PSIS Occasional Paper | Number 1/2004

The Israeli-Jordanian Water Regime:

A Model for Resolving Water Conflicts in the Jordan River Basin?

Rolf Schwarz

Programme for Strategic
and International Security Studies

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PSIS Occasional Paper Number 1/2004
ISBN 2-8288-0055-5

Published by the
Programme for Strategic and International Security Studies (PSIS)
The Graduate Institute of International Studies
Rue de Lausanne 132, P. O. Box 36,
1211 Geneva 21, Switzerland
E-mail: pesi@hei.unige.ch
Website: http://www.psis.org

Contents

Preface 5
The Author 8
Acknowledgements 9

1. Introduction 11

2. The Israeli-Jordanian water conflict 14

3. The water issue in the Israeli-Jordanian Peace Treaty 43

4. Assessment of the Israeli-Jordanian water regime 48

5. A model for resolving the other water conflicts in the Jordan River Basin? 59

6. General theoretical assessment of the hydro-political situation in the Jordan River Basin 76

Bibliography 80

Preface

Conflict resolutions and peace negotiations are generally deemed to be complex and multi-faceted affairs. Negotiators will often point to the tedious necessity of breaking down the overall process into individual issue areas, on which reaching a compromise may be more realistic. In terms of bargaining leverage, it may well be the case that co-operation on one issue area may not only be a viable option for one party, but may actually be beneficial to all parties involved, in the sense that issue linkage may facilitate reaching a more comprehensive settlement.

The functionalism of such a "piece-meal" approach to negotiations is the underlying message of this Occasional Paper, namely that it is possible to attain consensus on certain issues even though the general conflict remains unresolved. Rolf Schwarz's study of the water conflicts in the Jordan River Basin impressively demonstrates this. A variety of external factors contributed to the final resolution of the Israeli-Jordanian conflict, but negotiations were certainly facilitated by previous experience of co-operation on the apparently subsidiary issue of water, despite the absence of formal arrangements. Although generalising these findings would have been beyond the scope of the paper, it is nonetheless evident that the principle of conflict resolution through the establishment of international regimes on individual issue areas could potentially be applied to beyond the Jordan River Basin, and beyond the case of water.

Moreover, this Occasional Paper contributes to the academic debate in the field of security studies. Recent years have witnessed a broadening as well as a deepening of the security agenda. Whereas the broadening trend incorporates various issues subsumed under headings such as 'human security', 'societal security' and 'regional security', it is in the call for a deepening of the agenda that one finds the notions of 'cultural security' and, of particular relevance here, 'environmental security'. Environmental themes entered the academic discourse of International Relations principally through the claim that they may pose a threat to the global ecosystem, but also to states, non-state actors, and individuals. Environmental security thus not only covers ecological degradation and climate change, but also access to natural resources.

While the literature in this field is not very specific as to *how* these environmental issues are linked to security, one may nevertheless distil instances in which the use of force occurs within the context of these themes. Although a certain degree of causality may be discerned in situations where access to natural resources follows a zero-sum logic, as is the case in debates on "water wars", the same argument seems less convincing when related to global warming or ecological degradation.

The present Occasional Paper can be seen as a critical reply to viewing environmental security through the simplifying lens of zero-sum conflictual behaviour. Almost without exception, the Middle East – and more specifically the Jordan River Basin – has been seen as the most likely scenario for conflict over a scarce resource, namely water. Rolf Schwarz rejects this image of a Hobbesian world as overdrawn, offering the background of precisely the Middle East, where increased cooperation in water-related matters over the last decades can be observed. Despite the absence of a general resolution of the conflict in the

Middle East, the author shows that there were indeed instances of cooperation over water, ultimately contributing to peace between Israel and Jordan, and to the creation of a water regime between the two countries. This not only questions the adequacy of present attempts to conceptually define environmental security, but also supports functionalist approaches to international conflicts, as outlined above. More often than not, water scarcity has led to long-run co-operation among the parties involved, rather than to an exacerbation of the conflict. Furthermore, caution is warranted in using the notion of 'environmental security' in analysing political conflicts, given that decision-makers may call upon the scientific community to demonstrate that "objective" environmental threats exist. Asserting that human well-being is indeed threatened by environmental factors may thus be nothing more than a tactical move in the negotiation process.

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Rolf Schwarz has studied Political Science, Modern History, Middle Eastern Studies, English Literature, and International Relations at the University of Tübingen, the University of Newcastle-upon-Tyne and the Graduate Institute of International Studies in Geneva. As well as having published several articles on human rights issues in the Arab Middle East and on the question of sovereignty in world politics, he is the author of *Staat, Macht und Menschenrechte in Algerien* (Münster, Hamburg, London 2002). Rolf Schwarz is a member of the International Institute of International Studies (IISS), the Deutsche Arbeitsgemeinschaft Vorderer Orient (DAVO), and Fellow at the Düsseldorf Institute for Foreign and Security Policy (DIAS).

Acknowledgements

The author would like to thank Jeremy Allouche, Aline Baillat, Marwa Daoudy, Oliver Jütersonke, Keith Krause and John Turlik for their very helpful comments and remarks on various drafts of this Occasional Paper. Many thanks go also to Debbie Rice and Oliver Jütersonke for their help in tracking down literature.


LEBANON
Sidon
Tyre
Litani River
Hasbani River
DAMASCUS
GOLAN HEIGHTS
(occupied)
MEDITERRANEAN
SEA
Haifa
Sea of
Galilee
Yarmouk River
Jordan River
East Ghor Canal
Zarqa River
Tel Aviv
Yarkon River
WEST
BANK
AMMAN
JERUSALEM
National Water Carrier
Gaza
GAZA STRIP
Dead
Sea
ISRAEL
JORDAN
EGYPT
0 km 30 60 90 km

1

Introduction

At the beginning of the 1990s, much was written in academic circles and the press about possible water wars in the Middle East.[1] The idea was suggested that the next war in the Middle East would not be about oil, but rather about water.[2] Against the background that the existing water resources in the region are already scarce, and in view of a calculated population increase and hence an increased demand for fresh water, several conclusions were drawn asserting that fresh water

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[1] See among others: P.H. Gleick (1993), Water and Conflict: Fresh Water Resources and International Security. *International Security*, 18(1), pp. 79-112; G. Bahgat (1999), "High Policy" and "Low Policy": Fresh Water Resources in the Middle East. *Journal of South Asian and Middle Eastern Studies*, 22(3), pp. 16-19; M. Falkenmark (1990), Global Water Issues Confronting Humanity. *Journal of Peace Research* 27(2), pp. 177-190 and M. de Villiers (2000), *Water Wars: Is the World's Water Running Out?* London.

[2] See the public statements made by former UN Secretary General Boutros Boutros Ghali, the late King Hussein of Jordan and the late President of Syria Hafez al-Assad. In: J. Lee and J. Bulloch (1990), Spirit of War moves on Mid-east waters. Arab states fear a plot to control their supplies of water. *The Independent*, 13 May 1990, p. 13. On the question of future wars over water in the Middle East, see also J.R. Starr (1991), Water Wars. *Foreign Policy*, 82, pp. 17-36 and J. Bulloch and A. Darwish (1993), *Water Wars: Coming Conflicts in the Middle East*. London.

will become *the* strategic resource in the Middle East in the near to mid-term future, and that wars about access to fresh water (i.e. water wars) were not only likely to occur but should be expected. In this regard, the Jordan River Basin has often been mentioned as the most likely case for such a scenario.

With time, these rather dim prognoses have turned out to be exaggerated and possibly un-realistic. Rather than an increase in conflicts about water, the Middle East – in particular the Jordan River Basin – has seen an increased level of co-operation on water issues in the 1990s. Among these examples of co-operation is the peace treaty between Israel and Jordan of October 1994, in which the water dispute between the two countries was resolved; in addition, the interim agreement (Oslo II) between the Palestinian Authority (PA) and Israel saw water-related issues incorporated into the treaty.

The following analysis of the political dimension of the water question in the Jordan River Basin concentrates on the Israeli-Jordanian water conflict and is divided into three parts. The first part (Section 2) is a general description of water usage and water distribution in the Jordan River Basin against the background of geographical and climatic determinants. Then, more specifically, the water demands and water usage of the two countries, Israel and Jordan, are examined. Thus it can be observed that besides climatic reasons, several political factors account for the high water demands in the two countries. Following this, a short description of the history of the water conflict between the two countries will ensue.

The second part (Sections 3 and 4) then describes in more detail the bilateral resolution of the water conflict between Israel and Jordan through the peace treaty of October 1994. This water regime represents the most comprehensive and, until today, the only formal co-operative arrangement in the Jordan River

Basin.[3] After an examination of the various treaty regulations and obligations, we will then turn to an assessment of the water regime and ask how it has been possible to overcome the aforementioned political impediments in each of the two countries, and how an agreement was reached.

The third and final part (Section 5) of this paper then deals with the question as to what extent general lessons can be drawn from the Israeli-Jordanian case for the future resolution of the other water conflicts in the Jordan River Basin, more specifically the water conflict between Israel and the Palestinian Authority and the conflict between Israel and Syria.

[3] The interim agreement between the PA and Israel can only be seen as a first step towards an eventual future water regime. Since it remains unclear, however, what such a water regime will finally look like, it is of little significance for the present analysis.

2

The Israeli-Jordanian water conflict

2.a. Geographic and climatic determinants

With 370 and 160 cubic meters (m^3) fresh water per capita and per annum respectively, Israel and Jordan belong to the poorest countries in the world in terms of water availability.[4] This water shortage has primarily

[4] As a rule of thumb, hydrologists designate those countries with annual supplies of 1,000-2,000 cubic meters per person as *water-stressed*. 1,000 cubic meters is typically considered the minimum per capita requirement of a moderately developed society. Countries with less than 500 cubic meters per capita suffer from *absolute scarcity*. See M. Falkenmark and G. Lindth (1993), Water and Economic Development. In: P.H. Gleick (ed.), *Water in Crisis. A Guide to the World's Fresh Water Resources*. Oxford. p. 82.
Several authors have pointed towards the analytical shortcomings of assigning a fixed quantity of water as a measurement of water scarcity. They propose that upon closer inspection most of these countries do not suffer from water scarcity due to the existence of 'virtual water' in the form of importation of grain and other food commodities. See J.A. Allan (2002), Hydro-Peace in the Middle East: Why no Water Wars? A Case Study of the Jordan River Basin. *SAIS Review* 22(2), pp. 255-272; J.A. Allan (2003), Virtual Water – the Water, Food and Trade Nexus: Useful concepts or Misleading Metaphor? *Water International* 28(1), pp. 4-11; and A.R. Turton and L. Ohlsson (2002), *Water Scarcity and Social Stability: Towards a Deeper Understanding of the Key Concepts needed*

climatic reasons. The overall level of rainfall in the region is very low and in addition varies greatly. On the one hand there are great variations between the winter months (rainy season) and the summer months (dry season), on the other there are years in which even during the rainy season there is low rainfall, leading to a further reduction in water availability.[5] It is because of these climatic determinants that the availability of surface water in the Jordan River Basin (from the river Jordan and the river Yarmouk) is considerably low – even compared to the already arid region of the Middle East.[6] A further problem arises from the groundwater resources in the Jordan River Basin (the 'Coastal Aquifer' on Israel's Mediterranean shores and in the Gaza Strip as well as the 'Mountain Aquifer' of the West Bank) since these resources are to a large extent non-renewable.

Apart from these climatic determinants, there are other factors that influence the water scarcity problem in the Jordan River Basin, perhaps even to a greater extent: these are security-related as well as political factors. Firstly, it is noteworthy that almost all surface water resources in the Jordan River Basin (with the exception of the Litani River in Lebanon) are cross-border water resources. Israel, for example, receives over 50% of its fresh water resources from areas that lie

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to manage Water Scarcity in Developing Countries. Ms. London: SOAS.

[5] Kliot (1994) calculates that in drought periods like 1987-91 the water discharge of the Jordan Basin can be reduced by up to 40% throughout the whole year. See N. Kliot (1994), *Water, Resources and Conflict in the Middle East*. London. p. 178.

[6] Thus the annually available amount of surface water from the Jordan River represents only 1% (!) of the amount that is annually available from the Nile. See A. Wolf and J. Ross (1992), The Impact of Scarce Resources on the Arab-Israeli Conflict. *Natural Resources Journal*, Vol. 32(4), pp. 919-958. Here at p. 920.

outside its internationally established state boundaries.[7] The already mentioned low water availability in the region is thus further aggravated by the fact that it has to meet the water demands of all riparian dwellers. The crux of the matter is, however, that the water availability is not enough to meet all these demands. The water issue in the Jordan River Basin is thus clearly a distribution conflict over a scarce resource and represents a zero-sum situation.

Part of the reason why the water demand of all riparian dwellers cannot be met by the water availability has political origins. In all riparian states the agricultural sector represents, with approximately 70%, the main user of fresh water. The industrial sector consumes some 25% while the private sector a mere 5%. Some authors have thus coined the terms "thirsty agricultural sectors" or "the agricultural imperative" in order to highlight the underlying political problems of the water issue in the Middle East.[8]

This political problem – or rather political abnormality – pertains to two points: First, while the high share of water attributed to the agricultural sector represents the world average of water use per sector, it is nevertheless quite striking and contradictory given the geographic conditions and the general lack of fresh water resources in the region. Secondly, while the agri-

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[7] See S. Libiszewski (1995), Das Wasser im Nahostfriedensprozeß – Konfliktstrukturen und bisherige Vertragswerke unter wasserpolitischer Perspektive. *Orient* 36(4), p. 625; and Manuel Schiffler (1995), Das Wasser im Nahostfriedensprozeß. Ansätze zu einer gerechten Aufteilung und Möglichkeiten zur Entschärfung der Wasserknappheit. *Orient* 36(4), p. 604. Miriam Lowi puts the figure at 40%. See M. Lowi (1993), *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin*. Cambridge.

[8] J. Renger and A. Thiele (1996), Politische Verteilungskonflikte um Wasserressourcen. Wassernutzung und Wassererteilung im Jordanbecken. Israel und seine arabischen Nachbarn. *Der Bürger im Staat* 46(1), 74-82.

cultural sectors in Israel and Jordan use the greatest part of the region's fresh water resources, they remain *economically unprofitable*, because their contribution to the country's GNP at the beginning of the 1990s represented a mere 5% (in Jordan 7%) and because only 5% of the workforce (in Jordan 10%) were employed in the agriculture sectors.[9] Table 1 gives an illustration of Israel's water consumption over the past decades.

Table 1: Israeli water consumption, 1948-2000 (in million cubic meters) [10]

Year	*Total*	*Agriculture*	*Municipal*	*Industry*
1948	350	260	75	15
1953	810	--	--	--
1958	1,274	1,032	196	46
1964-65	1,329	1,075	199	55
1969-70	1,564	1,249	240	75
1975-76	1,728	1,328	305	95
1976-77	1,670	1,271	308	91
1990	1,804	1,216	482	106
1998	2,166	1,365	672	129
2000	1,924 [11]	1,138	662	124

[9] By 1998 the numbers for Jordan had even decreased further. Thus a mere 6.1% of the Jordanian labour force was employed in the agricultural sectors in 1998 while agriculture contributed only 4.9% to the country's GNP. See Economist Intelligence Unit (2001), *Country Profile – Jordan: 2000-01*. London. pp. 11 and 16.

[10] The numbers from 1948 to 1976/77 are taken from: J. Stork (1983), Water and Israel's Occupation Strategy. *MERIP Reports*, No. 116 (July-Aug. 1982), p. 20. The numbers for 1990, 1998 and 2000 are taken from: Government of Israel, Central Bureau of Statistics (2002), *Statistical Abstract of Israel 2002. No. 53*, Table 21.6.

[11] The actual freshwater consumption for the year 2000 is slightly lower than the figure presented in Table 1 and stands at 1785 mcm per year (i.e. deducting 270 mcm/year

The most pressing question thus remains: why is the water consumption of the agricultural sectors so abnormally high in both Israel and Jordan? The reasons for the importance of the agricultural sectors in each country are, however, different.

2.b. "Thirsty agricultural sectors" in Israel and Jordan

In **Israel** the high percentage of agriculture's overall consumption of fresh water can be explained by taking ideological, security-related and political factors into account. From an ideological and historical point of view, the Zionist ideology regarding agriculture needs to be mentioned. After the end of the First World War, the Zionist movement, which had been formed in the last decade of the 19th century, actively supported the cause of a Jewish state in Palestine, and access to fresh water resources was supposed to be a guiding principle in determining where the borders of a viable Jewish state were to be. Hence it was proposed that it not only include all of the Jordan River (including its three sources, the Dan, the Hasbani, and the Banias) but also the Litani River in present-day Lebanon. Fundamental to this fresh water-oriented political agenda, which linked state territory to water resource availability, was the socialist-Zionist idea of a "new Jewish human being" *(Chalutziut)* whose purpose was to cultivate the soil and thereby contribute to the constitution of a new social order based on agricultural collective settle-

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of treated sewage waters used for agricultural purposes) but is still causing a deficit for the average sustainable water yield (1555 mcm). See S. Deconinck (2002), *Israeli water policy in a regional context of conflict: prospects for sustainable development for Israelis and Palestinians?* Ghent/ Belgium: University of Ghent - Centre for Sustainable Development. Online at: http://waternet.rug.ac.be/waterpolicy.htm

ments *(Kibbutzim)*.[12] This idea was most publicised by the *Jewish Agency* (the immigration office), which was actively involved in purchasing territory, founding agricultural settlements and building an agricultural-based economy in Palestine. The immigration of agricultural-oriented Zionists to Palestine in the early 1920s, the construction of quasi state administrative structures (the Jewish self-administration during the British Mandate era) and the foundation of ever more agricultural settlements *(Kibbutzim)* as the nucleus of the new Jewish state, were constant political factors even before the actual proclamation of the state of Israel in 1948, and continue to shape the state of Israel today.

With the creation of the state of Israel in 1948 and the first Arab-Israeli war, these agriculture-oriented Zionists became the new political elite of Israel (among them Ben-Gurion, Golda Meir, and Moshe Dayan) that was to dominate the political system until the 1970s. The existing structures dating from the Mandate era were further expanded in the newly created state (expansion of the agricultural sector) and firmly embedded. This initially ideological context became, over time, an issue of security policy-related importance. The agricultural cultivation of the Negev desert (following Ben-Gurion's call to "make the desert bloom") thus carried with it strategic considerations. On the one hand, Jewish settlers in rural and previously uncultivated areas were supposed to impede future Arab re-conquest of these areas. The agrarian work and activity was thereby supposed to create patriotic feelings among the new Jewish immigrants, who by then came predominantly from Eastern Europe, and was sup-

[12] This section draws on Renger, J. and A. Thiele (1996), Politische Verteilungskonflikte um Wasserressourcen. Wassernutzung und Wasserverteilung im Jordanbecken. Israel und seine arabischen Nachbarn. *Der Bürger im Staat* 46(1), 74-82.

posed to secure their allegiance to the new state of Israel. The idea behind this was both simple and straightforward: a person who had cultivated his land with hard labour (following the biblical motto: "in the sweat of thy face shalt thou eat") would be less likely to abandon it. On the other hand, the cultivation of rural areas was also to promote a certain level of autarchy in the field of food and nutrition. This perception of the nexus between security and agriculture becomes quite explicit in the following quote by Ben-Gurion:

> "Israel can have no real security without immigration. [...] Security means the settlement and peopling of the empty areas in our north and south, the dispersal of the population [...], the development of agriculture in all suitable areas, and the building of an expanding economy that will [...] liberate our people from dependence on material aid from outside. [...] These developments are imperative for our security."[13]

Apart from these ideological underpinnings, the newly created state of Israel also witnessed the construction of bureaucratic structures in the agricultural sector. The establishment of a centrally organised water supply system thereby also served strategic interests and underlined once again the central importance of agriculture in the political system of Israel. In this context, it is of little surprise that the national water administration, *the Israeli Water Commission*, which is responsible for the country's water distribution and water management, had been for a long time under the control of the agricultural ministry and was only placed under the responsibility of the Ministry of Infrastruc-

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[13] D. Ben-Gurion (1964), *Israel: Years of Challenge*. London. p. 60-61. As quoted in: M. Daoudy (1990), *Israël, la Syrie, la Jordanie et la question du Jourdain 1948-1967.* Ms. Genève: Institut Universitaire de Hautes Etudes Internationales. p. 37.

ture in 1996.[14] Subordinate to this national water agency are two further organisations: *Tahal* is charged with planning and exploration tasks while *Mekorot* oversees the construction and maintenance of all national water supply installations (mainly through technical support). Both *Tahal* and *Mekorot* are semiprivate organisations whose major stockholders are the *Jewish Agency* and the *Jewish National Fund,* both of which support Zionist-agrarian interests due to their ideological founding principles.[15] The relatively low water tariffs in agriculture (compared to the private households) and the high level of direct subsidies for the agricultural sector thus become more plausible against this background.

Despite several socio-political changes in the 1950s and 1960s in the wake of the immigration of Sephardic Jews into Israel, despite tendencies towards a de-ideologization of Israeli society and despite the slow and steady decline of the Israeli Workers Party, the fundamental ideological and administrative structures in the political system in Israel have remained constant. Agriculture still remains a central component of the Israeli national identity, which is clearly illustrated by a recent quote from Israel's water commissioner: "were it not for the ideological and practical necessity to cultivate and irrigate land, Israel would not have a water problem".[16] The continuing importance attributed to agriculture is primarily linked to cognitive difficulties that stand in the way of reforming ideological symbols about agriculture. More specifi-

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[14] The Ministry of Agriculture still wields, however, exclusive control over the allocation of water to farmers. See H. Sher (2002), Penny Wise and Pint Foolish. *The Jerusalem Report*, 29 July 2002.

[15] The *Mekorot Water Company* was established in 1937 and *Tahal* in 1952. See J. Stork (1983), Water and Israel's Occupation Strategy. *MERIP Reports* 116 (July-Aug. 1982), pp. 19-24.

[16] A. Kartin (2001), Water Scarcity Problems in Israel. *GeoJournal* 53, p. 278.

cally, there is the widely held belief in Israeli society that the transformation of uncultivated land into agricultural land can be seen as an index of the country's success, while the opposite – the cessation of this activity – can be interpreted as failure. Kartin (2001) mentions the current attitudes to the drainage project of the Huleh Lake in the early 1950s as an example of these cognitive beliefs. While the project succeeded in substantially reducing the evaporation from the Huleh Lake and the surrounding swamplands, most people now consider the project to have failed, because it did not make the land available for agricultural production.[17]

A second cognitive factor contributing to the continuing importance of agriculture to the Israeli national identity is the perception of the on-going Israeli-Palestinian conflict. Both sides in the conflict continue to cling to elements of national power, such as territory and natural resources. In Israel this becomes manifest not only in the emphasis on the tight bond between the people and the land, but also with regard to demonstrating territorial sovereignty and effective control over the territory.[18] This political objective can be clearly observed in the establishment of a number of villages along the border of the 1949 Armistice lines.[19]

Apart from these cognitive difficulties that stand in the way of reforming ideological symbols about agriculture, there are the already mentioned restrictive institutional and administrative arrangements. Furthermore, there exist strong agricultural interest groups (the *Kibbutzim* and the Jewish settlers associa-

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[17] A. De-Shalit (1995), From the Political to the Objective: The Dialectics of Zionism and Environment. *Environmental Policy*, 4, pp. 70-87. As quoted in A. Kartin (2001), Water Scarcity problems in Israel. *GeoJournal* 53, p. 277.

[18] A. Shapira (1999), *Land and Power. The Zionist Resort to Force, 1881-1948.* Berkeley.

[19] A. Kartin (2001), Water Scarcity Problems in Israel. *GeoJournal* 53, p. 278.

tions) with considerable influence on agricultural policies, which no Israeli government has so far been able to ignore. Despite limited changes in Israel's agricultural policy between 1986 and 1993 [20] and again in the year 2000 [21] towards more economic considerations (an increase of water prices and an overall reduction in the amount of water available to the agricultural sector), the Israeli government reversed these measures again after 1993 in order to improve Israel's bargaining position in the upcoming peace negotiations, and only half-heartedly endorsed them in 2002 under the current government of Ariel Sharon.[22] In view of the ideological reasons mentioned above and because of the involvement and profound influence of powerful vested

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[20] The droughts in 1986 and 1991, as well as the US American threat of withholding a US$ 10 billion financial arrangement, reinforced the policy of economic and environmental considerations. See J.A. Allan (2002), Hydro-Peace in the Middle East: Why no Water Wars? A Case Study of the Jordan River Basin. *SAIS Review* 22(2), p. 264.

[21] See S. Deconinck (2002), *Israeli water policy in a regional context of conflict: prospects for sustainable development for Israelis and Palestinians?* Ghent/ Belgium: University of Ghent - Centre for Sustainable Development. Online at: http://waternet.rug.ac.be/waterpolicy.htm

[22] On the considerations leading to the policy change after 1993, see M. Sherman (1999), *The Politics of Water in the Middle East: An Israeli Perspective on the Hydro-Political Aspects of Conflict*. London. On the half-hearted approach under Prime Minister Sharon, see: J. Cook (2003), Bedouin in the Negev Face New 'Transfer'. *Middle East Report Online*, 10 March 2003 and D. Izenberg (2002), A-G to probe Sharon's role in Land Policy Decision. *The Jerusalem Post*, 1 May 2003. In 2002 the Israeli government finally adopted an emergency economic plan, which saw - among other things - the increase of water tariffs by 15%. See T. Muscal (2002), Water Price Reform Approved. *The Jerusalem Post*, 28 June 2002 and D. Rudge and S. Winer (2002), Agriculture Minister asks Police not to Expel Workers from Territories. *The Jerusalem Post*, 10 July 2002.

interests, one may assume that the agricultural sector will continue to maintain its privileged position in Israel's political and social sphere for the foreseeable future.[23]

In **Jordan** the agricultural sector is divided into two areas, the rain-fed uplands, which produce mainly cereals, and the capital-intensive, high-yield irrigated farms in the Jordan River Valley, which produce fruits (mainly citrus fruits) and vegetables (tomatoes and cucumbers) largely intended for export. For the purpose of the present paper, it is especially these latter areas, i.e. the irrigation agriculture in the Jordan River Valley, which are of particular interest. The exploitation of the land in the Jordan River Valley began in the 1960s. Although the government originally distributed land to create modest family-run farms, influential families were later able to manipulate the system to gain larger areas that they have since developed for commercial farming through irrigation provided by the state.

The great importance attributed to agriculture (almost 70% of the available water resources are used by the agricultural sector)[24] in Jordan can be explained with regard to the structures of political power and political rule. Here three factors seem noteworthy: the privilege, in terms of water allocation, which is accorded to the agricultural sector can be seen as (1) a way of creating legitimacy for the Hashemite regime vis-à-vis certain societal groups, (2) as a strategy to incorporate certain important groups into the political

[23] A. Kartin (2001), Water Scarcity Problems in Israel. *GeoJournal* 53, pp. 273-282.
[24] Economist Intelligence Unit (2001), *Country Profile – Jordan: 2000-01*. London. p. 14.

ruling system, and (3) the supply of access possibilities to the allocation provisions of the regime.[25]

The irrigation agriculture in Jordan serves particularly those societal groups which are central for the continuing Hashemite rule of the royal family. These are the large Jordanian landowners, the financial and commercial bourgeoisie of Palestinian origin, parts of the educated middle class and the Bedouins. The large landowners are descendants of the large Trans-Jordanian families. These families represented the traditional pillar of political rule for the Hashemite royal family under Emir Abdullah even before the formal independence of Jordan in 1946. Of all social groups it is they who profit most from irrigation agriculture in Jordan. They attain high incomes from the exports and imports of vegetables and fruits, also partly due to the indirect subsidies from the state (low water prices, maintenance of agricultural infrastructure, etc.).

The financial and commercial bourgeoisie is mainly recruited from those Palestinian refugees stemming from the 1948 war with Israel. These "Jordanian" Palestinians have since become deeply rooted in Jordanian society and seem to have found a permanent home in Jordan. For the Hashemite regime they represent guarantors of loyalty, given the possible political tensions within the country due to the large percentage of Palestinians in Jordan. These members of the financial and commercial bourgeoisie receive their income largely through management, retail and sales derived from irrigation agriculture.

The third group that profits from irrigation agriculture in Jordan are parts of the educated middle class. The Jordanian state has created an extensive and

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[25] On these three sectors see also Renger, J. and A. Thiele (1996), Politische Verteilungskonflikte um Wasserressourcen. Wassernutzung und Wasserverteilung im Jordanbecken. Israel und seine arabischen Nachbarn. *Der Bürger im Staat* 46(1), 74-82.

over-dimensional bureaucratic apparatus, which is to oversee and secure agricultural development.[26] The middle class profits from this large bureaucratic state apparatus, mainly through employment opportunities, salaries and allocation possibilities *(Wasta)*.[27] The incorporation of this middle class into the social and political system of Jordan is of great importance for the Hashemite regime because it can thereby control further demands for political representation.[28]

The Bedouins are mainly incorporated in the Jordanian army. A large part of the Bedouins, however, also receive their income from irrigation agriculture, i.e. through land lease and the production of animal fodder. Furthermore, the Jordanian state has created large settlement programmes based on irrigation schemes, thereby cultivating its legitimising Bedouin heritage.

Apart from the incorporation of strategically important social groups and sectors, the Jordanian state also employs a strategy whereby political legitimacy is achieved through the allocation of public resources.[29]

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[26] Besides a ministry for agriculture, there exists since 1988 a ministry for water and irrigation. Moreover, there are further state agencies, such as the *Jordan Valley Authority* and the *Water Authority of Jordan*.

[27] The Arabic term *wasta* denotes 'intercession' or 'mediation'. In the academic literature it is widely seen as a social mechanism in the Arab world that determines allocative political decisions in society, economy and politics. *Wasta* can thus be seen as the essential element of the patronage system. On this see: H. Sharabi (1988), *Neopatriarchy. A Theory of Distorted Change in Arab Society*. Oxford and R. Cunningham and Y. Sarayrah (1993), *Wasta: The Hidden Force in Middle Eastern Societies*. New York.

[28] Q. Wiktorowicz (2000), Civil Society as Social Control. State Power in Jordan. *Comparative Politics* 33(1), pp. 43-61.

[29] On this ability to buy legitimacy through the allocation of public resources in rentier states, see conceptually G. Luciani (1990), Allocation vs. Production States: A Theoretical Framework. In: G. Luciani (ed.), *The Arab State*, London. pp.

Among these material benefits in the field of agriculture, one may count the provision of infrastructure and a favourable lending policy, as well as heavily subsidised water prices.[30] In particular, water prices are extremely low in the Jordan River Basin, which can be interpreted as benign favouritism for irrigation agriculture there. A water tariff for irrigation in the Jordan Valley was first introduced in 1961, when the price was set at 0.2 cents per cubic meter. In 1989, the price had risen to 1.2 cents per cubic meter, although the average cost per cubic meter sold was still 4 cents per cubic meter. Revenues from irrigation water have averaged about one sixth of current operational and maintenance costs during the period 1988 to 1992.[31] The overall amount of subsidies on water in Jordan is estimated to be around US $ 75 million per year.[32] These numbers clearly indicate economic inefficiency and point towards the underlying political motives to which we have already alluded. This benign favouritism, however, follows another similar strategy. Jordan's water policy also directly subsidises those economic sectors that generate high revenues through exports. Apart from the agricultural sector, these are the mining sector and the chemical industry. Fundamental to this governmental favouritism are rent-specific determinants

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65-84 and H. Beblawi (1990), The Rentier State in the Arab World. In: G. Luciani (ed.), *The Arab State*. London. pp. 85-98.

[30] The Jordanian state has, for example, established specialist institutions such as the *Agricultural Credit Corporation* and the *Jordan Cooperative Organisation* to extend loans to small farmers in the Jordan River Valley.

[31] I.A.J. Hussein (2002), Water Planning in Jordan: Future Scenarios. *Water International*, 27(4), p. 472.

[32] M. Schiffler (1995), Das Wasser im Nahostfriedensprozeß. Ansätze zu einer gerechten Aufteilung und Möglichkeiten zur Entschärfung der Wasserknappheit. *Orient* 36(4), p. 617. In Israel the total amount of subsidies on water is estimated to be around US $ 200 million. *Ibid.*

that aim to increase the country's balance of trade and lead to a diversification of state revenues.

In recent years, however, several observers have noticed that water planning in Jordan is shifting away from supply-side water management to demand-driven water management.[33] Thus, in the summers of 2001 and 2002, for example, the Jordan Valley Authority (JVA) restricted the planting of summer crops such as courgettes, peppers, aubergines and corn (all of which are "thirsty" crops) and cut water supplies to orchards in the Jordan valley by 50%. Furthermore, the government showed its willingness to cut excessive water use by leasing 10,000 dunums (1 dunum = 0.1 ha) of land in the Jordan valley in the same year, only to leave it fallow afterwards.[34] The exact impact of these policies is still too early to be judged. Nevertheless, it seems as if Jordan is currently in a transitional mode in which the government's water policy appears to be moving away from political factors to more economic considerations.

After this short overview of the main internal determinants within Israel and Jordan related to water policy, we will now turn to the historical development of the water conflict between the two countries.

2.c. The History of the Water Conflict between Israel and Jordan

The bilateral conflict between Israel and Jordan relates to the utilisation of water from the river Jordan and its

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[33] I.A.J. Hussein (2002), Water Planning in Jordan: Future Scenarios. *Water International*, 27(4), pp. 468-475. And J.A. Allan (2002), Hydro-Peace in the Middle East: Why no Water Wars? A Case Study of the Jordan River Basin. *SAIS Review* 22(2), p. 260.

[34] Economist Intelligence Unit (2003), *Country Report – Jordan: March 2003*. London. p. 28.

main tributary, the Yarmouk. The roots of the water conflict can be traced back to the early years of the 20th century, when several Zionist plans for the use of the water of the Jordan River were openly discussed with the Mandate powers. These plans pursued both hydrological goals, namely the creation of the necessary infrastructure (electric power, industrial capacity etc.) for the immigration of large numbers of Jews into Palestine, and agricultural purposes, like the procurement of water supplies for the incoming Jewish immigrants. Examples of these early Zionist missions, which were concerned with how to use the water of the region for hydro-electrical purposes, included a letter by the German engineer, M. Abraham Bourcart, to the British Rev. John Wilkinson in 1901, in which he concluded that power in total of between 200,000 and 400,000 HP (horse power) could be generated from the combined flow of the Litani and the Jordan River system, enough to "transform easily the whole land into a garden of Eden".[35] They also include the Rutenberg Concession of 1921 by the Foreign Ministry of Great Britain and by the High Commissioner of Palestine, which granted permission to develop hydro-power in the Jordan valley and on the Yarkon (Auja) River near Jaffa.[36] Zionist plans in the early 20th century were not only concerned with creating hydro-electricity in Palestine but also with the agricultural potential of the region. Thus Zionist efforts at the Paris Peace Conference in 1919 were aimed at extending the northern boundaries of Pales-

[35] Quoted in: M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. pp. 446-448.

[36] A powerhouse was built on the East Bank of the Jordan at its confluence with the Yarmouk in 1928, and the *Palestine Electric Company* was commissioned to transmit the electricity via power lines to Palestine. The powerhouse was later destroyed in the war of 1948 and never rebuilt. See M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. pp. 15-16.

tine to include the Litani River, and the southeastern boundaries to include the sources of the Jordan River.[37] In a written statement by Chaim Weizmann, later to become Israel's first president, to the British Foreign Secretary, Lord Curzon, one reads:

> "Votre Seigneurie réalise l'importance énorme du Litani pour la Palestine. Même si tout le Jourdain et le Yarmouk sont inclus dans la Palestine, celle-ci n'a pas la quantité d'eau nécessaire. [...] L'irrigation de la Haute Galilée et l'énergie nécessaire pour une vie industrielle même réduite, doit provenir du Litani".[38]

In another letter to British Prime Minister Lloyd George, Weizmann repeated the claim that "the boundaries cannot be drawn exclusively on historic lines [...] our claims to the north are imperatively demanded by the requirements of modern economic life".[39] Weizmann continued, stressing again the two primary objectives of using the region's water resources: "the whole economic future of Palestine is dependent upon its water supply for *irrigation* and for *electric power*, and the water supply must mainly be derived from the slopes of Mount Hermon, from the headwaters of the Jordan and from the Litani River".[40] At French insistence, however, the borders of Palestine were set south of the Litani and west of the slopes of

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[37] M. Daoudy (1990), *Israël, la Syrie, la Jordanie et la question du Jourdain 1948-1967.* Ms. Genève: Institut Universitaire de Hautes Etudes Internationales. pp. 39-40.

[38] As quoted in: N. Beschorner (1992), L'eau et le processus de paix israélo-arabe. *Politique Étrangère* 57(4), p. 855.

[39] As quoted in: A. Wolf and J. Ross (1992), The Impact of Scarce Water Resources on the Arab-Israeli Conflict. *Natural Resources Journal* 32(4), p. 927.

[40] J. Stork (1983), Water and Israel's Occupation Strategy. *MERIP Reports* 116 (July-Aug. 1982), p. 20. Emphasis added.

Mount Hermon, leaving the headwaters of the Jordan River system in French mandated territory.[41]

In the following decade, water came to be the focus of political debate, being intrinsically linked to the question of Palestine's capacity to absorb Jewish immigrants. The Balfour Declaration in 1917 had set out the pledge to establish a "national home for the Jewish people" in Palestine and had regulated Jewish immigration into British Palestine. With the growing water needs of an increasing number of immigrants as well as the indigenous population, the mandatory powers had to acknowledge the existence of a water scarcity problem in Palestine in the early 1920s. Several hydrological surveys were thus conducted and commissioned by the British Mandate government (the Mavromatis Assessment in 1922 and the Henriques Proposals in 1928) in order to address the question of water scarcity. During the Second World War, the two major competing parties in Palestine, the government of Transjordan and the Jewish Agency, each commissioned separate hydrological studies, which resulted in two conflicting plans regarding the utilisation of water resources in the Jordan River Basin – the Ionides Plan, published in Amman in 1939, and the Lowdermilk Plan of 1944.[42] While the Ionides Plan emphasised that the region's water resources were inadequate for Jewish immigration, the Lowdermilk Plan asserted that proper water management could generate resources to settle some 4 million Jews in addition to the 1.8 million Arabs and Jews already living in Palestine.

The differences between these competing plans were never resolved under the British Mandate era and

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[41] A. Wolf and J. Ross (1992), The Impact of Scarce Water Resources on the Arab-Israeli Conflict. *Natural Resources Journal* 32(4), p. 929.

[42] M.G. Ionides (1953), The Disputed Waters of the Jordan. *Middle East Tributary* 2, pp. 153-164 and W. Lowdermilk (1944), *Palestine: the Land of Promise*. New York.

thus, following their independence and the ensuing war in 1948/49, the newly founded states of Jordan and Israel both produced further sets of plans, largely based on the previous field work, and again underlining each side's previous positions. In view of the sudden increase of the population of Jordan, caused by the influx of Palestinian refugees, the government of Jordan commissioned two plans, the MacDonald Plan in 1951 and the Bunger Plan in 1952, both intended to find solutions to the water needs of the country. The MacDonald Plan adhered to the principle of in-basin use of water and envisaged the construction of canals on both sides of the Jordan River, while the Bunger Plan contained even more ambitious development projects, like the construction of the Maqarin-Dam on the river Yarmouk. The Israeli government, faced with similar demographic problems as Jordan[43], published the "All Israel Plan", which envisaged the drainage of the Huleh Lake, the diversion of the northern Jordan River and the construction of a national water carrier intended to transport freshwater from the northern Jordan River to the coastal plains and the Negev desert. The water conflict between Jordan and Israel emerged openly in the 1950s, when the two states started their ambitious development projects unilaterally. In Jordan, this phase witnessed the construction of the "East Ghor Canal" – later renamed "King Abdallah Canal" – and, in Israel, the construction of the "National Water Carrier".

When Jordan announced its intentions to divert Yarmouk waters to irrigate the Jordan valley under the Bunger Plan (1952), Israel announced it would close the gates of the existing dam on the Jordan River, just south of the Sea of Galilee, which had been built under

[43] The Israeli Jewish population increased from 650,000 in 1948 to 1.6 million in 1952. See A. Wolf and J. Ross (1992), The Impact of Scarce Water Resources on the Arab-Israeli Conflict. *Natural Resources Journal* 32(4), p. 930.

the 1921 Rutenberg Concession in order to provide the power house at Baqura with the necessary water by means of a canal. Despite these threats, it was clear that both sides were mutually dependent on the waters from each other's river – Israel's dependence on the Yarmouk paralleled Jordan's dependence on the Jordan. At the time, Israel was using the Yarmouk waters to irrigate the Yarmouk triangle and was counting on the Yarmouk flow to help irrigate the Beit Shean farms, while Jordan depended on the flow of the Jordan River to irrigate land on the east and west banks of the Jordan River.[44] The conflict never escalated, however, because both sides depended on outside financing for their unilateral water projects, and the USA was the most likely donor. This situation thus presented a possibility for the USA to serve as a broker between the two parties, which it did in 1953, when it announced a withdrawal of previously appropriated funds for the Bunger Plan, thereby ending the Jordanian project. It also threatened to withhold economic aid to Israel, thus ending the Israeli construction on the intake structure of the National Water Carrier near Gesher B'not Ya'akov.[45]

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[44] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 31.

[45] See M. Daoudy (1990), *Israël, la Syrie, la Jordanie et la question du Jourdain 1948-1967.* Ms. Genève: Institut Universitaire de Hautes Etudes Internationales. p. 24. Daoudy (1990) mentions that the US American "Technical Cooperation Agency" (TCA) had already pledged US$ 929,000, the United Nations Relief and Work Agency for Palestine (UNRWA) US$ 856,000, and the Jordanian government US$ 200,000 for the Jordanian project. See *Ibid.*

The threatened US American aid to Israel amounted to US$ 50 millions per year. See S. Kahhaleh (1980), *The Water Problem in Israel and its Repercussions on the Arab-Israeli Conflict*. Beirut. p. 22 and J. Stork (1983), Water and Israel's Occupation Strategy. *MERIP Reports* 116 (July-Aug. 1982), p. 20.

In view of the looming escalation in the region,[46] and given the dependence of both Jordan and Israel on foreign funding, the government of the USA decided to intensify its diplomatic effort and sent a special envoy, Ambassador Eric Johnston, to the Middle East in October 1953 in order to negotiate a water regulating regime in the Jordan River Basin. Johnston's initial proposals were based on a study carried out by Charles Main and the Tennessee Valley Authority (TVA), which came to be known as the 'Main Plan'. This initial plan was, however, poorly received by all the states of the region, and counterproposals were made in 1954 by the Arab side, the so-called 'Arab Plan', and by the Israeli side, the so-called 'Cotton Plan'.[47] While the Arab Plan stressed in-basin use of water, and emphasised mainly development projects for creating hydroelectric power, the Israeli plan included the waters of the Litani River and relied on out-of-basin water transfer to the Israeli coastal area and the Negev desert. Ambassador Johnston worked until the end of 1955 to reconcile these proposals in a Unified Plan acceptable to all the states involved. After almost three years of intensive shuttle diplomacy, a technical water distribution index, which assigned quotas for water utilisation to all the riparian states, had finally been worked out and was presented to the parties in early September 1955. The technical committees from both sides accepted the '1955 Johnston Plan' (also known as the 'Unified Plan') but the plan was

[46] In 1951 and 1953 there had been repeated violent border incidents between Israel and Syria over the Israeli project to drain the Huleh Lake and the construction of the National Water Carrier. See below for more details.

[47] For an extensive and in-depths treatment of the Johnston water mission, see M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. pp. 41-126.

never ratified by any party due to the overarching problem of the Arab-Israeli conflict.[48]

The following year again saw the re-emergence of diplomatic efforts by the USA in an attempt to get the UN Secretary General to launch another round of negotiations, but the Suez Crisis in 1956-57 brought about a further deterioration of the general political climate and ultimately put an end to the Johnston water proposals.[49] With the worsening political climate in the region, partly due to the Suez Crisis and partly due to domestic insecurities in various Arab states,[50] the USA was now willing to accept the unilateral water development projects of Jordan and Israel *if* the two countries adhered informally to the quotas assigned to them in the Johnston Plan. In February 1958, the American Embassy in Jordan told the Jordanian government that it was willing to assist Jordan in financing the first year costs of the proposed dam at Adasiyya, intended to divert the waters of the Yarmouk into the East Ghor Canal, if Jordan "will not draw from the Yarmouk River more water than the share allotted it under the

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[48] The Arab Foreign Ministers rejected the Unified Plan on 11 October 1955 due to the overall political climate. Syria had been the main opposition force among the Arab countries, despite the fact that Gamal Abdal Nasser had promised Ambassador Johnston that this plan would be adopted. See M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. pp. 117 and 120-121.

[49] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 136. On the breakdown of the Johnston Plan, see also: D.M. Wishart (1990), The Breakdown of the Johnston Negotiations over the Jordan Waters. *Middle Eastern Studies* 26(4), pp. 536-546.

[50] In July 1958, only months after the United Arab Republic (UAR) had been formed between Egypt and Syria, domestic disturbances (civil unrest and military coup d'état) occurred in Lebanon and Iraq, and earlier, in April 1957, there had been an attempted military coup in Jordan.

Unified Development Plan [i.e. the Johnston Plan]".[51] Similarly, in January 1959 Israel asked the USA for financial assistance with its water project (the pipeline to the Beit Shean farms and the National Water Carrier) and again the USA made this assistance dependent on its being compatible with the Johnston Plan.[52] The net result of this American pressure was that both Jordan and Israel adhered informally and secretly to the quotas assigned to them in the Johnston Plan until the early 1960s. Even after Israel had started taking water from the Sea of Galilee via the National Water Carrier in 1964, it adhered to the technical quotas under the Johnston Plan.[53] The distribution quotas under the '1955 Johnston Plan' are summarised in Table 2.

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[51] Jordanian Foreign Minister's note number 58/14/6719, dated 25 February 1958, addressed to the US Chargé d'Affaires in Amman and signed by Foreign Minister Mr. Samir al-Rifai. As quoted in: M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 144.

[52] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 147 and p. 297. There remained, however, differences between the USA and Israel over the exact amount of water Israel could withdraw from the Yarmouk. While the Johnston Plan had stipulated this to be 25 mcm per year, Israel insisted, as it had done throughout the Johnston negotiations, that it should receive 40 mcm per year.

[53] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. pp. 148-49. The initially firm US position seems to have become more relaxed regarding the Johnston Plan implementation and more sympathetic to Israel's growing water needs under the Kennedy Administration. See *ibid.*, p. 157.

Table 2: Allocation under the 1955 Johnston Plan (in million m³/annum)[54]

River / Country	*Syria*	*Lebanon*	*Jordan*	*Israel*
(A)				
Jordan River	42	35	100	375
Yarmouk River	90	0	377	25
Total	*132*	*35*	*477*	*400*
(B)				
Jordan River	42	35	100	375
Yarmouk River	90	0	377	25
Southern Tributaries	0	0	243	0
Total	*132*	*35*	*720*	*400*

The June War of 1967 dramatically changed the situation with regard to water-related issues in the Jordan River Basin. The Israeli occupation of land in the Golan Heights changed its riparian position (from downstream to upstream riparian) on the Jordan River in its favour. Due to this new-found position as upstream riparian on the Jordan River (through control of the tributaries of the Jordan on the Golan Heights), Israel was now able to meet its increased water demand (see Table 1) through water from the Jordan River. Since the end of the 1960s, Israel monopolised *de facto* the water from the river Jordan: a pumping station on the Sea of Galilee pumped the Jordan water into the "National Water Carrier" which was then transported into Israel's coastal area and into the Negev desert. Jordan, which under the Johnston Plan had been accorded a

[54] P. Beaumont (1997), Dividing the Waters of the River Jordan: An Analysis of the 1994 Israel-Jordan Peace Treaty. *Water Resources Development* 13(3), p. 421. (A) refers to the numbers given by Salamah & Bannayan 1993 and (B) to the numbers given by Kliot 1994. The different figures are explained by the fact that the Johnston Plan was never officially ratified by either side, and that therefore numbers had finally never been assigned.

share of 100m m^3/a from the river Jordan, was now fully cut off from any utilisation.

On the Yarmouk River, Jordan suffered from the Israeli objection to the building of a water dam at the conflux of the Yarmouk's tributaries on the border with Syria, the 'Maqarin-Dam', with which the winter floods of the river Yarmouk could have been better and more efficiently utilised. Indeed, the history of trying to construct the Maqarin-Dam is a long and arduous one for Jordan. In 1973, Jordan had asked the World Bank for funding of the dam project according to the provisions of the '1955 Johnston Plan', but the demand was turned down in 1974 due to insufficient planning. The project was revived again between 1975 and 1981, after a feasibility study by Harza Engineering Company had been published and the US special envoy, Ambassador Philip Habib, had been sent on a special mission to the region in order to ease the difficulties between Israel and Jordan caused by the project. By November 1981, the technical features of the proposed dam and the financing of the project had been worked out, but due to deteriorating Syrian-Jordanian relations in the wake of the Iran-Iraq war, the project now lacked the political support of Syria and was again shelved.[55]

Nevertheless, the Maqarin-Dam project was revived again in 1985, as Syrian-Jordanian political rela-

[55] The differences between Israel and Jordan concerned the proposed height of the dam, its storage capacity, and the amount of water Jordan should be allowed to withdraw from the dam. The Director of projects for USAID covering the Near East, Mr. Selig A. Taubenblatt, remarked on the political difficulties of the project: "Although progress was made during the late 1970's and early 1980's between Jordan and Israel, eventually Jordan's inability to reach agreement with Syria became an immediate cause of indefinite postponement of the Maqarin dam project." As quoted in: M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. pp. 234-35.

tions had improved after the formation of a new cabinet in Jordan, which led, in 1987, to the signing of an accord between the two countries to build the now renamed 'Wahda-Dam', under which Syria would receive 75% of the electricity produced and Jordan, which had to bear the financing of the project, 10 mcm of the stored water.[56] The subsequent Jordanian demand submitted to the World Bank for the financing of the project in the amount of US$ 300 million was, however, never granted due to a veto by Israel, which feared that it would be deprived of some 15% of the Yarmouk waters if the project were realised.[57] In 1989, efforts by the USA, through Mr. Richard Armitage, to obtain Israeli consent for the construction of the 'Wahda-Dam', never materialised because of the Iraqi invasion of Kuwait in August 1990, and were thus left deadlocked and ultimately suspended with the beginning of the bilateral peace negotiations between Israel and Jordan. In early 2002, Jordan seems to have finally succeeded in reviving the Maqarin-Dam project, with construction being scheduled to commence in 2003 and to be performed by a Turkish engineering company, funded by loans from the Abu Dhabi Development Fund and the Arab Fund for Economic and Social Development.[58]

Furthermore, Jordan also suffered directly on the Yarmouk River from the Israeli security policy there, when during the June War of 1967 the Israeli army

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[56] N. Beschorner (1992), L'eau et le processus de paix israélo-arabe. *Politique Étrangère* 57(4), p. 848.

[57] *Ibid.*

[58] n.a. (2002), Long-awaited Wehda Dam tender re-issued at smaller-scale. *Syria live.net*, 11 March 2002. Online at: http://www.syrialive.net/financial/031102Long-awaited%20Wehda%20Dam%20tender%20re-issued%20at%20smaller-scale.htm and n.a. (2003), Jordan, Syria sign agreement to build much-awaited 86.9 M USD dam. *Agence France-Presse*, 6 April 2003. Online at: www.terradaily.com/2003/030406094134.4tn82jav.html

destroyed the construction site of the 'Mukheiba-Dam' and in 1969 parts of the East Ghor Canal.[59] Secret negotiations in 1969 and 1970 between Israel and Jordan, meditated by the USA, persuaded the Israelis that the previously measured drop in the flow of the Jordan River was natural and not due to over-diversion by Jordan, thus leading to an agreement between the two countries under which Jordan was allowed to repair the canal.[60] With regard to the Mukheiba-Dam, Israel was, however, less lenient towards Jordan and impeded Jordan during the following years from recommencing the construction of the project by vetoing a World Bank credit in the early 1980s, which was intended to finance it. The dam, or rather the diversion weir, was mentioned as a common water project in Annexe II, Article II of the 1994 Israeli-Jordanian peace treaty, and was finally constructed in September 1998 and completed in November 1999. It now functions as the water intake structure into the King-Abdallah Canal.[61]

After the June War of 1967, Jordan suffered from increased Israeli utilisation of the water from the river Yarmouk. Already in the 1970s, Israel had started to pump more and more water from the northern part of the Yarmouk (south of the Sea of Galilee) into its national water system. This had been made possible through Isreal's territorial gains during the June War of 1967. On average, Israel used approximately 70m

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[59] The political rationale for Israeli action in 1969 was that Israel held Jordan responsible for Palestinian attacks on Israeli territory, and that damage to Jordan's irrigation would pressure King Hussein to act against the PLO. See A. Wolf and J. Ross (1992), The Impact of Scarce Resources on the Arab-Israeli Conflict. *Natural Resources Journal* 32(4), p. 940.

[60] In April and May 1969, Israeli water authorities had measured the Jordan's river base to be 686 mcm below its average for that period. See *Ibid.*

[61] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 439.

m^3/a (other sources speak of even 100m m^3/a) from the Yarmouk, which represented far more than the 25m m^3/a assigned under the Johnston-Plan. Because of this, and also due to the increasing water utilisation of the other upstream riparian state, Syria, Jordan was left with a mere 130m m^3/a from the Yarmouk River. This represented considerably less than the 377m m^3/a assigned to it under the '1955 Johnston Plan'. Table 3 summarises the difference between the water allocation under the Johnston-Plan (1955) and the *de facto* utilisation at the beginning of the 1990s.

Table 3: Water distribution under the Johnston Plan (1955) and *de facto* utilisation at the beginning of the 1990s (in million m^3/annum)[62]

Country	*Jordan River*		*Yarmouk River*	
	Plan 1955	Utilisation 1990	Plan 1955	Utilisation 1990
Israel	375	550	25	70-100
Jordan	100	0	377	130
Syria	42	0	90	170
Lebanon	35	0	0 (no riparian)	0

During the Middle East peace conferences at the beginning of the 1990s, the re-negotiation of the water utilisation rights in the Jordan River Basin was one of the principal demands brought forward by Jordan, leading to much friction during the talks. Jordan complained mainly about the asymmetric *de facto* utilisation of the rivers Jordan and Yarmouk that had

[62] The numbers are drawn from S. Libiszewski (1995), *Water Disputes in the Jordan Basin Region and their Role in the Resolution of the Arab-Israeli Conflict*. ENCOP Occasional Paper No. 13. Center for Security Policy and Conflict Research/Swiss Peace Foundation. Zürich/Bern, August 1995. pp. 33 and 37. Internet version,
http://www.fsk.ethz.ch/encop/13/en13.htm

emerged since the 1970s. Its main point of reference was the Johnston Plan of 1955, which was seen as a more equitable solution for all riparian dwellers.[63] Israel, on the other hand, held to the firm position that the Johnston Plan had been turned down by the Arab League and that the geo-political situation had changed in favour of Israel; due to the territorial gains of the June War in 1967, Israel argued that it had also augmented its rights to water utilisation in the region. The "Israeli-Jordanian Common Agenda" of September 1993, which laid the ground for future negotiations, mentioned the question of water as one of four issues to which a solution had to be found. Thus the bilateral water conflict was put on an equal level with questions of security, territorial boundary disputes and the problem of the Palestinian refugees.

The Israeli-Jordanian water conflict is a classic distribution conflict over a scarce and shared natural resource. It had all the characteristics of a zero-sum game, even more so since the rivers Jordan and Yarmouk are the only surface water resources in the region and, furthermore, because both suffer from a constant lack of water. On the other hand, the water conflict between Israel and Jordan was the only water dispute within the framework of the Arab-Israeli conflict that was not directly related to territorial disputes. Ever since Jordan had officially renounced its claims on the West Bank in 1988 in favour of the Palestinians, there existed no more major disputed territories between it and Israel. The Israeli-Jordanian water conflict over the utilisation of the surface water resources of the rivers Jordan and Yarmouk thus represents *a genuine water conflict*. Consequently, it was possible to tackle the issue bilaterally, and to eventually come to a negotiated settlement.

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[63] See M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht.

3

The water issue in the Israeli-Jordanian Peace Treaty

The Israeli-Jordanian Peace Treaty of 26 October 1994 was the result of three years of intensive negotiations and marked a pinnacle in the Middle East Peace Process. The resolution of the bilateral water conflict between the two countries forms an essential part of the treaty. Annexe II of the treaty represents the operational part of the water regime. Articles I and II resolve the water conflict by allocating fixed quotas of the water resources of the rivers Jordan and Yarmouk to the two parties, and by stipulating future storing and diversion systems on the two rivers. The remaining provisions concern joint action to avoid future water pollution, the re-distribution of the groundwater resources in the Arava valley south of the Dead Sea, the prohibition to unilaterally change the flow of the two rivers by either side, and finally the obligation for future data exchange and co-operation.

With respect to water distribution, the treaty contains detailed provisions which, to list in full, would go beyond the scope of this article.[64] In short, each coun-

[64] For the full text of the treaty, see Treaty of Peace Between the State of Israel and the Hashemite Kingdom of Jordan (1994). In: W. Scheumann and M. Schiffler (eds.), *Water in the Middle East. Potential for Conflict and Prospects for Cooperation*. Berlin. pp. 177ff. Online at:
http://www.mfa.gov.il/mfa/go.asp?MFAH00pa0

try receives the major part of the water resources on "its" respective river, i.e. Israel on the river Jordan and Jordan on the river Yarmouk. With regard to the "other" river, respectively, the treaty fixes the quota for each of the parties: Israel receives the right to 25m m^3/a from the Yarmouk, and Jordan at least 30m m^3/a from the river Jordan.

Furthermore, during the winter months Israel has the right to pump another 20m m^3/a of water from the Yarmouk River (in addition to its 25m m^3/a) into the Sea of Galilee, which it then has to re-direct to Jordan during the summer. Compared to the current Israeli utilisation of 70m m^3/a, this represents a considerable reduction. Nevertheless, Israel retains the right to utilise the current level of water until Jordan has completed the construction of a dam on the river Yarmouk.

Jordan's share of the river Jordan is, as already mentioned, fixed to at least 30m m^3/a, which represents a clear improvement compared to the current situation, where it receives basically no water at all. The Jordanian share is made up of 20m m^3/a of fresh water obtained through the build-up of the winter floods on the river Jordan, south of the Sea of Galilee, and 10m m^3/a obtained through the desalination of groundwater sources. Until the commissioning of this planned desalination plant, Israel will deliver the 10m m^3/a from the waters of the Sea of Galilee. Since the Jordanian share consists of water resources that were previously not used, the Jordanian increase in water utilisation will not come at the expense of Israel's share.

Article II of the Treaty contains additional agreements about specific water projects that are to be jointly realised. This includes the construction of a dam or diversion weir on the river Yarmouk near Adassiya (the 'Mukheiba-Dam'), which is to be used to build-up the winter floods of the river and to increase the share of water that is diverted into the King-Abdullah Canal. The treaty does not mention, however, any specific

numbers as to the future water diversion to Jordan. A second dam is to be constructed on the lower part of the river Jordan, between its confluence with the Yarmouk River and its confluence with Wadi Yabis/ Tirat Zvi, in order to facilitate the mentioned 20m m^3/a from the lower reaches of the river. The last paragraph of Article II mentions the possibility of other future joint projects.

Moreover, the treaty stipulates that Israel and Jordan will co-operate in order to provide Jordan with another 50m m^3/a of fresh water in the future. The treaty does not, however, specify where the financial means for this should come from and how the costs should be divided between the two countries. Specific plans are to be worked out by the newly-established Water Committee. Future desalination plants or the import of fresh water from regions with a surplus of fresh water supplies are being considered.

A particular provision is reserved for the utilisation of the ground water resources in the Arava Valley in the southern border region between the two countries. The regulation provides for the disputed territories in this area to be put under Jordanian sovereignty, but that at the same time Israeli farmers retain a private right to their land and their water wells. The current utilisation of these groundwater resources is estimated at 10m m^3/a. Table 4 summarises again the main provisions of the treaty in an accessible manner.

Table 4: Water distribution between Israel and Jordan on the rivers Jordan and Yarmouk before and after the 1994 Peace Treaty (in million m³/a)[65]

The Jordan River:

Country	*Before 1994*	*After 1994*	*Source & Remarks*
Israel	*550*	*550*	*As before*
Jordan	*0*	*+10*	Desalination of groundwater sources (presently from the Sea of Galilee). *Immediate effect*
		+20	Dam on the lower Jordan River. *Long-term*
		(+40)	From the lower reaches of the Jordan River. *Brackish water, mid-term, quantity unknown*

[65] The quantity mentioned in parentheses is not fixed under the treaty and is based on Jordanian declarations made by Jordan's chief water negotiator, Munther Haddadin. See *Jordan Times*, 18 October 1994.
The remaining numbers in the table are from S. Libiszewski (1995), *Water Disputes in the Jordan Basin Region and their Role in the Resolution of the Arab-Israeli Conflict*. ENCOP Occasional Paper No. 13. Center for Security Policy and Conflict Research/ Swiss Peace Foundation. Zürich/ Bern, August 1995. p. 74.

The Yarmouk River:

Country	*Before 1994*	*After 1994*	*Source & Remarks*
Israel	70	25-70[66]	*As before*
Jordan	130	130	*As before*
		+20	Sea of Galilee (Exchange). *Immediate effect*
		(+25)	Diversion into the King-Abdallah Canal. *Immediate, quantity uncertain*
		(+50)	Dam or diversion weir on the Yarmouk River. *Mid-term, quantity uncertain*

Additional Resources:

Country	*Before 1994*	*After 1994*	*Source & Remarks*
Israel	-	+10	Water from the Arava Valley. *Immediate effect*
Jordan	-	+50	To be determined - *"within one year from the entry into force of the treaty"*

[66] As long as the dam on the river Yarmouk is not constructed, Israel has the right to continue to divert 25m m^3/a of water from the Yarmouk as before.

4

Assessment of the Israeli-Jordanian water regime

A 'water regime' will be understood here as a *formal co-operative arrangement* between riparian states, which regulates their behaviour with regard to water use, allocation and pollution. The academic literature on 'international regimes' is extensive, and numerous definitions have been proposed. [67] The standard definition of 'international regimes' includes both implicit and explicit principles, norms, rules, and procedures. For the purpose of this paper, however, a lean definition of international regimes has been chosen, one that particularly emphasises *explicit rules* pertaining to particular sets of issues in international relations.[68]

With special reference to water issues, some authors have argued that it is necessary to further distinguish between regimes drafted to deal with all future water conflicts and those that are specifically connected to a particular conflict.[69] Hence a distinction is made in this paper between general water regimes, such as the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, or the 1996 United Nations Convention on the

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[67] A. Hasenclever, P. Mayer and V. Rittberger (1997), *Theories of International Regimes*. Cambridge. pp. 8-22.
[68] *Ibid.*, p. 12.
[69] H. Haftendorn (2000), Water and International Conflict. *Third World Quarterly* 21(1), p. 65.

Law of Non-Navigational Uses of International Watercourses, and specific water regimes that deal with a particular water conflict, such as the water regime between Israel and Jordan. In line with the above definition, the Israeli-Jordanian Peace Treaty of October 1994 is viewed as instituting a 'water regime' between the two countries. Although there had been occasions of co-operation in water-related issues between the two countries prior to 1994 (the informal adherence to the quotas under the Johnston Plan of 1955), Israel and Jordan were still in a *de jure* state of war. It was only through the Peace Treaty of 1994 that a water regime between the two countries was formalised and instituted.

Regarding the assessment of the Israeli-Jordanian water regime and its provisions, it should be said at the outset that no consensus exists until today as to exactly how much water Jordan would receive under the Peace Treaty. According to the chief Jordanian negotiator, Munther Haddadin, Jordan will receive 200m m^3/a, which would represent an increase of 25% of the national water supply.[70] These numbers, however, need to be viewed with some scepticism, since many water resources are yet to be developed, and because it remains unclear where financing for the often costly projects, like the water dam on the river Yarmouk, should come from. The high Jordanian estimates should perhaps be better viewed in the context of propagating the treaty to appeal to the Jordanian population. Following more realistic estimates, Jordan's water supply will increase immediately by some

[70] See *Jordan Times*, 19 October 1994. Quoted in S. Libiszewski (1995), *Water Disputes in the Jordan Basin Region and their Role in the Resolution of the Arab-Israeli Conflict*. ENCOP Occasional Paper No. 13. Center for Security Policy and Conflict Research/ Swiss Peace Foundation. Zürich/ Bern, August 1995. p. 73. See also S. Elmusa (1995), The Jordan-Israel Water Agreement: A Model or an Exception? *Journal of Palestine Studies* 24(3), pp. 63-73. Here p. 64.

30m m^3/a (from the Sea of Galilee) and by 25m m^3/a from the additional diversion of water from the river Yarmouk into the King-Abdallah Canal. A 3,5 km pipeline for the delivery of the 30m m^3/a from the Sea of Galilee was put into operation in July 1995.[71] In total, Jordan will receive some 50m m^3/a, which equals an increase of 7% of the Jordanian water supply. Moreover, the major part of the hypothetical Jordanian benefits is to be expected in the long run, with probably a long-term increase of between 15-20% of the Jordanian water supply.

From an historical perspective, the Israeli-Jordanian Peace Treaty embraces several elements from the Johnston Plan of 1955, although the end-result, in terms of distribution quotas, differs quite clearly. In the Johnston Plan, Israel and Jordan each receive the water resources of one principal river, and the quota of the Israeli share of the waters from the river Yarmouk (25m m^3/a) is also as indicated in it.

There are, however, several weaknesses in the Israeli-Jordanian treaty, most seriously the lack of provision for drought years.[72] This may have given incentives for the state parties not to comply with their commitments because of such unforeseen hydrological circumstances. This kind of reasoning has indeed been used by Israel in the past years.[73] Israel's announcement not to deliver the negotiated volume in the spring of 1999 was, however, so highly charged politi-

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[71] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 426.

[72] J.A. Allan (2002), Hydro-Peace in the Middle East: Why no Water Wars? A Case Study of the Jordan River Basin. *SAIS Review* 22(2), p. 258.

[73] A. Cohen (1999), "A dry Israel must cut water flow to Jordan." *Ha'aretz* (Jerusalem), 15 March 1999. A. Khatib (1999), "Jordan 'strongly' rejects Israeli plan to reduce water supplies." *Jordan Times* (Amman), 16 March 1999.

cally that the issue quickly went to the King of Jordan and senior Israeli cabinet members for resolution.[74]

Secondly, in terms of sheer numbers the treaty seems to be "particularly favourable for Israel", as one observer has put it.[75] Under the 1994 treaty, Jordan will receive less water overall than under the Johnston provisions of 1955. Nevertheless, this statement should be put into perspective, since Jordan's share in 1955 was calculated to include both the East and the West Bank. In 1994, during the water negotiations with Israel, King Hussein explicitly gave-up the water share attributed to the West Bank, since this was no longer Jordanian territory and because this share was to be negotiated by the Palestinians themselves, especially after they had signed the 'Declaration of Principles on Palestinian Self-Rule' (Oslo I Accords) in September 1993.[76] Furthermore, and with regard to the negotiated amounts, the treaty does not give any provisions as to the quality of the water. The fact that the water Jordan receives from Israel from the lower Jordan River has been floodwater and at times polluted, has occasionally caused tension between the two states.

Finally, a third negative point needs to be mentioned regarding the peace treaty, namely that it remains purely bilateral. This is negative in the sense that possible claims by the Palestinians to the water resources of the river Jordan (after all, the Palestinians are riparian to it) have not been considered at all. Furthermore, the situations of Jordan and Israel are quite distinct within "their" given river basin: while Israel is upstream riparian vis-à-vis Jordan on the river Jordan,

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[74] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 443.

[75] P. Beaumont (1997), Dividing the Waters of the River Jordan: An Analysis of the 1994 Israel-Jordan Peace Treaty. *Water Resources Development* 13(3), pp. 415-424.

[76] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 294 and p. 357.

the situation is reversed on the river Yarmouk, with the key difference being that Jordan remains downstream riparian vis-à-vis Syria on the Yarmouk. Since Jordan is, however, not capable militarily to compensate for its downstream position, it has to accept the large Syrian water diversion from the river Yarmouk (approximately 170m m^3/a), which is decisively above the quota ascribed to Syria under the Johnston Plan (90m m^3/a). This large Syrian water diversion from the Yarmouk may be directly linked to the fact that Syria has been cut off from the sources of the river Jordan (due to the loss of the Golan Heights to Israel in the 1967 War) and therefore compensates for this by diverting increased amounts of water from the Yarmouk. Some authors have thus argued that a shift of the water conflict from the Israeli-Jordanian to the Jordanian-Syrian arena cannot be excluded in the long-term.[77]

There are, however, several positive points to be mentioned about the peace treaty and its water-related provisions. The treaty represents the first and, until today, most comprehensive water agreement in the Jordan River Basin, while at the same time helping to resolve the historic water conflict between the two

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[77] See, for example, S. Libiszewski (1995), Das Wasser im Nahostfriedensprozeß – Konfliktstrukturen und bisherige Vertragswerke unter wasserpolitischer Perspektive. *Orient* 36(4), p. 639. This assessment seems, however, rather unrealistic given recent examples of co-operation between Jordan and Syria through (a) the re-launching of the Maqarin-Dam project on the River Yarmouk and (b) repeated Syrian water exports to Jordan during drought years in 2001 and 2002. See n.a. (2001), Syria helps Jordan with extra water. *Syria Live.net*, 15 July 2001. Online at:
http://www.syrialive.net/Media/news/2001/071501Syria%20helps%20Jrdan%20with%20extra%20water.htm and n.a. (2002), Syria to increase water supply to Jordan. *Syria Live.net*, 21 August 2002. Online at:
http://www.syrialive.net/financial/082102Syria%20to%20increase%20water%20supply%20to%20Jordan.htm.

states.[78] Through a combination of limited redistribution and the acquisition of additional water resources through improved water management, the zero-sum game was transformed into a positive-sum game bringing equal gains to both sides.

Subsequent years have shown that the two parties are willing to adhere to the provisions of the treaty and resolve differences peacefully. Two examples for peaceful resolution of differences and co-operative behaviour in this regard stand out.

Firstly, after the general political climate had deteriorated with the election of the Likud government in Israel in 1996, and in view of the fact that no progress had been made until then on the identification of the source of additional 50 mcm water for Jordan (under Article I.3), the situation between the two countries worsened in May 1997 to the point where the two states were in open disagreement over water allocation.[79] The dispute was resolved a few days later at the highest political level with a compromise being rea-

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[78] The argument that the water conflict has been resolved is supported by the fact that both sides adhere to the treaty and that despite occasional tensions, as in 1997 or in 1999, both sides are willing to resolve these differences peacefully and through negotiations. As to the amount of water Israel is transferring to Jordan, Deconinck (2002) mentions that Israel transfers more than the negotiated 55 mcm per year (around 75 mcm per year). See *Interview at the Water Commissioner's Planning Office*, June 7, 2001. As quoted in: S. Deconinck (2002), *Israeli water policy in a regional context of conflict: prospects for sustainable development for Israelis and Palestinians?* Ghent/ Belgium: University of Ghent - Centre for Sustainable Development. Online at:
http://waternet.rug.ac.be/waterpolicy.htm

[79] On this disagreement, see M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. pp. 418-426.

ched whereby Jordan would immediately receive between 25-30 mcm annually from the Sea of Galilee and receive the full 50 mcm through a desalination plant to be installed for that purpose.[80] On 27 May 1997, Israel started delivery of the additional water from the Sea of Galilee to the King-Abdallah Canal via the same pipeline that had been delivering the 20 mcm and the 10 mcm since 5 July 1995.[81]

Secondly, in February 1998 the scheduled visit by the Minister of National Infrastructure, Ariel Sharon, to Jordan in order to meet King Hussein had to be postponed due to differences between the two countries relating to the construction of the division weir on the Yarmouk River near Adasiyya (especially concerning the height of the weir and its storage capacity). After several weeks of intensive negotiation, an agreement was finally reached on 10 March 1998.[82] The construction of the diversion weir on the Yarmouk River began in September 1998 and was finally completed in November 1999. The weir now serves as the water intake structure into the King-Abdallah Canal, and the Jordanian share of water from the Yarmouk River has since been estimated to be around 50 mcm per year.

Generally, it can thus be argued that Israel and Jordan have successfully resolved their bilateral water conflict and have now entered a period of peaceful cooperation, in which water issues form an essential ele-

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[80] *The Economist*, 17 May 1997, p. 46. and M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 426.

[81] Haddadin (2002) mentions that the pipe conduit from the Sea of Galilee has become a major source for Jordan with around 60 mcm of water delivered per year from Israel (half during the five months between 15 May and 15 October). See M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 426.

[82] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 428-38.

ment. Both sides have thus far been able to benefit from this state of peace. According to Jordan's chief water negotiator, Munther Haddadin, for example, the "peace water" received from Israel under the provisions of the treaty has saved Jordan from the devastating effects of the drought that lasted from March 1998 to January 2000.[83]

As for the reasons and factors that facilitated the resolution of the water conflict between Jordan and Israel, it should first be mentioned that the water conflict was *structurally* altered by transforming the existing zero-sum game into a positive-sum game through provision of additional water resources and equitable distribution of the existing sources. Of course, other reasons and factors further facilitated the co-operation between the two countries. For the **Jordanian** side, there were incentives of additional external revenues in the form of 'peace dividends'.[84] Jordan's regime had been highly dependent on external financing in the form of external rents since the 1970s.[85] In the Jordanian case, these cru-

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[83] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 442.

[84] See M. Beck (1997), Can Financial Aid Promote Regional Peace Agreements? The Case of the Arab-Israeli Conflict. *Mediterranean Politics*, 2(2), pp. 49-70.

[85] Rents are defined here as "the difference between the market price of a good or factor of production and its opportunity cost. Owners of certain assets or providers of certain services enjoy strategic positions in markets that allow them to set prices well above the opportunity cost for what they are providing. The revenue stream that is generated is not directly related to greater efficiency in production or to new investment". See A. Richards and J. Waterbury (1996), *A Political Economy for the Middle East*. Boulder. p.17. Similarly, Beblawi defines rents as "the income derived from the gift of nature". See H. Beblawi (1990), The Rentier State in the Arab World, in G. Luciani (ed.), *The Arab State*. London. p.85. In this line of thought, rents are usually understood to be in-

cial external revenues were, on the one hand, *strategic rents* such as official financial assistance from the oil-producing Gulf states and, on the other, *migrant rents* in the form of private remittances from expatriate workers employed mainly in these Gulf states.[86] These external revenues declined drastically in the early 1980s following reduced oil income for the Gulf countries; in Jordan, strategic rents from the Arab states declined from a high of $1.2 billion in 1983 to under $400 million in 1988.[87] The same was true for migrant rents, which declined equally drastically from the mid-1980s.

The situation was further intensified by the official position taken by the Jordanian regime during the Kuwait crisis in 1990 (no clear distancing from Saddam Hussein), which led to a mass expulsion of Jordanian expatriate workers from the Gulf countries and – due to the abrupt decline in private workers' remittances – flung the Jordanian state into a severe financial crisis. Against this backdrop, the financial incentives offered by the international community (in particular for specific water-related projects) in case of Jordanian cooperation with Israel do not seem negligible. In an official demand to the European Union (EU), the Jordanian government admitted, in retrospect, that it would have asked for higher concessions from the Israelis if it had not received international assurances for these

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come accrued from the export of natural resources, especially oil and gas. Similarly, however, *external* rents may also be conceived of as bilateral or multilateral foreign-aid payments, such as foreign development assistance. These financial flows are usually termed 'strategic rents'.

[86] O. Schlumberger (2002), Jordan's Economy in the 1990s: Transition to Development? In: George Joffé (ed.), *Jordan in Transition. 1990-2000.* London. pp. 225-253.

[87] R. Satloff (1992), Jordan's Great Gamble: Economic Crisis and Political Reform. In: H.J. Barkey (ed.), *The Politics of Economic Reform in the Middle East*. New York. p. 131.

planned water projects.[88] Furthermore, it should not be forgotten at this point that the lack of consensus between Israel and Jordan had previously obstructed several Jordanian water projects, most notably the 'Maqarin-Dam' project, due to the World Bank policy of not granting funding in situations where consensus between all parties concerned was lacking.

For **Israel** the resolution of the bilateral water conflict with Jordan offered the possibility to sign a peace-deal with another Arab country. This strategy of bilaterally resolving conflicts had been employed by Israel since the Camp David Accords with Egypt in 1978. A further incentive for Israel represented the peace process, which was designed as a two-track negotiation process, i.e. both bilateral and multilateral talks. Within the framework of the multilateral negotiations of the working group on water resources (apart from this working group there existed others concerned with the environment, refugees, arms control, and regional economic development), Israel managed a diplomatic breakthrough by participating directly in multilateral negotiations with several other Arab countries. Israel was subsequently able to establish diplomatic ties with Morocco, Tunisia and Oman, something that had previously been unthinkable. Moreover, for the very first time the multilateral working group on water resources made it possible for an official Israeli delegation to visit a Gulf country during the conference in Muscat (Oman) in April 1994.[89] Israel thereby achieved

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[88] The Hashemite Kingdom of Jordan (1994), *Water Projects in the Peace Treaty: Terms of Reference for Engineering Consulting Services. Draft No. 1.* Brussels. As quoted in F. Hof (1995), The Yarmouk and Jordan Rivers in the Israel-Jordan Peace Treaty. *Middle East Policy*, 3(4), p. 49.

[89] J. Renger (1995), Die multilateralen Friedensverhandlungen der Arbeitsgruppe Wasser. *Asien, Afrika, Lateinamerika*, Vol. 23/2, pp. 149-157.

behind-the-scenes diplomatic recognition from most Arab states. A further spin-off of this was that the Arab states were split into hard-liners, i.e. those refusing to negotiate directly with Israel, such as Syria, and pragmatic states accepting the multilateral negotiations.

Finally, these multilateral talks brought about the gradual erosion of the Arab boycott of Israel, resulting in the formal announcement by the Gulf Co-operation Council (GCC) states of the end of the secondary and tertiary boycotts of Israel and the development of commercial ties between Israel and these Gulf states.[90]

Having assessed and analysed the Israeli-Jordanian water regime, the question can thus be posed whether it may serve as a future model for the resolution of other water conflicts in the Jordan River Basin, in particular the water conflict between Israel and Syria and/or the water conflict between Israel and the Palestinian Authority (PA).

[90] J. Peters (1996), *Pathways to Peace. The Multilateral Arab-Israeli Peace Talks*. London. p. 64.

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A model for resolving the other water conflicts in the Jordan River Basin?

The Israeli-Jordanian water regime merely represents a bilateral treaty. The water rights of the remaining three riparian dwellers of the Jordan River Basin (Lebanon, Syria and the Palestinian Authority) are not included in the agreement. It thus remains to be seen from which resources the demands and quotas of these parties are to be met. The Israeli-Jordanian water regime must be either complemented by other binding bilateral arrangements or be replaced by a multilateral and all-embracing one. The formulae and mechanisms applied in the Israeli-Jordanian case, i.e. extending the water supply coupled with better water management, could suggest hints as to how the other remaining water conflicts in the Jordan River Basin may be resolved. At the same time, however, the peculiarities of each conflict must be taken into account in order to arrive at a resolution.

5.a. The Israeli-Syrian water conflict

The geographic and hydrological situation in the Israeli-Syrian water conflict differs distinctly from the Israeli-Jordanian case. With around 2000 cubic meters (m^3) fresh water per capita and per annum, Syria be-

longs to those countries having sufficient fresh water.[91] Syria thus has more than six times as much available fresh water as Israel. The country receives most of its fresh water from the surface waters of the Euphrates River, the Yarmouk River and the Orontes River, as well as from groundwater resources.[92] The major part of the Syrian national water budget (67,4% for the year 1999-2000) is met by water from the Euphrates, while the disputed water resources with Israel from the Golan Heights play only a minor role in the Syrian national water budget.[93]

The history of the water conflict between Israel and Syria dates back to the 1950s and has seen violent eruptions on at least two separate occasions. In 1951, Israel had started to implement the "All Israel Plan" and had begun preliminary work on the "National Water Carrier" at the Yarkon (Auja) River near Jaffa and Tel Aviv, with the drainage of the Huleh Lake. Part of the latter work had to be done inside the demilitarised zone between Israel and Syria, which had been installed through the 1949 Armistice Agreement, and included the evacuation of Syrian citizens in the villages of Bekara, Naymeh and Mazra'at el Khouri.[94] This operation caused several border skirmishes between Israelis and Syrians as well as a Syrian diplomatic protest, which was brought before the UN Secu-

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[91] H.I. Shuval (1998), Water and Security in the Middle East: The Israeli-Syrian Water Confrontations as a Case Study. In: L.G. Martin (ed.), *New Frontiers in Middle East Security*. London. p. 184. The figures refer to the year 1990.

[92] For a detailed account of the hydrological situation in Syria, see M. Daoudy (2003), *Une Négociation en Eaux Troubles: Eau, sécurité et asymétrie des pouvoirs, La Syrie et les bassins de l'Euphrate et du Tigre.* PhD dissertation, University of Geneva, Graduate Institute of International Studies, Geneva 2003.

[93] *Ibid.*, p. 114.

[94] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 32.

rity Council. The Security Council discussed the issue during April and May 1951, and finally adopted a resolution ordering the return of Syrian citizens to their homes in the Demilitarised Zone.[95] The UN Truce Supervision Organisation (UNTSO) Chief of Staff, General Riley, however, ruled in June 1951 that "civilian land conservation was permitted in the Demilitarised Zone under the terms of the Armistice Agreement".[96] Israel was thus permitted to carry out the drainage and land reclamation programme as planned, and completed it in 1956. Israel had thereby achieved the drainage of 6,000 hectares of the Huleh Lake and saved about 60 mcm of water that were previously lost to evaporation.

In September 1953, Israel initiated work on its diversion project on the intake structure of the National Water Carrier (NWC) south of Gesher B'not Ya'akov (Jisr Benat Ya'qoub). The Israeli construction operations were carried out under the protection of Israeli forces and were accompanied – as in 1951 – by exchanges of fire between Syrian and Israeli tanks. The Syrians again brought the issue before the UN Security Council,[97] where it was discussed in October 1953. This time, General Riley, decided that the Israeli diversion was contrary to the provisions of the General Armistice Agreement and requested the Israeli government

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[95] UN Sec. Res. S/2157, adopted at the 547th session on 18 May 1951. For a concise summary of the discussions before the Security Council, see M. Daoudy (1990), *Israël, la Syrie, la Jordanie et la question du Jourdain 1948-1967.* Ms. Genève: Institut Universitaire de Hautes Etudes Internationales. pp. 45-47.

[96] As quoted in: H.I. Shuval (1998), Water and Security in the Middle East: The Israeli-Syrian Water Confrontations as a Case Study. In: L.G. Martin (ed.), *New Frontiers in Middle East Security*. London. p. 189.

[97] Letter by the Permanent Representative of Syria at the United Nations to the Security Council, dated 16 October 1953. See: UN Document S/3108/Rev. 1.

to cease working on the west bank of the Jordan River in the Demilitarised Zone.[98] Similarly, the Security Council adopted a resolution demanding the suspension of the Israeli construction.[99] Israel's work on the intake structure of the National Water Carrier did not cease immediately, however, and only came to an end on 27 October 1953, after the USA had threatened Israel with suspension of their economic aid.[100] On the same day as Israel announced its temporary discontinuance on the intake structure at Gesher B'not Ya'akov, President Eisenhower announced the resumption of economic aid to Israel.[101]

The second violent eruptions of the water conflict between Israel and Syria occurred in 1965 and 1966. In June 1964, Israel had completed the construction of its National Water Carrier (NWC), and had started pumping water from the Sea of Galilee via the NWC to the coastal plains and the Negev desert. As a reaction to the increased Israeli withdrawal of water from the Jordan River, the Arab states decided to implement the *Arab Diversion Plan*, which had been presented in 1960 and approved in 1964 during the first Arab Summit Conference in Cairo, and which foresaw the diversion

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[98] UN Document S/3122 of 23 October 1953. As quoted in: M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 35.

[99] UN Document S/3128.

[100] See M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 36; S. Kahhaleh (1980), *The Water Problem in Israel and its Repercussions on the Arab-Israeli Conflict*. Beirut. p. 22; Department of State Bulletin (1953), *Secretary Dulles' Statement on Aid to Israel*. 2 November 1953, pp. 589-590 and J. Stork (1983), Water and Israel's Occupation Strategy. *MERIP Reports* 116 (July-Aug. 1982), p. 20.

[101] H.I. Shuval (1998), Water and Security in the Middle East: The Israeli-Syrian Water Confrontations as a Case Study. In: L.G. Martin (ed.), *New Frontiers in Middle East Security*. London. p. 190.

of the tributaries of the Jordan River, the Hasbani waters, to the Litani River in Lebanon and the Banias waters to the Yarmouk River, via the construction of diversion canals. The motivations for the Arab Diversion Plan were mainly political and were meant to punish Israel for its increased use of the Jordan waters. Neither Syria nor Lebanon would have gained much from the diversion in terms of additional water availability.[102]

In 1965, the Arab states began construction under the Arab Diversion Plan to prevent the Jordan waters from reaching Israel. Israel declared the impending diversion as an "infringement of its sovereign rights", and attacked the diversion works from the air in March and May 1965 and July 1966.[103] The Lebanese project was subsequently abandoned in 1965 and the Syrian diversion project in 1966, after renewed Israeli attacks in July 1966. [104] Syria was obviously not prepared to go

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[102] In the case of Lebanon, most of the diverted waters would go directly into the Mediterranean Sea. For Syria, the amount to be diverted from the Banias, some 120 mcm per year, represented only one percent (!) of its potential national water resources. See H.I. Shuval (1998), Water and Security in the Middle East: The Israeli-Syrian Water Confrontations as a Case Study. In: L.G. Martin (ed.), *New Frontiers in Middle East Security*. London. p. 194.

[103] See J.K. Cooley (1984), The War over Water. *Foreign Policy* 54, p. 16. Wolf / Ross (1992) mention a fourth attack in April 1967. See: A. Wolf and J. Ross (1992), The Impact of Scarce Water Resources on the Arab-Israeli Conflict. *Natural Resources Journal* 32(4), p. 937. It is not clear, however, whether the air battle between Israel and Syria in April 1967 was linked to the water issue at all. See M. Lowi (1993), *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin*. Cambridge. p. 131.

[104] H.I. Shuval (1998), Water and Security in the Middle East: The Israeli-Syrian Water Confrontations as a Case Study. In: L.G. Martin (ed.), *New Frontiers in Middle East Security*. London. p. 194. The French newspaper, *Le Monde*, had already publicised in June 1965 that the Lebanese government had

to war with Israel over the diversion canal, as few, if any, vital economic interests were attached to it. Against the common assumption by proponents of the 'water-war theory' that water represented an important factor in the outbreak of the 'Six Day War', and that the events in 1965 and 1966 represented a "prolonged chain reaction of border violence that linked directly to the events that led to the [1967] war",[105] water did *not* represent the primary reason why Arabs and Israelis reverted to war in June 1967. This becomes obvious from the fact that the Arab Diversion Plan had been discontinued and abandoned long before the outbreak of the June 1967 war. The *casus belli* for Israel was rather the Egyptian expulsion of UN peacekeeping forces from the Sinai (which was in clear violation of the 1957 agreement concerning Israel's withdrawal from the peninsula) and the closure of the Straits of Tiran (which effectively blocked access to the port of Eilat) and *not* the Arab Diversion Plan. This view is supported by the assessment of Israeli decision-makers at the time: Israel's Prime Minister Eshkol stated explicitly that a withdrawal of UN peacekeepers from the Sinai would mean war for Israel, while he did not come to the same conclusion when asked about the Arab diversion scheme.[106] Indeed, the Arab diversion scheme had begun in 1965 and no war was waged, while only a few days after Egypt had demanded that UN peacekeepers were to leave the Sinai in May 1967, war did break out.

The June 1967 war completely changed the hydropolitical situation in the Jordan River Basin, and had drastic consequences for the Israeli-Syrian water con-

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suspended the construction of the diversion canal. See *Le Monde*, 5 June 1965.

[105] J.K. Cooley (1984), The War over Water. *Foreign Policy* 54, p. 16.

[106] See M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. p. 186.

flict. Aside from territorial gains (the Golan Heights) and geo-strategic improvements, Israel also ameliorated its hydro-political position. On the Golan Heights, it now controlled the tributaries and springs of the Jordan River, which had previously been under Lebanese and Syrian control respectively. In the years following the 1967 war, Israel was able to *de facto* monopolise the waters of the Jordan River and increase its withdrawal of these waters into the National Water Carrier.

With regard to the state of the Israeli-Syrian and also the Israeli-Lebanese water conflicts at the beginning of the 1990s, it can be noticed that – in contrast to the Israeli-Jordanian negotiations – these conflicts are considerably more difficult to resolve: here the water issue is much more tightly linked to other salient issues, both of a political and territorial nature. In the case of the Israeli-Syrian conflict, the water issue is linked to the territorial question of the Golan Heights and the control over the two tributaries of the river Jordan, the Banias and the Hasbani. With the unilateral Israeli withdrawal from the security zone in Southern Lebanon in March 2000, at least the territorial dispute between Israel and Lebanon has been resolved.[107] Due to the Syrian influence on Lebanon, a resolution of the Israeli-Lebanese water conflict seems unthinkable without an arrangement with Syria. In the Israeli-Syrian case, however, water has, over the past decades, not just represented another conflict good, but has primarily served as a means by which the historical conflict could be fought.

[107] The water conflict between Israel and Lebanon continues, however, on a minor scale. See press releases on the waters of the Wazzani River in Southern Lebanon. *Neue Zürcher Zeitung,* 16 March 2001.

The current dispute over the control of the tributaries of the Jordan thus cannot be seen as a genuine water conflict, but rather as part of an ever-present security dilemma. While Syria continues to insist on maximum claims, i.e. the complete withdrawal of Israeli troops to the pre 1967-War demarcation line and the turn-over of the Golan Heights to Syria *before* negotiations about any security arrangements can begin, Israel insists on the reverse. Syria can afford this position as a hard-liner because, in contrast to Jordan, it was able to profit from the Kuwait crisis in 1990 in political-economic terms.

Syrian support for a revision of the Iraqi annexation of Kuwait was rewarded by the Gulf countries with the immediate resumption of official financial assistance.[108] Syrian behaviour during the Kuwait crisis in 1990 can thus be termed a successful crisis management of a rentier state.[109] Rentier states, it has been argued, display a political dynamic much different from that of states in which the government is sustained through taxation of domestic economic activity.[110] The crucial difference between these two forms of states is, firstly, the *external* nature of revenue acquisition and, secondly, the fact that rentier states are characterised

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[108] V. Perthes (1995), *The Political Economy of Syria under Assad.* London.

[109] P. Pawelka and C. Schmid (1988), *The Modern Rentier State in the Middle East and its Strategies of Crisis Management*. Los Angeles: Paper presented at the 22nd Annual Conference of the Middle East Studies Association of North America (MESA), 2-5 November 1988. German Version reprinted in P. Pawelka and A. Maho Aves (1990) (eds.), *Arabische Golfstaaten in der Krise*. Frankfurt a. M. pp . 91-117.

[110] G. Luciani (1994), The Oil Rent, the Fiscal Crisis of the State and Democratization. In G. Salame (ed.), *Democracy Without Democrats? The Renewal of Politics in the Muslim World*. London. p. 131.

by a close link between the fiscal and political foundations of that state.[111]

Due to this close link between a rentier economy and a rentier political system, an economic or financial crisis in this type of state will necessarily entail a fundamental crisis of the state itself. In such a case, the rentier state has two modes of crisis management at its disposal, one more internally directed, involving a more effective use of existing rents (usually through austerity measures), and one more externally directed, involving rent diversification and an attempt to attain new sources of external rents. It has been argued that rentier states usually tend to choose the internal strategy of crisis management first.[112]

Nonetheless, there are limits to this internally oriented strategy, since more effective rent management may require upsetting standing socio-political coalitions, so that it is fair to assume that after an initial period, rentier states will additionally (or even exclusively) choose the external strategy of rent diversification and new external rents acquisition. In other words, rentier states are likely to opt for the socially less disruptive "quick-fix, aid-infusion model."[113] The Syrian strategy of siding with the US-led coalition during the Kuwait crisis in 1990, in contrast to the Jordanian strategy, paid off in financial and economic terms, and can therefore rightly be termed successful rentier crisis management.

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[111] The fact that external rents are available directly to the rentier state and may be redirected by the state towards the population according to political criteria, creates a situation characterised by a strong autonomy of the state vis-à-vis society.

[112] P. Pawelka (1993), *Der Vordere Orient und die Internationale Politik*. Stuttgart. p.109.

[113] L. Brand (2001), In Search of Budget Security. A Reexamination of Jordanian Foreign Policy. In: L.C. Brown (eds.), *Diplomacy in the Middle East. The International Relations of Regional and Outside Powers*. London. p. 153.

Another point that impedes Syrian co-operation with Israel relates to the structures of political power and political rule in Syria. For decades, Syria has instrumentalised its hard and uncompromising position towards Israel for internal purposes, both as a way of creating political legitimacy, and as a means of withholding and delaying necessary political and economic reforms.[114] In short, it seems justified to argue that the Syrian regime has little incentive to co-operate with Israel in general, let alone in water-related matters. Furthermore, the resolution of the Israeli-Syrian water conflict presupposes a solution to the territorial dispute and the security-related differences between the two countries. Nevertheless, we hold that negotiations to establish a certain, even very modest level of functional co-operation between the two countries, i.e. through participation in the discussions of the multilateral working group on water resources, could serve to build confidence.[115] So far, however, this functional approach has been blocked by the Syrian and Lebanese refusal to participate in the multilateral negotiations.[116] The Syrian reasoning for this boycott of the multilateral negotiations is that functional co-operation with Israel would imply a *de facto* recognition of the state of Israel. Furthermore, Syria defends the point that there should be no negotiations on minor regional issues (such as water resources) before the core political and security issues between Syria and Israel have been resolved bilaterally.

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[114] See V. Perthes (2001), The Political Economy of the Syrian Succession. *Survival*, Vol. 43(1), pp. 143-154.

[115] Sceptics might question, however, the prospects of achieving co-operation via a functionalist approach, given the previous failure of such an approach during the Johnston negotiations of the 1950s. See above. On functional theory in general, see D. Mitrany (1975), *The Functional Theory of Politics*. New York.

[116] J. Peters (1996), *Pathways to Peace. The Multilateral Arab-Israeli Peace Talks*. London. p. 17.

5.b. The Israeli-Palestinian water conflict

The Israeli-Palestinian water conflict centres around the use of the groundwater reserves in the West Bank and the Gaza Strip. The main groundwater resources in the region are the 'Mountain Aquifer' in the West Bank and the 'Coastal Aquifer' on Israel's Mediterranean shores and the Gaza Strip. The 'Mountain Aquifer' lies under the central area of the occupied Palestinian Territories and a strip of adjacent Israeli territory. The aquifer is estimated to provide some 680 mcm of freshwater per year.[117] Israel has a renewable annual water supply of approximately 1800 mcm; of this 60 percent is groundwater and 40 percent surface water (almost entirely from the Jordan River system). The waters from the 'Mountain Aquifer' thus contribute about a quarter of Israel's annual water budget.[118] The roughly two million Palestinians on the West Bank consume about 110 mcm per annum, 90 percent of which is groundwater.[119] The Gaza Strip, with a population of over one million, depends completely on the 60 mcm of annual groundwater recharge, but actually uses some 115 mcm per annum. The difference is made up by over-pumping the shallow coastal aquifer, resulting in dangerous salt-water intrusion of existing wells.[120]

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[117] S. Libiszewski (1995), Das Wasser im Nahostfriedensprozeß – Konfliktstrukturen und bisherige Vertragswerke unter wasserpolitischer Perspektive. *Orient* 36(4), p. 632.

[118] *Ibid.*, p. 632. Cockburn (2002) mentions that these waters contribute about a third to Israel's annual water budget. See: A. Cockburn (2002), Lines in the Sand. Deadly Times in the West Bank and Gaza. *National Geographic*, Vol. 202(4), pp. 102-111.

[119] A. Wolf and J. Ross (1992), The Impact of Scarce Water Resources on the Arab-Israeli Conflict. *Natural Resources Journal* 32(4), p. 925.

[120] *Ibid.*

On a local level, water disputes between Palestinian and Jewish communities over the utilisation of single sources and wells date back to the beginning of Jewish immigration to historical Palestine in the early 20th century. However, on a broader level, the water conflict between Israel and the Palestinians has its origins in the June 1967 war, and concerns the asymmetric distribution of these non-renewable groundwater resources during the subsequent Israeli occupation. After the war of 1967 and the occupation of the Palestinian West Bank and Gaza Strip, Israeli military commanders became responsible for the governance of these Occupied Territories. A series of military orders put the exploitation of water resources under strict control of the Israeli administration, thereby severely limiting Palestinian use. Examples include the prohibition of Palestinians to drill wells without prior official permission from one of the two Israeli Civil Administrations, *Tahal* or *Mekorot*, strict regulations regarding the depth of the wells in the West Bank (with Palestinians being allowed to drill only shallow wells of some 60-140 meters, while the official state institution *Mekorot*, which provided the Jewish settlers with fresh water, preferred wells of 300-400 meters), and thirdly a prohibition of reforestation of certain areas. The result of these measures was often arbitrary and unequal, especially in view of the fact that Israeli occupation permits had been granted for just 23 wells in the West Bank.[121]

Furthermore, the use of more powerful water installations and deeper wells in the Jewish settlements caused the older Palestinian wells to dry out. Most of

[121] J. Isaac (1995), Core Issues of the Palestinian-Israeli Water Dispute. In: K.R. Spillmannand and G. Bächler (eds.), *Environmental Crisis: Regional Conflicts and Ways of Co-operation. Proceedings of an International Conference at Centro Stefano Franscini, Ascona/ Switzerland, 2-7 October, 1994*. ENCOP Occasional Paper, No. 14. Swiss Federal Institute of Technology/ Swiss Peace Foundation: Zürich/Bern.

the Palestinian villagers are not connected to a water-works. People had to rely on tankers or women to carry water from distant wells for their daily needs.[122] The closure of the Palestinian Territories by Israel since the outbreak of the *Al-Aqsa Intifada*, as well as property damage, led to severe water shortages in some areas. As a result, the price of tanked water increased from US$ 2.5/m^3 to US$ 7.5/m^3.[123]

The Israeli-Palestinian water conflict is further intensified through the existence of about 170,000 Israeli settlers in the West Bank and the Gaza Strip, and about 180,000 in East Jerusalem, who are generally supplied with water from local sources, thereby increasing the burden on the limited water supply in the Occupied Territories.[124] Moreover, to exacerbate tensions between settlers and the indigenous Pales-tinian population, the settlers were systematically favoured over their Palestinian neighbours regarding water allocation, regularity of supply, and pricing. While in 1988/89 Jewish settlers in the West Bank had at their disposal 40-50 mcm of water per annum for a population of approximately 70,000, Palestinian consumption amounted to 125 mcm for one million people, thus showing a ratio in per capita use of nearly 6:1 in favour of the settlers. In the Gaza Strip, despite relatively low total consumption by the settlers, per capita ratio of use between the two communities shows even more disproportionate levels of 12:1 and more.[125]

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[122] S. Deconinck (2002), *Israeli water policy in a regional context of conflict: prospects for sustainable development for Israelis and Palestinians?* Ghent/ Belgium: University of Ghent - Centre for Sustainable Development. Online at:
http://waternet.rug.ac.be/waterpolicy.htm

[123] Economist Intelligence Unit (2002), *Country Profile – Israel and the Palestinian Territories: 2002*. London. p. 77.

[124] *Ibid.*, p. 61.

[125] See M. Lowi (1993), *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin*. Cambridge. p. 189 and K. Assaf, N. al-Khatib, E. Kally, and H. Shuval (1993), *A*

A final feature of the dispute is the Palestinian claim on a share of the Jordan River. The Palestinians are currently totally excluded from using the river, though the West Bank is a full riparian for a length of about 60 kilometres and even takes its name from its location relative to it. According to informal provisions in the 1955 Johnston Plan, between 70 and 150 mcm of the Yarmouk waters were supposed to be used in the West Bank.[126]

With regard to the current state of the Israeli-Palestinian water conflict, it becomes immediately obvious that the water dispute is linked in closest possible terms to the unresolved political questions of an eventual state of Palestine. Besides the surface water from the Jordan River, the dispute includes the question of who has the right to utilise the groundwater resources in the West Bank. The main item of dispute concerns the issue of a future Palestinian state and its eventual territorial borders. The question is whether a future Palestinian state will receive full sovereignty and hence all the rights over the groundwater resources in its territory (particularly in the West Bank), or whether a future Palestinian state will enjoy only partial autonomy while the rights to the groundwater resources continue to rest with Israel. A separate reso-

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Proposal for the Development of a Regional Water Master Plan. Jerusalem: Israel/Palestine Centre for Research and Information IPCRI. p. 98. As quoted in: S. Libiszewski (1995), *Water Disputes in the Jordan Basin Region and their Role in the Resolution of the Arab-Israeli Conflict*. ENCOP Occasional Paper No. 13. Center for Security Policy and Conflict Research/ Swiss Peace Foundation. Zürich/ Bern, August 1995.

[126] See A. Wolf and J. Ross (1992), The Impact of Scarce Water Resources on the Arab-Israeli Conflict. *Natural Resources Journal* 32(4), p. 947. This amount was, of course, part of the Jordanian share at the time.

lution of the water conflict between Israel and the Palestinian Authority (PA) is thus not conceivable without a resolution of the other political and territorial issues. The water conflict and the actual Palestinian conflict can only be resolved in conjunction.

The interim agreement between the PA and Israel of 28 September 1995 (Oslo II) provides concrete steps for an improvement of the fresh water supply in the Palestinian territories, and represents a symbolic acceptance of Palestinian water rights.[127] A final resolution of the status of groundwater resources and definite water distribution quotas was, however, postponed to a later date. Consequently, the Palestinians receive about 28 mcm per annum of fresh water over a transitional period, which represents an increase of 12% to the pre-treaty water supply. Furthermore, the PA has permission to develop the ground water resources in the Eastern part of the West Bank (the 'Eastern Aquifer'). Hitherto these additional water resources have not yet been developed, although Israel has been commissioned under the treaty to help the PA in its development. Given the breakdown of the current peace process, the development of these water resources is postponed until a renewed initiative launches a new peace process. It remains to be seen to what extent the "Road Map to Israeli-Palestinian Peace", released by the Quartet (the US Administration, the European Union, the United Nations and Russia) on 30 April 2003, will help to bring progress on the water issue.[128] The interim agreement of September

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[127] For the full text of the Interim Agreement, see: Interim Agreement Between the State of Israel and the Palestinian Authority on the West Bank and the Gaza Strip (1995). In: W. Scheumann and M. Schiffler (eds.), *Water in the Middle East. Potential for Conflict and Prospects for Cooperation*. Berlin. pp. 167ff. Online at http://www.mfa.gov.il/mfa

[128] The full text of the Road Map has been published in French in *Le Monde*, 3 May 2003, p. 13 and in English at http://www.mideastweb.org

1995 also saw the setting up of a Joint Water Committee to deal with practical issues of water management. Despite the current breakdown of the peace process, this joint committee continues to operate to this day.[129]

The new distribution of water resources was expected to ameliorate the dire situation of the Palestinian population in the West Bank and the Gaza Strip, and indeed did so to a certain degree. It did not, however, resolve the underlying political conflict. The question of the rights to groundwater resources in the West Bank remains unresolved just as do the final distribution quotas. A further completely unresolved issue concerns the Palestinian claims to the surface water on the lower Jordan River.

In conclusion, it needs to be stressed again that the specific Israeli-Palestinian water conflict and the overall Palestinian conflict can only be resolved jointly, in the sense that progress in the politically delicate questions should be matched with concrete steps for co-operation in the more technical field of water utilisation and water management. This co-operation – at least in theory – could then in turn strengthen confidence between the two parties and make new political progress possible. In view of the current violent situation (the *Al-Aqsa Intifada* since Autumn 2000 and the ensuing Israeli repression) and the ultimate breakdown of the Oslo peace process, even these hopes for slow but consistent progress seem remote and somewhat unrealistic. It remains to be seen, as has already been said, whether the current US administration is

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[129] See Z. Schiff (2001), Israel-PA Cooperation in Water: the One Exception. *Ha'aretz,* 13 February 2001. The English text can be found online at http://www.cdn-friends-icej.ca/isreport/janfeb01/water.html. See also E. Kintisch (2003), Israeli-Palestinian strife continues, but sides cooperate on water issues. *Jewish Telegraphic Agency*, 4 March 2003. The article may be accessed online at http://www.jta.org/page_view_story.asp?intarticleid=12499&intcategoryid=1.

committed to re-launching another round of peace negotiations and to serve once again as interlocutor.

The announcement of a "road map for peace", which will eventually see the formation of a Palestinian state by 2005, may serve as an indicator that things are to change. Until this process has been formally launched, however, and as long as it remains unclear as to how committed all the parties (including the USA) are in fully pursuing this "road map to peace", the chances of further co-operation in the field of water issues, or even the final resolution of one of the outstanding water conflicts in the Jordan River Basin (i.e. the Israeli-Syrian conflict or the Israeli-Palestinian conflict) seem, for the time being, to be rather slim.

6

General theoretical assessment of the hydro-political situation in the Jordan River Basin

The analysis of the political factors underlying the water conflicts in the Jordan River Basin over the last fifty years has suggested two main findings: Firstly, water has more often than not been the source of co-operation between the riparian states of the Jordan River, rather than the source of conflict. While those who propagate water as an element of conflict and who discuss the prospects of 'water wars' in the Middle East seem to have some evidence on their side, opponents of this view point to the many examples of co-operative behaviour in water-related matters over the last decades, and particularly in recent years. While there is no denying the fact that the history of hydro-politics in the Middle East during the second half of the 20th century has seen occasional armed hostility, it is nevertheless equally true that water issues have been only *one* factor among many others contributing to these armed hostilities.

This can best be illustrated in the Jordanian-Israeli case, where the 'Common Agenda for Peace' of October 1992 mentions water as *one* aspect among several. Other aspects to be resolved between the two parties include the general security situation, refugees and displaced persons, borders, and territorial matters. Interestingly enough, the initial letter of invitation to

the Bilateral Negotiations in 1991, issued by the American Secretary of State, James Baker, did not even include water issues as a point for negotiation.[130] Similarly, in the Israeli-Palestinian case the 'Declaration of Principles on Palestinian Self-Rule' (Oslo I Accords) of September 1993 mentioned five issues to be resolved in the subsequent negotiations: Jerusalem, territorial boundaries, settlements, refugees, and water.[131] Once again, the question of water is mentioned among several other conflictual issues to be resolved through negotiations. When numerous issues are at stake, linkages in negotiations become likely – and almost inevitable. However, the political significance of some of the issues between Israelis and Palestinians, like the status of Jerusalem or the final definition of borders, most likely overwhelm other issues, such as joint water management or the right of return for refugees, even if, admittedly, these are strategically profound.[132]

Further examples for the argument that water has played only a minor role in the peace negotiations during the 1990s – and hence logically in the previous conflict – can be found in the Camp David II talks between Israelis and Palestinians in July 2000, and in the Taba negotiations the following year, as well as in the Saudi Peace Plan of March 2002, where water issues either did not play a considerable role in the negotiations or – as in the Saudi Peace Plan – were not mentioned at all.[133]

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[130] M.J. Haddadin (2002), *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. Dordrecht. pp. 486-491 and 496-498.

[131] S. Elmusa (1996), *Negotiating Water: Israel and the Palestinians*. Washington, DC.

[132] J.A. Allan (2002), Hydro-Peace in the Middle East: Why no Water Wars? A Case Study of the Jordan River Basin. *SAIS Review* 22(2), p. 258.

[133] A. Hanieh (2001), The Camp David Papers. *Journal of Palestine Studies* 30(2), pp. 75-97.

Secondly, the analysis of the political factors of the water conflicts of the region has highlighted several *internal* and *domestic factors* contributing to the high water demand in all the states of the region. Consequently, it can be argued that the solution to the current water problems in the Jordan Valley lies in a *de*-politisation of the agrarian water usage of the region's freshwater resources. While many of the currently discussed solutions to the water problem in the region, for example water imports (through either a "peace-pipeline", as originally proposed by the Turkish Prime Minster, Turgut Özal, or through transportation on ships), desalination plants or the Red Sea-Dead Sea Canal, may be theoretically possible, they remain economically and politically costly. By simply focusing on gaining additional water resources and proposing only supply-side solutions, the fundamental problem of the water issue in the Middle East cannot be resolved. Rather, a demand-side policy aimed at reducing the high proportion of water attributed to the agricultural sector in each of the region's countries would make more sense and offer the greatest prospects for saving water. Obstacles remain for such a policy, however, given the political and ideological role of agriculture in Israel, Jordan and Syria.[134] In order to tackle the "diseconomies dictated by ideology",[135] a two-pronged

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[134] Not surprisingly, therefore, the Israeli government announced in August 2002 its renewed commitment to the import-scheme. It agreed to purchase 50 mcm of water from Turkey each year for the next 20 years – totalling one billion m^3 at an estimated rate of $0,80 per m^3. See S. Deconinck (2002), *Israeli water policy in a regional context of conflict: prospects for sustainable development for Israelis and Palestinians?* Ghent/ Belgium: University of Ghent - Centre for Sustainable Development. Online at:
http://waternet.rug.ac.be/waterpolicy.htm

[135] See J. Renger and A. Thiele (1996), Politische Verteilungskonflikte um Wasserressourcen. Wassernutzung und Wasserverteilung im Jordanbecken. Israel und seine

strategy of water management seems necessary. On the one hand, this includes the development of so far unused water resources and, on the other, the saving of water through more efficient use of existing resources. This latter aspect includes providing incentives for water recycling, reducing direct subsidies on agriculture, and developing market-based water prices.

A separation of these two strategies does not seem very promising, since suspension of the demand-side strategy of saving water would certainly encourage the continued wasteful use of freshwater resources, and would further undermine the still unresolved question of water distribution and the open question of water rights. The key to a sustainable solution lies, therefore, in a reduction of the "thirsty agricultural sectors". This demands a *de*-politisation of agrarian water consumption. In view of the political and ideological constraints attached to the agricultural sector in all the riparian states in the Jordan River Basin, however, such a policy change seems unlikely. The chances for further cooperation in the field of water issues or even the final resolution of one of the outstanding water conflicts in the Jordan River Basin thus appear rather limited for the time being.

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arabischen Nachbarn. *Der Bürger im Staat* 46(1), p. 82 and A. Wolf and J. Ross (1992), The Impact of Scarce Water Resources on the Arab-Israeli Conflict. *Natural Resources Journal* 32(4), p. 953.

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PSIS Occasional Paper Number 1 | 2004
ISBN 2-8288-0055-5

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