by the World Bank. It took three years of negotiation and several drafts before Israel, Jordan and the PLO, the so-called beneficiary parties, signed the agreement to launch the Feasibility Study for the Environmental and Social Assessment of the Project in May 2005[85]. The negotiations took so much time because Israel didn't want to alter the status quo of the regional water use or create any precedent for the clarification of water rights with the Palestinian Authority, whereas the Palestinian side wanted to use the project as leverage for their interests in the permanent status negotiations[86]. In the end the Terms of Reference became quite technical: "The Red Sea – Dead Sea Water Conveyance Project Terms of Reference shall only consider the technical and financial aspects of the proposed Project and shall not in any way prejudice the riparian rights of any of the beneficiary Parties."[87] In December 2013 the parties agreed on the construction of a much smaller pipeline than previously envisaged.[88]

85 Fischhendler, Itay/Wolf, Aaron T/Eckstein, Gabriel, The Role of Creative language in Addressing Political Asymmetries: The Israeli-Arab Water Agreements, 8, 14 ff, http://www.transboundarywaters.orst.edu/publications/publications/CH04.Fischhendler-Wolf-Eckstein.pdf.

86 Fischhendler/Wolf/Eckstein (note 84), 14 et seq., 18.

87 http://www.semide.net/media_server/files/V/U/RDS-TOR-18_July2007.pdf

88 Sherwood, Harriet, Dead Sea neighbours agree to pipeline to pump water from Red Sea, in: The Guardian, December 9, 2009, http://www.theguardian.com/world/2013/dec/09/dead-sea-pipeline-water-red-sea.

6 Shortcomings in the existing legal situation and conclusions for the Red Sea – Dead Sea Conveyance Project

The main shortcoming of the existing legal situation is that there is no basin-wide treaty between all riparian[89]. Consequently international donors are unwilling to fund projects which affect third parties, compliance with allocation or water transfer duties cannot be guaranteed as far as they depend on the water use of a third party, and the fragmented approach towards the management of the region's water resources increases the risk of overexploitation.

Furthermore, the existing treaties have deficiencies. They are often ambiguous and incomplete[90]. There are no rules of adaptation in the case of droughts or unforeseen events. There are no rules on compliance control. Sole exception is the agreement between Israel and the Palestinians, and in this case, the imbalance of power is very clear. The commissions established for the treaty implementation have weak or unclear competences[91]. There are no (or only weak) rules on dispute settlement with participation of a neutral party[92]. The treaties plainly reveal that the parties don't trust each other and that they want to safeguard their sovereignty and the control over their water resources. The articles on cooperation are little more than declarations of intent[93]. It was stated, that "the agreements refer partly to principles reminiscent of international water law, but they are not led by these principles nor are they necessarily inspired by a longer term vision of cooperation. Rather, the agreements reflect the prevailing differences in power."[94]

89 See explicitly for the Peace Treaty between Israel and Jordan, Wiczyk (note 44), 157, 158; Zawahri (note 44), 139 et seq.; Giannios (note 44), 145.

90 Dombrowsky (note 44), 741 et seq.

91 Wiczyk (note 44), 159 for the JWC.

92 Marwan Haddad suggests the establishment of an International Court of Water for the Jordan River Basin, (note 44), 326.

93 See Phillips, David J. H. /Attilib, Shaddad/McCaffrey, Stephen/Murrayd, John S., The Jordan River Basin: 2. Potential Future Allocations to the Co-riparians, in: Water International 2007, 39, 52: "It is notable that while several of the parties have cited the need to develop additional water resources in a cooperative fashion in their bilateral agreements (e.g. ...), little of real consequence has emerged for this, to date.", http://www.tandfonline.com/doi/pdf/10.1080/02508060708691964.

94 Dombrowsy (note 44), 740.

Taking into account the existing legal situation, it is doubtful that the political environment in the region is favorable for the implementation of the Red Sea – Dead Sea Conveyance Project. According to the Final Feasibility Study Report[95] good governance for such a project requires a strong and autonomous regulatory authority, which necessarily means transfer of authority. If the project is carried out as a multi-national one, the study proposes an institutional framework along the following lines[96]: "A treaty between the three parties sets out the visions and goals, establishes the organisational structure and the authority delegated to this structure. This structure shall consist of four elements:

- a regulatory authority,
- an implementation authority or service provider,
- an advisory body,
- an executive Committee of the three parties shall be responsible for high-level oversight.[97]

It is pointed out that "A key requirement for the success of the organization will be the selection of these boards, the terms of reference given to the appointees and the duration of their appointments, and also the voting arrangements and the mechanisms established for resolving disagreement and deadlock. It is essential that the appointments are made on the basis of merit, qualifications and experience and the appointees should be given the autonomy and the authority to make their decisions in the best interests of the stated objectives of the undertaking."[98] "The advisory body would provide an opportunity for non-governmental stakeholders such as environmental agencies to participate in the decision making process and could use-

95 Read Sea – Dead Sea Water Conveyance Study Program, Draft Final Feasibility Study Report, July 2012, Summary of Main Report, http://siteresources.worldbank.org/INTREDSEADEADSEA/Resources/Feasibility_Study_Report_Summary_EN.pdf.

96 Feasibility Study Report (note 94).

97 The regulatory authority shall be responsible for – strategy and planning, – allocation of risks and benefits, – setting and adjusting tariffs, – establishing principles for the allocation of permits and approvals and abstraction and discharge licences to be implemented by the parties, – determining appropriate standards for water quality, environmental management, engineering and construction, – monitoring compliance national and international standards, – reporting, public consultation and disclosure. The implementation authority or service provider shall be responsible for – implementation of strategy and planning, – raising finance, – ownership, management and operation of assets, – award and administration of contracts for design, construction, operation and maintenance of assets and provision of services, – bulk supply of potable water, – compliance with standards and regulation.

98 29.6. in the summary of the feasibility study (note 94), p. 75. A full check list of issues that must be considered in developing the outline organizational structure recommended is given in the main report.

fully include at least one international body such as The World Bank to bring a broader range of experience and to provide assistance in managing any disagreement between the Beneficiary Parties. It is considered that the incorporation of a body of this nature into organization would greatly enhance transparency and equity and would facilitate improved public support for the project."[99]

Against the background of the existing agreements it is doubtful that the parties are ready for such an intensive cooperation. Only a project with low risks and positive benefits for all parties will be able to overcome the political impediments. With the much smaller version of a pipeline a compromise seems to have been found. Nevertheless, the outcome remains uncertain if unforeseen problems arise during the realization of the project.

In summary: Due to the extreme water scarcity in the region the riparians of the Jordan River are forced to cooperate. However, they do it rather reluctantly.

99 29.7. in the summary of the feasibility study (note 94), p. 75.

IV Interstate Water Law in Central Asia

Another example of the decisive role of politics in water management is the Interstate Water Law in Central Asia.

1 The Hydro-geographical and Political Situation in Central Asia[100]

The Aral Sea has two major tributaries: the River Syrdarya[101], coming from the East and converging with the North Aral Sea, and the River Amudarya, coming from the South-East. Riparian countries of the Syrdarya are Kyrgyzstan, Uzbekistan, Tadzhikistan and Kazakhstan with Kyrgyzstan in the upstream position. The Amudarya forms the border between Uzbekistan and Turkmenistan and originates from glaciers in Afghanistan and Tadzhikistan from where it continues to flow through Turkmenistan.[102] Additional important rivers in the regarded region are Chu and Talas, whose origins are found in Kyrgyzstan from where they continue to flow to Kazakhstan.[103]

With the collapse of the Soviet Union in 1991 the five Central Asian republics Kazakhstan, Kyrgyzstan, Tadzhikistan, Uzbekistan and Turkmenistan became independent. Until then, centrally managed and aligned to the purposes of irrigation agriculture, water management in the catchment area of the Aral Sea[104] lost its basis. Both political and ecological reasons required

100 For this region see: Sehring, Jenniver, Mehr als ein technisches Problem: Wassermanagement in Zentralasien, in: Zentralasien-Analysen Heft 08/08, 1, 2; Bar, Julia, Wasserkonflikte in Zentralasien, 2009, 76 et seq.; Eschment, Beate, Wasserverteilung in Zentralasien – ein unlösbares Problem?, Studie der Friedrich-Ebert-Stiftung, Mai 2011, 2 et seq.; Ziganshina, Dinara, Procedural System of Transboundary Water Cooperation in the Aral Sea Basin, in: Kibaroglu,Aysegül/Kirschner, Adele J./Mehring, Sigrid /Wolfrum, Rüdiger, Water Law andCooperation in the Euphrates-Tigris Region, 2013, 281, 282 et seq.; Giese, Ernst/Sehring, Jenniver/Truchine, Alexey, Zwischenstaatliche Wasserkonflikte in Zentralasien, 2004, 1 et seq.

101 For the hydro-geographical description of this river see: Bernauer, Thomas/Siegfried/Tobias, Compliance and Performance in International Water Agreements: The Case of the Naryn/Syr Darya Basin, in: Global Governance 14 (2008), 479, 484 et seq.; Giese/Sehring/Truchine (note 99), 4 et seq.

102 Sehring (note 99), 2; Giese/Sehring/Truchine (note 99), 10 et seq.

103 Wegerich, Kai, Passing over the Conflict. The Chu Talas Basin Agreement as model for Central Asia?, in: Water and Development Publications, Helsinki University of Technology 2008, 119 et seq.

104 Sehring (note 99), 3; Bar (note 99), 72 et seq.; Eschment (note 99), 5 et seq.; Bernauer/Siegfried (note 100), 486 et seq., who state that this alignment did not change very much the natural flow; Giese/Sehring/Truchine (note 99), 2; Libert, Bo/Orolbaev, Erkin/Steklov, Yuri, Water and Energy Crisis in Central Asia, in: China and Eurasia Forum Quarterly 6 No. 3, 2008, 9 et seq.

a reorganisation in the sense that the previously existing central control of water management had to be turned into cooperation. Despite the recognition and general consensus on the necessity of a coordinated water management, this cooperation has proved to be very difficult. Conflicts of interests between upstream and downstream riparians that have formerly been repealed under central control became apparent, given the pressure of having to exist economically and politically viable and independent.[105] "The conflict stems from the diametrically opposed seasonal requirements for water in the different countries."[106] The downstream countries require water during the summer months for irrigation, whereas the upstream countries have an interest to release water out of the reservoirs during the winter for hydropower generation[107].

Against this background, it is no surprise that only the downstream riparians Kazakhstan, Uzbekistan, and in 2012 also Turkmenistan signed the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes of 1992[108]. Out of these signatories only Uzbekistan signed the Convention on the Law of the Non-Navigational Uses on International Watercourses.[109]

105 Sehring (note 99), 3 et seq.; Bar (note 99), 16 et seq.; 78; Eschment (note 99), 7 et seq.; Bernauer/Siegfried (note 100), 487 et seq.; Ziganshina (note 99), 283; Giese/Sehring/Truchine (note 99), 3 et seq.; Libert/Orolbaev/Steklov (note 103), 11 et seq.

106 Abbink, Klaus/Moller, Lars Christian/O'Hara, Sarah, Sources of Mistrust: An Experimental Case Study of a Central Asian Water Conflict, in: Environmental Resource Economy 2010, 283, 284 ff.

107 Abbink /Moller/O'Hara (note 105), 284 ff; Dukhovny, Victor A./de Schutter, Joop, Water in Central Asia, 2011, 279 et seq.; Libert/Orolbaev/Steklov (note 103), 11 et seq.; Tarlock, Dan/Wouters, Patricia, Are Shared Benefits of International Waters an Equitable Apportionment?, Colorado Journal of International Environmental Law and Policy 18 (2007), 523, 531 et seq.

108 https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-5&chapter=27&lang=en. The full text of the Convention can be found at: http://www.unece.org/fileadmin/DAM/env/water/pdf/watercon.pdf.

109 https://treaties.un.org/Pages/ViewDetails.aspx?src=UNTSONLINE&tabid=2&mtdsg_no=XXVII-12&chapter=27&lang=en#Participants; the full text of the Convention can be found at: https://treaties.un.org/doc/Treaties/1998/09/19980925%2006-30%20PM/Ch_XXVII_12p.pdf.

2 Regional Agreements

The obvious necessity to cooperate led to the fundamental Agreement between the five Central Asian Republics of Kazakhstan, the Kyrgyz Republic, the Republic of Uzbekistan, the Republic of Tajikistan and Turkmenistan on Cooperation in the Field of Joint Water Resources Management and Conservation of Interstate Sources, February, 18th, 1992[110].

The Agreement consists of 15 articles: According to Article 1, all parties have the same rights and obligations in relation to the water resources of the region. Article 2 contains the mutual obligation to adopt regulations on water use and water protection and to comply with the agreements made with each other strictly. Article 3 contains the "no-harm rule" including the prohibition to deviate from the agreed flow rates. The parties agree further to carry out joint work to solve the Aral Sea problem and to determine ecological flow rates. In particularly dry years, specific decisions should be made to supply the regions with acute water shortage (Article 4). Exchange of information, joint research and mutual technical assistance are agreed upon and a sharing of the production potential of the water management is intended (Article 5). The articles 7 to 11, relating to the establishment, the tasks, organisation and competences of the Intergovernmental Water Management Commission (Interstate Coordination Water Management Commission, in the following ICWC) are particularly important. This commission is central for regional water cooperation. According to this agreement its tasks include (Art. 8):

- the development and determination of the water management policy in the region; and
- the development and consent to the assignment of usable quantities of water for each republic and for the region as a whole in conformance with operating plans for reservoirs, and if necessary, the adaptation of these quantities according to the current water availability and water management situation.

The executive bodies of ICWC are the Water Management Association for the Syrdarya water catchment area (BVO Syrdarya) and the corresponding association for the Amudarya water catchment area (BVO Amudarya). These institutions had already been created in the 1980s by the Soviet Union in response to the water crisis in the catchment area of the Aral Sea, and they

110 http://www.ce.utexas.edu/prof/mckinney/papers/aral/agreements/ICWC-Feb18-1992.pdf.

now became part of the intergovernmental cooperation. The ICWC has to ensure strict compliance with the rules on time and amount of water releases from reservoirs and on the distribution of the agreed quantities of water. Its decisions directly bind all water users (Art. 11).

Regulations in the case of violations of the contract are postponed to a future agreement. Any dispute shall be settled by negotiations.

In implementation of this contract, the Statute of the ICWC[111] and of the water management associations for the two large rivers were adopted in 1992. The Statute of the ICWC consists of six sections: general terms, main objectives, structure and activity, executive bodies, rights and obligations of the ICWC as well as final regulations. The responsibility of the ICWC is determined by the agreements on common water resources in the catchment areas of Amudarya, Syrdarya, Chu and Talas and by the Statute itself. The objectives set in the second section repeat and specify the tasks lain out in article 5 and 8 of the agreement of February 18th, 1992. The ICWC is composed of the respective water ministers of the republics. Decisions require unanimity. The executive bodies are the previously mentioned water management associations (*BVO Syrdarya* and *BVO Amudarya*). Their respective *statute*[112] states, *inter alia*, that they are responsible for the provision of water volumes that were agreed to in the ICWC. They operate water intakes, hydroelectric power stations, reservoirs in common use and intergovernmental channels in strict compliance with the environmental protection and nature conservation requirements. They implement measures to improve the environmental situation. Duties also include the maintenance of the aforementioned facilities and the control of water levels via regular measurements. They develop water balances and supply the ICWC with the necessary information for their decisions on the allocation of water resources. The head of each association is determined by decision of the ICWC.

111 Statute of the ICWC, http://www.icwc-aral.uz/statute12.htm.

112 Statute of the Basin Water Association „Syrdarya", http://www.icwc-aral.uz/statute10.htm; Statute of the Basin Water Association "Amudarya", http://www.icwc-aral.uz/statute9.htm; see for the BVOs Bar (note), 115 et seq.; see also Khudayberganoy, Yuldash, Security and Water Resources Management Problems and Experience in the Amudarya River Basin, in: Madramootoo, Chandra A./Dukhovny, Victor A. (eds.), Water and Food Security in Central Asia, 2011, 59 et seq.; Khamidov, Makhmud, Experienceof Coordinated Water Resources Use of the Syrdarya River Basin States, in: Madramootoo, Chandra A./Dukhovny, Victor A. (eds.), Water and Food Security in Central Asia, 2011, 85 et seq.

Further, executive bodies of the ICWC are the secretariat, which was established in October 1993 and has its headquarters in Kjodjent, Tadzhikistan. It has the usual organisational duties of a secretariat, which are listed in its Statute in detail.[113] Also in 1993, the Scientific Information Center (SIC ICWC) of the ICWC was established. It is a network of national scientific institutions and information centres with the aim to promote cooperation in the field of water research, information exchange, training of expertise, etc. The headquarters is located in Tashkent, Uzbekistan; branches are situated in the other republics[114]. In 2000, another executive body of the ICWC, the Coordination Metrological Center was added[115]. It provides cooperation in the field of automation (automatic control) and measuring technology.

On March 23rd,1993, the five republics concluded a contract on joint activities in relation to the improvement of the situation around the Aral Sea[116] (agreement of the Republic... on joint activities in addressing the Aral Sea and the zone around the Sea crisis, improving the environment and enduring the social and economic development of the Aral Sea region). Article 1 includes, inter alia, the common goals of economical use of water, maintaining the required water quality, ensuring a sufficient flow of water in the Aral Sea, restoring the ruined ecosystem, improving health and medical biological life in the region, development and implementation of coordinated social and economic development programs, and measures for the protection of animals. According to Article 2 an intergovernmental Council shall be constituted for the Aral Sea (Interstate Council for the Aral Sea basin crisis, ICAS) to which a permanent Executive Committee in Tashkent (Uzbekistan), a Commission of Social and Economic Development and Cooperation in Scientific, Technical and Ecological Spheres and a Coordinating Commission on Water Resources, acting in conformity with the Agreement be signed on February 18th, 1992 in Almaty, that means the ICWC is subordinated. Thus, the special water cooperation is placed in the context of socio-economic and environmental development of the Aral Sea region.

As a further intergovernmental institution the International Fund of Saving the Aral Sea was established. It was created on the basis of a decision of the

113 Statute of the Secretariat of ICWC, http://www.icwc-aral.uz/statute7.htm.
114 Statute of the SIC ICWC branches in the Aral Sea basin states, http://www.icwc-aral.uz/statute6.htm.
115 Statute of the Coordination Metrological Center ICWC, http://www.icwc-aral.uz/statute8.htm.
116 http://www.internationalwaterlaw.org/documents/regionaldocs/aral-sea.html.

leaders of the five republics on January 3rd, 1993. The current "Agreement about the status of IFAS and its organisations" dates from April 1999[117]. The structure of IFAS is defined in Article 1 as follows: it consists of a "board", a "revision committee", an "executive committee" (EC IFAS), the branches of the EC IFAS in the Member States, the ICWC with its secretariat, the SIC ICWC, the BVO Syrdarya and Amudarya, and the Commission on Sustainable Development with the Secretariat and the Scientific-Information Center at the Institute of deserts Turkmenistan. The other articles deal with the legal status of these organisations and their staff. IFAS is tasked with obtaining financial resources from foreign donors for saving the Aral Sea.

In 2008 the statute of the ICWC was redrafted[118]. Both the organisational assignment and the subordination of the ICWC under IFAS were incorporated into the general provisions. Additionally, the founding States principally open the ICWC membership for other states. The ICWC-tasks were increased from 9 to 19 and modified to some extent. A novelty is the explicit reference to the application of IWRM (Integrated Water Resources Management) principles (2.2). Also newly added are: tasks to make suggestions for the improvement of international agreements in the field of shared water management (2.8) and to assist the governments of the founding States in their cooperation with international organisations (2.9); simplification and coordination of relations between regional and national water organisations, water measurement services and the development of a program for the improvement of water monitoring and measurement; to develop staff training measures; to investigate in cases of dispute and, if necessary, to develop a procedure for a special commission to determine the facts. Last but not least the commission should accomplish the task of coordination between the needs of irrigated agriculture and hydropower generation in cooperation with the "Coordination Dispatch Center Energy", and the national ministries and departments of the electricity producers (2.12). The task of coordination of large water engineering works (2.5 old version) has been modified in the sense that appropriate proposals are to be submitted to the individual States, including proposals for cost sharing between the states, and to ensure that individual states announce such projects.

117 http://www.icwc-aral.uz/statute3.htm.
118 http://www.icwc-aral.uz/statute4.htm.

Regarding the structure, a rotating chairmanship is expressly agreed in the new statute. As executive bodies not only the BVOs, but also the newly established organisations SIC (Scientific Information Center); CMC (Coordination Metrological Center); TC (Training Center) are listed with their respective national branches. The jurisdiction of the BVOs is expressly limited to the interstate systems for which they are responsible. The heads of the BVOs are personally responsible for the execution of water releases in favour of the Aral Sea within their range of authority. The statute also lists the tasks of SIC (Scientific Information Center), CMC (Coordination Metrological Center) and TC (Training Center). Agreement was also reached for management of ICWC executive bodies by rotation between the states.

On the basis of these agreements there exists a complex organisational structure[119] that, unfortunately, fails to create an integrated water management for the entire water catchment area. Thus, the ICWC is neither responsible for groundwater nor for water re-use, nor are all of the water installations with interstate-relevance under its authority. Furthermore, its authority is rather determined and limited by the agreements between the five Central Asian states[120].

119 See Dukhovny/de Schutter, Joop (note 106), 219.

120 For critical and reform proposals see: Ziganshina (note 99), 286 et seq.; see also Khudayberganoy, Yuldash, Security and Water Resources Manamgent Problems and Experience in the Amudarya River Basin, in: Madramootoo, Chandra A./Dukhovny, Victor A. (eds.), Water and Food Security in Central Asia, 2011, 59 64 et seq.

3 Bi- and Trilateral Agreements

As a result of non-compliance with the ICWC-decisions of water allocation Kazakhstan, Kyrgyzstan and Uzbekistan concluded an Agreement on the Use of Water and Energy Resources in the Syrdarya Basin on March 17th, 1998[121]. The agreement consists of 14 articles. Article 1 defines the growing season as the time span from April 1st to October 1st, and, corresponding to this, the non-vegetation period from October 1st to April 1st of the following year. According to Article 2 the Parties agree that they will annually decide on the use of the Naryn-Syr Darya Cascades water for the purposes of the generation of energy and for the purposes of irrigation, including the production and transport of electricity and compensation for energy losses. In Article 3, the parties promise not to do anything which might affect the water use regime and energy supplies agreed upon. Article 4 determines the basic pattern of the exchange: The energy generated using the runoff of the Naryn-Syrdaraya cascade during growth season and the energy generated by the Toktogul dam according to its water regime shall, as far as it exceeds the needs of Kyrgyzstan, be evenly distributed between Kazakhstan and Uzbekistan. Kazakhstan and Uzbekistan on the other hand are expected to deliver energy resources such as coal, gas, electricity and oil or other products and services or monetary compensation in exchange for the releases of water for irrigation purposes. The exchange has to be carried out on the basis of a uniform tariff for all types of energy resources. To assure the implementation of each party's obligations, protective measures shall be taken such as the establishment of security deposits or lines of credit. Taxes and duties are not to be applied to these performances. According to Article 7 the respective owner is responsible for the maintenance of the water systems, which means that Kyrgyzstan has to pay for the maintenance of the Naryn/Syr Darya-Cascade[122]. In accordance with Article 8 the mode of the reservoir's operation, the energy output and its transfers are annually agreed upon by intergovernmental agreement. These are based on decisions of water-, fuel- and energy-"organisations" (particularly ministries and utility companies) under the direction of the Prime Ministers of each of the signatory States. The BVO Syrdarya and the UDC Energia are the responsible

121 http://www.ce.utexas.edu/prof/mckinney/papers/aral/agreements/Annual-Operation-98.pdf; for evaluation see Bar (note 99), 78 et seq.; Bernauer/Siegfried (note 100), 489 et seq.; Libert/Orolbaev/Steklov (note 103), 12 et seq.

122 For critical evaluation see: Bar (note 99), 88.

executive bodies for water runoff and energy transfers until an International Water and Energy Consortium with executive bodies is created. In this context, the ICWCs responsibility was changed at its meeting in October 1999 as its power to determine the water runoff of the Syr Darya Naryn cascade was revoked. Its decision henceforth is only a proposal for the procedure established in Article 8 of the Treaty of 17 March 1998, whereby experts in the area of water management and hydropower negotiate the draft for the annual intergovernmental agreement[123].

Article 9 of the Treaty of 1998 contains a set of regulations for dispute resolution. In addition to negotiations and consultations it provides the opportunity for an arbitral procedure for individual cases. According to Article 10, the States consent to jointly address further questions: The construction of new hydropower plants, the replacement of exchange-agreements by financial relationships, the development of a pricing mechanism based on standard rates, the securing of the safe operation of the hydroelectric power plants at the Syrdarya river, the financial and economical use of water, as well as the decrease and elimination of water pollution. In its final clause the treaty is declared to be valid for 5 years and to be automatically renewed for additional five-year periods if it is not terminated at least six months in advance.

This agreement was joined by Tajikistan on May 7th, 1999, along with the insertion of a provision on the Kairakkum reservoir (Protocol on Inserting Amendments and Addenda to the Agreement between The Governments of the Republic of Kazakhstan, the Kyrgyz Republic and the Republic of Uzbekistan on the Use of Water Energy Resources of the Syr Darya Basin of March 17th, 1998)[124].

Based on this framework agreement there are detailed annual agreements. The agreement between Kyrgyzstan, Kazakhstan and Uzbekistan, approved on the same day as the exchange framework agreement of 1998[125], regulates in Article 1, among other things, the monthly water releases from the Toktogul Reservoir. Article 2 regulates the amount of power transfers from Kyrgyzstan to Kazakhstan and Uzbekistan concerning the energy produced by the established irrigation releases. Article 3 determines the quarterly amount

123 On this decision see: Dukhovny/de Schutter (note 106), 282.
124 faolex.fao.org/docs/texts/mul-54531.doc.
125 http://www.ce.utexas.edu/prof/mckinney/papers/aral/agreements/Annual-Operation-98.pdf.

of energy that is to be transferred from Uzbekistan to Kyrgyzstan to compensate for the irrigation releases. In addition there are also gas supplies. Article 4 regulates corresponding obligations of Kazakhstan. According to Article 7 Kyrgyzstan is obliged to reduce its energy consumption by 10%. Article 8 contains an extremely vague adjustment clause for water releases "on the basis of the existing fuel, energy and water situation". Article 9 contains the agreement on the meeting in the following year. There is a similar agreement for 1999[126]. During its preparation Kazakhstan suggested that Kyrgyzstan could sell the unneeded energy produced by water releases during the growing season on the free market in Kazakhstan and that the delivery of energy to Kyrgyzstan in winter should be regulated by separate intergovernmental agreements. This proposal was rejected by the other states with reference to the Framework Agreement of 1998. The proposal had the advantage that Kyrgyzstan would be paid immediately for the delivered energy and would not have to perform in advance. On the other hand there is the disadvantage that the attainable prices in the free market are lower in summer than in winter.

In the following years, Kyrgyzstan concluded with Kazakhstan and Uzbekistan separate barter agreements, where prices for the delivery of energy were fixed[127]. Uzbekistan and Tajikistan concluded such exchange agreements for the years 1999 and 2000[128]. The minutes of the preparatory commission according to Article 8 of the Framework Agreement of 1998 comprehending representatives of all four states of 2001 show that, for 2002, agreement on a suggestion for annual deliveries was not reached[129]. Over time, the contrast between the upstream riparians Kyrgyzstan and Tajikistan, whose interest is the production of energy in the winter period, and the downstream riparian Kazakhstan and Uzbekistan, whose interest is the irrigated agriculture in the summer period, intensified significantly. Not only was the conclusion of the agreements often delayed due to the different agendas, but the compliance of the commitments was insufficient, for exam-

126 http://www.ce.utexas.edu/prof/mckinney/papers/aral/agreements/Annual-KzKg-99.pdf.

127 Agreement with Kazakhstan, http://www.ce.utexas.edu/prof/mckinney/papers/aral/agreements/Annual-KzKg-00.pdf; agreement with Uzbekistan, http://www.ce.utexas.edu/prof/mckinney/papers/aral/agreements/Annual-UzKg-00.pdf.

128 1999, http://www.ce.utexas.edu/prof/mckinney/papers/aral/agreements/Kayrakum-99.pdf; 2000, http://www.ce.utexas.edu/prof/mckinney/papers/aral/agreements/Kayrakum-00.pdf.

129 For the content of further exchange agreements until 2005 see Dukhovny/de Schutter, (note 106), 284 et seq. and the table 4.20.

ple in the years 2000 to 2005[130]. The conflict is still not resolved in principle. It is, however, mitigated by water and energy saving measures[131].

Besides the barter agreements, other bilateral relationships in the field of water use exist between single republics. A particular example is the Agreement between the Government of the Republic of Kazakhstan and the Government of the Kyrgyz Republic on the Utilization of the Water Facilities of Interstate Use on the Chu and Talas Rivers of January 21st, 2000[132], in which the two states agree on the equitable use of the water resources as well as maintenance of the water facilities in interstate use (Article 1). The concerned water facilities are listed in Article 2. The owners of the plants are compensated for maintenance costs by the other party. The costs are allocated in proportion to the water received (Article 4). A permanent commission that sets up the operation mode and defines the amounts of costs needed for operation and maintenance shall be established (Article 5). The states provide the required funds to operate and maintain the water facilities of interstate use. (Article 6). The parties shall undertake joint measures in order to protect the facilities from natural hazards such as floods (Article 7). In case of emergency they notify each other and take joint actions to prevent, mitigate and remove consequences (Article 8). The contract has a term of five years and includes a prolongation clause in absence of a timely notice.

130 Dukhovny/de Schutter, (note 106), 288.
131 Dukhovny/de Schutter, (note 106), 288.
132 Internet: http://www.ce.utexas.edu/prof/mckinney/papers/aral/agreements/oandm-agreement.pdf; for evaluation of this agreement see: Wegerich (note 102), 117 et seq.; Libert/Orolbaev/Steklov (note 103), 19.

4 Evaluation of the existing Agreements

Apart from the complexity of the organisational structure and a lack of clarity concerning the delimitation of competences between the regional organisations and national authorities[133], the contracts are missing sanctions for non-execution[134] and effective mediation mechanisms. Accordingly, the violation of contractual terms is deplored[135]. This applies particularly to the obligations of the barter agreements. The Framework Agreement from 1998 also had the unintended effect of setting the water flow regime as a function of the water energy production[136]. Moreover, it does not contain sufficient regulation for the particularities of exceptionally dry or wet years[137]. Ecological aspects remain completely unconsidered[138]. The allocation of the maintenance and operating costs for water facilities according to the property is not convincing with regard to such facilities that are of use for multiple states. This mistake was avoided in the agreement between Kyrgyzstan and Kazakhstan from 2000.

In principle the Central Asian republics have sufficient water resources[139]. However, they are confronted with a typical upstream-downstream conflict[140]. Against the background of the international customary water law principle of equitable and reasonable utilization, the upstream riparians Kyrgyzstan and Tajikistan wrongly claim to regulate the outflow of the water reservoirs in accordance with their needs, because the water reservoirs change the natural outflow considerably[141]. On the other side, there will be no solution that does not take into account the economic interests of the upstream riparian[142]. As a solution to the conflict in the long run, the vision of a Central Asian Economic Union arises in analogy with the early European

133 Sehring (note 99), 5; Bar (note 99), 117 et seq.; Giese/Sehring/Truchine (note 99), 44.
134 Dukhovny/de Schutter (note 106), 279; Eschment (note 99), 9; Ziganshina (note 99), 299 et seq.
135 Dukhovny/de Schutter (note 106), 281, 283, 288; Sehring (note 99), 4; Bar (note 99), 117; Eschment (note 99), 8; Abbink/Moller/O'Hara (note 105), 287.
136 Dukhovny/de Schutter (note 106), 283; Bar, 89 et seq.; Eschment (note 99), 10; see also Bernauer/Siegfried (note 100), 488; Abbink/Moller/O'Hara (note 105), 284 et seq., 287 et seq.; Khamidov (note 111), 89; Giese/Sehring/Truchine (note 99), 8 et seq.
137 Dukhovny/de Schutter (note 106), 286.
138 Dukhovny/de Schutter (note 106), 286; Giese/Sehring/Truchine (note 99), 44.
139 Eschment (note 99), 4.
140 Bernauer/Siegfried (note 100), 488.
141 Dukhovny/de Schutter (note 106), 286.
142 or the economical situation of the downstream- and upstream-states and its relevance for the water situation see Bar)note 99), 93 et seq., 96 et seq.

Economic Community. In this context an integrated water management for all water resources including all water relevant sectors could be developed[143]. Nevertheless, taking into consideration the political situation, such a development is not very probable.

It also must be noted that Afghanistan, which is riparian to the Amudarya, is not formerly involved in the existing water-management arrangements[144]. As Afghanistan develops economically, it will become vital to integrate it in the interstate cooperation[145].

Compared to the Jordan River Basin example there is less water stress and more cooperation in the Aral Sea Basin. Nevertheless, the agreements have a lot of deficiencies that are a reflection of the lack of trust between the Central Asian Republics.

143 See Dukhovny/de Schutter (note 106), p. 298 et seq. and the organisation chart proposed on p. 303; see also Bar (note 99), 107 et seq.
144 Ziganshina (note 99), 285 et seq.
145 Giese/Sehring/Truchine (note 99), 20 et seq.

V Final remark

There is no reasonable and sustainable water management without scientific knowledge and technical know-how. But neither the one nor the other is sufficient. The examples of the Jordan River as well as the Aral Sea Basin show that it is critical to take into account the political and economic interests of all parties concerned. The role of international law in this is firstly to provide a framework of principles and values as guidelines for negotiations and secondly to translate the political agreements into reliable regulations. However, because of its inherent weaknesses, international law is not a sufficient substitute for missing trust.

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Water is fundamental for life and economy. Where it is scarce, conflicts evolve easily. What relevance does law have in international water conflicts? To answer this question the paper presents global developments in international water law and analyzes the legal framework of two international river catchment areas which are notorious for water conflicts between their riparians: the Jordan River basin and the Aral Sea catchment area.

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