

Questioning the Water-War Phenomenon in the Jordan Basin

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Since the early to mid-1980s, it has been argued that the scarcity of shared fresh water resources in the Jordan River basin would be a primary issue threat to the region's security. This view is reflected in the rapidly growing volume of academic works dealing with this issue, as well as in the levels of tension manifest in interriparian relations. For the purpose of this article, scarcity means a perceived or known shortage of water resources so as to constitute a factor capable of impeding a state's economic progress. Scarcity of resources enters the domain of interstate relations where one state withholds supply from another to score political objectives by undermining that other's capacity to achieve economic development goals.¹ The mere threat to do so might also be sufficient to impair a state's ability to have or resume normal relations (absence of conflict).

The record of the countries of the Jordan basin (Jordan, Israel, Syria, Lebanon and the Palestinian entity, whose final status is still in the process of elaboration) on the politics of shared water resources *does*, at first glance, appear to correspond with the definition above. The extent to which it *really* does will be examined in the latter parts of this article. The issue deserving urgent attention at this point, however, is what might be the reasons for the sudden, rapid and rather intense debate about conflict over water resources in the Jordan basin?

1. Increased research and understanding of the relationship between environmental scarcity and international security. Equally important, during the last two decades, the linkage between environmental degradation and human security gained currency among security analysts, academics and the public as part of a new global security agenda.²
2. The creation of states with artificial boundaries that clearly breached the basin's unitary water system.³ Newly created states and borders along with notions of nationalism and identity have also distorted the demographic and ethnic cohesion of the entire region. ⁴ Such factors aggravated ethnic, religious and nationalist differences among the inhabitants of the basin. Not surprisingly, therefore, the basin contains all the elements of a water-conflict scenario. Moreover, the basin states' heavy reliance on waters originating outside their respective borders became a recipe for friction as well as opportunity for stronger states to exert pressure on partner riparians by withholding the flow of water resources to achieve political goals.
3. The decline of East-West rivalry. During the last decade or so, this has manifested itself in different ways in the Middle East, as in other parts of the developing world, permitting a greater scope for debate on other

security issues. Contemporary sources of international insecurity had been overshadowed by the high politics of the Cold War. While this might be considered a matter of fact, it is important to observe that the security agenda for the region is subject to external influences and susceptible to change and capable of redefinition in accordance with the demands of the great powers' security structure and vision.

This article will examine the extent to which one could attribute past conflict in the basin to water scarcity ("water wars") and the probability that water scarcity might become a source of future conflict in the region. I will examine the June 1967 Arab-Israeli conflict as a case study to cast doubt on its suitability as an illustration of regional conflict over water. This will involve drawing on representative samples of the water literature: diagnosing the problem and constructing the water conflict frame of analysis. Attention will then shift to a potential resolution of the politics of water in the basin: free-market strategy to control rising demand.

THE WATER-WAR THESIS

In the Jordan-basin countries, as in the rest of the world, water availability and quality are directly linked to the social and economic well-being of societies and states. However, given the convoluted characteristics of the Middle Eastern politics in a variety of contexts, the linkage between water and conflict does not emerge as one that could be ascertained with ease. This condition was best described by Naff and Matson (1984) in their classic study *Water In The Middle East: Conflict Or Cooperation?*

Few regions of the planet offer a more varied physiography or richer mix of ethnicities [and] religions.... Out of this compound, one issue emerges as the most conspicuous, cross-cutting and problematic: water - or rather its scarcity.⁵

Such a portrayal not only reflects the existence of a problem, but also implies societal and inter-statal violence. They argued that in the 1980s or soon afterward the region would be on the brink of water conflict as "key states" in the region would find themselves desperately short of the means of economic development.

Other grounds for building the case for water and conflict are, according to Gleick (1993), the "clear connection," "the degree of scarcity," the "extent to which the water supply is shared by more than one region or state," "the relative power of the basin states," the "ease of access to alternative fresh water sources," and the official rhetoric of water war.⁶ I will argue that most of the evidence gathered to construct the water-war thesis is either speculative, based on intelligent calculations (hence the forecast of doomsday) or obsolete because much of the evidence used to substantiate the forecasts is largely ahistorical.

THE WATER FACTOR IN THE 1967 ARAB-ISRAELI CONFLICT

Perhaps the most regularly quoted case study for the illustration of Middle East conflict over water is the June 1967 Arab-Israeli war.⁷ This analysis is based almost entirely on a selection of events and water-related incidents in isolation from the overall political, strategic and other relevant factors that are usually at play in international relations. A war such as that of 1967 has complex causes,⁸ however, a simplistic approach might at first glance appear convincing.

First, prior to the outbreak of war, the water resources in the basin were the subject of much interriparian controversy and discussion at the U.N. Security Council.⁹ Tension over water in the basin also led to a high-level diplomatic intervention by the Eisenhower administration: the Johnston negotiation, 1953-55.¹⁰ The failure of the negotiation and Israel's determination to develop a country-wide water supply and distribution system, the National Water Carrier (NWC), caused tremendous unease among Arab states. At the Arab League, it was resolved to impair Israeli hydrological development objectives by diverting the upper Jordan River sources to Syria and Lebanon.¹¹ Israel warned that diversion of this life line would leave the state with no choice but to react decisively; military attacks on the diversion sites thwarted the Arab project completely.

Second, as a result of the war, Israel seized the West Bank, Gaza Strip and the Golan Heights (sources of more than 40 percent of the basin waters), and its borders reached closer proximity with Lebanon's Litani and Syria's Yarmouk rivers. These events constitute the frame of analysis from which the water-war thesis is derived. Certainly, there were intense periods in riparian relations over water, and the resources were used as an instrument as well as a target of state aggression. Whether this conclusion warrants describing the 1967 conflict as a water war will be discussed below. At this point it is worth observing some of the arguments in the water-war case.

WATER AS *THE* MAIN FACTOR

Samman (1992), for example, argued that one "ought to define the relationship between water security and the war ... of 1967" to establish that "water security was a principal reason for war, if not the ... main reason." He added, "Israel's desire to increase its water supplies and agricultural area impelled it to start two wars in the region." Samman continues, "Water in the Arab-Israeli struggle is exactly like blood. It is a question of life and death. In the 1967 war and those which followed it ... water was the true background."¹² Similarly, Cooley (1984) noted that the 1967 conflict was for control of the waters of the Jordan River and its sources and that it set the stage for battle over the Litani River waters of Lebanon.¹³ In the conspiracy-ridden politics of the basin, Frederic Hof (1985) went so far as to say that "[b]y October 1968 the water controversy, a dispute which led to the third Arab-Israeli war [1967], and which for two decades had imperiled Lebanon's sovereignty over the southern districts, had faded considerably."¹⁴

To the extent that water is believed to have been the main factor in the 1967 conflict, some writers have predicted that it would also be the cause of future conflicts in the region. In a similarly dramatic but more speculative fashion, Bulloch and Darwish (1993) wrote in *Water Wars*: "when next it [war] comes, as come it will, ... every confrontation in the future will be affected by the hydrography of the region. Water wars are on the way."¹⁵ It is reasonable to doubt such arguments on the grounds that no war in the Middle East or anywhere else could be attributed to one single factor.

WATER AS A MAIN FACTOR

Proponents of this view are less committed to the water-war thesis. They concede that an amalgam of factors might have been responsible for the outbreak of war, yet seem to consider the water factor determinant in influencing its course as well as its outcome. The following set of examples is illustrative of the analysis.¹⁶ Gleick argues that since Israel's seizure of the territory on the western bank of the Jordan guaranteed a continuous and secure flow of about 40 percent of the state's total annual water supplies, Israel would not relinquish control over the territory. This is not so different from saying "... Jordanian and Palestinian 'incorrect drilling applications,' which seriously affected Israeli aquifers, were one of the main reasons behind the war of 1967...."¹⁷ According to Hillel (1994), Israeli perception of the Syrian threat to the safe flow of the upper Jordan River sources into Israel "contributed indirectly to the war of 1967."¹⁸ This view is concurrent with Rowley's (1993) contention that the decision by the Arab League to divert the sources of the upper Jordan culminated in "a... 'dangerous and provocative' step leading to the Six-Day War."¹⁹

This body of evidence is real but not impenetrable. The following discussion will provide the case against the water-war thesis by drawing out more feasible and stronger factors to which the 1967 war could be justifiably attributed.

REBUTTING THE WATER-WAR THESIS

It is useful to compare water in Arab Israeli relations with nuclear weapons in East-West relations. Nuclear weapons were during the Cold War an issue of great strategic concern and posed a real threat to global security, but never were nuclear weapons what the Cold War was about. It was an ideological conflict. And water is not what ArabIsraeli wars were about. Rather, water increased the intensity of a historical conflict between two religious and ideological entities that clashed for the first time in 1300 years when Arab and Jewish nationalism gathered momentum in the early twentieth century.

By the time the war of June 1967 broke out, Israel had thwarted all neighboring states' efforts to use water resources as a target or instrument of aggression. Consequently, the Arab riparians came to the quiet realization that this water was a losing card in their hand, for it failed to achieve the intended objectives.²⁰ In addition, only by evaluating the broad picture of the region's international relations - suppressed in most of the water literature - could one assess the influence of water resources in the 1967 war. The abrupt end of the

1948 war and the signing of General Armistice Agreements (GAAs) on the Greek Island of Rhodes are, for this purpose, a suitable starting point.

Although it may be argued that no war is inevitable, the 1967 war was a tragedy waiting to happen.²¹ This extrapolation is based on the legacies of the 1948 war:

1. The defeat of Arab armies by the newly proclaimed Israeli state created a thick and dangerous gloom that hovered over the region until the late 1960s.
2. The progress of battle was halted under pressure from the international community, and GAAs, intended as a first step toward peace, were signed.
3. The GAAs were exploited as a wait-and-see tactic by the warring states rather than a respite during which the wounds of defeat and euphoria of victory could turn into peaceful settlements.
4. Border lines multiplied and territorial disputes intensified between Israel and neighboring Arab states, especially on the Syrian-Israeli frontiers, where water resource development was involved.²²
5. The war signaled Israel's geostrategic vulnerability to hostile attacks.
6. Neither the GAAs, the Mixed Armistice Commissions (MACs) nor superpower diplomacy were effective in relaxing tension in the basin region.

The water factor seems thus marginal or at least non-critical.²³ The 1967 conflict was an extension of the 1948 war.

Gleick's formula establishing the sort of geopolitical and environmental conditions under which water resources in the Jordan basin were (and could again be) the cause of conflict is well-reasoned and comprehensive. However, it is far too broad and does not endure close scrutiny. It fails to explain, first, why Israel fought hard battles to capture the forbiddingly arid Negev region. According to Katz and Sandler (1995), territorial depth was Israel's most urgent consideration.²⁴ This point was clearly defined by then-General Shimon Peres, who wrote in his autobiography,

The Six-Day War changed this ... [territorial vulnerability]. The territory controlled by Israel since June 10, 1967, is four times its previous territory- 88,000 km² (of which 60,000 km² are in Sinai), while the length of her land borders has contracted to a quarter of what they were - 254 km (and 1,000 km of sea border) This picture also explains Israel's anxiety about the territories in her hands.²⁵

Then-Minister of Defense Moshe Dayan also spoke of the threat posed by Syrian artillery stationed on the Golan Heights and mentioned water resources with no apparent emphasis.²⁶ In addition, Chief-of-Staff Yitzhak Rabin appeared to have had no plans for the conquest of the Heights (origin of the Banias tributary). He noted that he was awakened to the news of the Golan campaign.²⁷

Second, Gleick's as well as others' analyses overlook the fact that Israel did not need to take physical control of the West Bank to exploit its groundwater resources. Israel had been exploiting those sources uninterrupted since before the establishment of the State of Israel.²⁸ Moreover, it is worth noting that the political and economic impact of scarcity is taken for granted. "Nature does not know water shortages; it is we who perceive and suffer the shortage."²⁹ This is a call for doubting how frighteningly scarce water is in the Jordan basin. As Berck and Lipow put it,

Despite current water shortages and popular anxiety, water is not likely to constrain economic growth in the Near East. The region's sustainable water supply is more than sufficient to ensure adequate resources for significant population growth as well as rapid industrial expansion in Israel, the West Bank and Gaza. Current water shortages are the result of insufficient water policies that have channeled water to low- or even negative-value uses.³⁰

What is even more disappointing is that the water-war literature, especially the post-peace works, fail to highlight the positive progress in Arab-Israeli relations marked by the parties' agreement to negotiate peace in 1991. Since then, two water agreements were signed between Israel and the Palestinian National Authority and between Israel and Jordan in 1994 and 1995, respectively.³¹

The linkage between water and conflict in the context of Arab-Israeli relations was dismissed by Elmusa (1996), who described as "imperativists" those who try to establish it. He argued that "just as the fact that Israel benefited tremendously from cheap Palestinian labor does not suggest that it would have fought a war for it." Elmusa noted that "research on the events that culminated in the 1967 war ... reveals that water was not a strong factor, if a factor at all, in the eruption of the war."³²

There are sufficient grounds, according to Beaumont (1994), for believing that future conflicts over water in the Jordan basin are a "myth."³³ He argues that it is in the interest of the Jordan riparians to continue to link water politics with the geostrategy of the region to ensure the continuation of superpower support and involvement in the predicaments of the countries of the Middle East. Elsewhere, Beaumont (1997) argues that a state might use water resources as a "pretext to begin offensive activities" with a view to defuse internal political divisions," and might be used as a "public relations" stance.³⁴ In other words, water resources are not worth fighting for, yet their importance could be amplified disproportionately to justify whatever policy objective a state might have in mind. Bar-Tai et al. (1995) observed that the diversity in Israel's domestic politics, for example, is capable of manipulating "emotionally highly charged terms" such as "security"

to persuade, to cajole, to justify and to legitimate ... divergent outlooks within the Israeli political spectrum. Security has an emotive power that political interest groups in Israel press into service and use as expressive weapons in their struggle for dominance and control. Thus, it is being adopted equally by doves and hawks to legitimate radically different agendas concerning the Arab-Israeli conflict.³⁵

Another argument against future water conflicts was posed by Waterbury (1994), who observed that, given the power of distribution and location of states in a shared water basin, solutions "can be imposed" by the "dominant power." Through "hegemonies" or "involuntary" solutions, he argued, the tendency of a state to go to war to maximize its advantage in the basin by challenging the position of another riparian partner would be greatly diminished.³⁶

A CLAIMS-VERIFICATION TEST

To help distinguish between reality and myth-making, below is a six-point formula against which a given claim may be evaluated.

1. Is water scarcity a problem that could undermine the level of economic progress as well as political stability in the basin states?
2. Have water resources been defined by the states concerned as a national-security interest, a threat to which would culminate in war?
3. Has there been an instance where a state declared war against another with the sole purpose of capturing new water resources belonging to another?
4. Has one state declared war against another to recover water resources that were lost to that other state in a previous conflict?
5. Where, upon the capture of new water resources belonging to another state or upon the regaining of lost waters, have hostilities ceased?
6. Are factors other than water interests - political, military-strategic, ideological or historical - capable of leading riparian partners to engage in armed conflict?

If the response to the first five questions is positive, then water wars are a true phenomenon, and the answer to question six becomes non-critical to the inquiry unless the answer is yes. In such a case, those other factors only exacerbated a realistic water-war scenario. On the other hand, if the answer to the first five questions is negative, then water wars are a myth, or the variables employed to establish the linkage between water and war are in need of revision. Consequently, *ayes* to question six would be critical to the inquiry, in which case, water might have played a subordinate but exacerbating role in the conflict. However, were the answer to the first five questions a mixture of yes and no, proponents of the water-war thesis ought to be given the benefit of the doubt, provided explicit mention of the relative influence of factors other than water is made absolutely clear.

The ensuing discussion seeks to evaluate the commodification of water as a strategy that would reduce interstate tension over water and overcome the scarcity predicament facing the Jordan basin states. The analysis will proceed on the basis that water resources are an issue of grave importance for the health and economic well-being of the basin states. Nevertheless, the commodification of water resources is an ill-fated measure that would not only delay political solution to the water problem, but also hamper progress toward improved relations between age-old foes.

MARKET SOLUTIONS TO WATER POLITICS

Water-related problems in the basin are extraordinarily complex. Their solution must not be based on the pretense that they can be isolated from national and strategic interests. Solutions to water-related problems, particularly shortages, through pricing in a market environment are creditable, for they seek to remove water from the basin's security equation and turn it into an issue that fosters cooperation. But, commendable as this creative pursuit might be, it is still problematic. The main force behind economics-oriented solutions is scarcity rather than an unequivocal belief in the commercial viability of the resource, whereby water traders and consumers benefit from the enterprise. Clearly, the paramount objective of implementing a water market is to cause demand levels to drop to match supply levels.

Although this section is not concerned with the mechanics of water markets, certain concepts and principles (water pricing, subsidies, "allocative" and "productive" efficiency) will be examined.³⁷ The main focus, however, will be on the conditions that render the idea of a water market in the Jordan basin a mere theoretical exercise. To address this issue, the following set of questions should set the stage for analysis. What are the prerequisites for a successful water market? And what are the national (domestic) as well as regional implications of setting a water market in motion under the current sociopolitical and economic conditions?

The World Bank concluded in 1994 that water quality and shortages in the coming decades would become a grave problem affecting the quality of life as well as a source of international instability in regions of the developing world. These problems have been attributed to resource scarcity, increased demand and poor planning.³⁸ Therefore, the Bank encourages policy makers in water-stressed regions to adopt the necessary measures to ensure that water-related problems are addressed. Among the measures suggested are pollution control, conservation and putting a monetary value on water. These objectives were elegantly packaged by World Bank Vice-president Ismael Seragedin. He declared that the "pricing of water is an absolute necessity to reduce waste. Once you start pricing, for the middle class it becomes worthwhile to invest in water, ... and for the poor, there is incentive to save water, to fix the leaky faucet."³⁹ In the context of the Jordan basin, the *Financial Times* commented that a monetary value for water could alleviate the possibilities of conflict.⁴⁰

The question of how much water is worth has prompted a great many suggestions: (1) The price of water can be calculated on the basis of "the cost of substituting for it in imported food." This is what Allan (1996) described as "virtual water." Water wasted by states trying to achieve food self-sufficiency could be diverted to less water-intensive purposes and food items could be purchased on the world market. (2) "One cannot value water at more than the cost of replacing it"; therefore, "desalination represents a cap on the value of water."⁴¹ Ideally, every economic enterprise ought to be conducted on the basis that both suppliers and consumers of a commodity would benefit from the transaction. In the case of water resources, the state or a basin-wide water authority would be the supplier and the citizens (households, the farming and manufacturing industries) the consumers.⁴²

According to Article 40 of the Israeli Palestinian Interim Water Agreement of September 1995, "The purchasers [of water] shall pay the full real cost incurred by the supplier, including the cost of production at the source and the conveyance all the way to the point of delivery."⁴³ In principle, water pricing is a sound proposition, as it aims to combat shortages by controlling demand and creating the incentive for conservation. However, the following analysis reveals that such a strategy could be counterproductive in the short as well as long terms. First, the

sociopolitical infrastructure in the majority of states in the Jordan basin cannot cope with the austere demands of an efficient free-market environment without sacrificing the jobs and way of life of most farmers. During the 1980s, when the cotton and citrus markets plummeted, 30 percent of Israeli small holders' cooperative agricultural settlements went into bankruptcy.⁴⁴ This is just an example of the farmers' vulnerability to the uncertainties embedded in a free market economy. Pricing water could, therefore, be too costly in political terms: it could undermine the very ethos upon which a nation and its identity are founded. In Israel, the state's objective is to root its people in the land. Economic returns are a secondary aim,⁴⁵ as has been clearly manifest at any given period in the recent history of the state.

Second, under such conditions, the extent to which the basin countries' economies can cope with the dynamics of a water market is, at best, relative and, at worst, incredibly limited. The economic situation in the Palestinian territories offers a stark illustration of this contention. The U.N. special coordinator in the occupied territories (UNSCO) reported that between 1992 and 1996 the per capita GNP in the Gaza Strip and the West Bank declined by about 38.8 percent and continues to decline.⁴⁶ This situation hardly compares with the World Bank's view on the Middle East. In 1994, it was estimated that "the region requires at least 3-percent annual growth in income per head to secure political stability."⁴⁷

When the World Bank urges that the Middle East and North Africa no longer treat water as a free resource, it is being too prescriptive and insensitive to specific community or state requirements. It overlooks the complexity of the relationship between a given state and its citizens on the one hand, and among riparian states on the other. Naff (1985) once argued that ill-thought-out hydrological development policies in Lebanon during the 1950s and 1960s were one of the factors that contributed to subsequent civil strife.⁴⁸ Ten years later, Naff adopted the cause of water-demand control mechanisms through economic means. He suggested that politicians in the Jordan basin should have the courage to "say to a group of constituent farmers that in order to reduce demand and conserve water for the nation they must give up profitable but high-water-consuming crops." This, he added, would "distinguish the petty politician and demagogue from the statesman."⁴⁹ Given Naff's analysis of the relationship between hydro politics and security, the two positions could hardly be reconcilable.

Third, despite increased public and official alarm in the basin caused by worsening scarcity and the genuine desire to reduce the pressures of demand, governments continue to subsidize water supplied to domestic and industrial consumers.⁵⁰ This should not be interpreted as a lack of courage on the part of policy makers in the basin; rather it is a pragmatic approach to a brutish reality that market forces could not tame. Again, the case of Israel illustrates this condition best. Between 1986 and 1994, of the 80 percent of the nation's total renewable water resources devoted to agriculture, the state reduced water used in agriculture by 25-29 percent without necessarily jeopardizing the agricultural sector. At the same time, between 1967 and 1995, Israel's defense establishment [remained] so convinced of the military value of agricultural settlement that a specialized unit of the Israel Defence Forces, the "Nahal" Brigade, is dedicated to the continual development of new agricultural settlements, although such operations disrupt training and impose financial burdens.⁵¹

In the light of these conditions, both the recommendations of the World Bank and academic works concerned with water related problems- mainly scarcity-would be reduced to unworkable absurdities. What Allan (1994) termed "hydro-paranoia" has been turned into a market paranoia.

Finally, the breakthrough in Arab Israeli relations signified by peace agreements between Israel and the Palestinians in 1993 and Israel and Jordan in 1994 ushered in a new era in water

politics. The peace process raised hopes that interriparian cooperation to resolve the basin's worst plagues-political conflict and water scarcity - was closer to being realized than at any time before. The high expectations were justifiable, especially because water agreements and rights were, for the first time, officially recognized. To put matters in perspective, two fundamental issues must be closely scrutinized: the water politics in Palestinian Israeli relations and Syrian and Lebanese water politics in the overall context of the basin. Four years after the Oslo accords, Israeli settlers used about 354 cubic meters per capita per year and paid \$0.15 per cubic meter. West Bank Palestinians, on the other hand, used under 119 cubic meters per capita per year and paid \$0.35 per cubic meter.⁵² In addition, the same restrictions imposed by Israel prior to 1991 on Palestinian utilization of water resources remain intact.⁵³

Another sobering factor is the apparent lack of progress in Israeli-Syrian and Israeli-Lebanese peace talks. With respect to water, neither Syria nor Lebanon has been prepared to negotiate the issue unless Israel withdrew its forces from the Golan Heights and its South Lebanon's "security zone." This is not a surprising phenomenon; it reinforces the argument that water is not the issue of conflict between Israel and Arab riparian partners, but rather a matter that could be ironed out once an acceptable territorial settlement has been effected. In addition, it blows a large hole in the argument for a water market in the basin.

The justifications for this apparently skeptical view are (i) trade in water resources could only be realizable when all the states in the basin are prepared to negotiate a water trade, (ii) the idea of a water market in the basin aims, ultimately, to promote cooperation for the creation of a water regime (an all-basin water authority) in which both Syria and Lebanon ought to be included. Provided they exploited their waters efficiently, these two states are capable of producing surplus water that could be channeled towards more thirsty riparians. (iii) Commodification of water is by no means the way to avert conflict among the basin states over water or other issues. Recent history has proved that the commodification of natural resources such as oil does not prevent conflict.

CONCLUSION

The purpose of this article has not been to diminish the importance of water resources for the security and well-being of the states sharing the Jordan basin waters. Rather, I have sought to advocate caution and avoid conjecture. Water resources ought to be viewed from the overall context of the region's geopolitical strategic infrastructure. It is possible to treat the water issue in isolation from other interests and build up a nightmare scenario for the Middle East, particularly in the Jordan basin. But wars are not inevitable.

The Middle Eastern water dilemma is largely caused and compounded by two enormous realities: water scarcity and the way the problem is perceived and dealt with. Thus far, a great deal has been said, but little has been done. Moreover, schemes that have been proposed or undertaken seem to be impractical, based on false assumptions, politically unfeasible and exclusionary. This is not to say that positive steps have not been taken to identify the nature of the predicament. However, the challenges that still lie ahead demand that there be the political will to resolve water-related matters equitably at a basin-wide level instead of using water as a means to finding solutions to political or military-strategic interests of a particular party.

Solutions to disputed borders, territories and issues of sovereignty must be settled to the satisfaction of all interested parties to ensure that water resources do not become a convenient pretext for disagreement or for the imposition of solutions. Desalination could be made

affordable by reducing expenditure on instruments of war. And perhaps the European Union might make its assistance to the region conditional on cooperation among the parties on water problems and hydrological development. A region that has the Mediterranean Sea on one side and the Red Sea on another should not cry scarcity.

1 Judith Rees, *Natural Resources: A/location, Economics and Policy* (London: Routledge, 1990), p. 31.

2 For a debate on this issue, see, for example, Thomas F. Homer-Dixon, "Global Environmental Change and International Security," in *Building a New Global Order: Emerging Trends in International Security*, eds. David Dewitt et al. (Toronto: Oxford University Press, 1993), pp. 185-228; Brian R. Shaw, "When are Environmental Issues Security Issues," *Environmental Change and Security Project* (Washington, DC: The Woodrow Wilson Center, 1996), Issue 2, pp. 39-44.

3 The boundaries of the basin countries were arbitrarily drawn by British and French map-makers during the early 1920s for administrative convenience and as part of package dealing between the contending powers. See Fredric C. Hof, *Galilee Divided: the Israel-Lebanon Frontier, 1916-1984* (London: Westview Press, 1985), pp. 17-21; H.F. Frischwasser-Raanan, *Frontiers of a Nation: A Re-examination of the Forces Which Created the Palestine Mandate and Determined its Territorial Shape* (The Batchworth Press, 1955), pp. 97-141; Adam Garfinkle, *War, Water and Negotiation in the Middle East: The Case of Palestine-Syria Border, 1916- 1 923* (Israel: Grapf-Chen Press Ltd., 1994), pp. 127-137.

4 The transboundary movement of people and the demographic chaos that resulted from the creation of artificial lines was probably best illustrated by Yehuda Karmon, "The Drainage of the Huleh Swamps," *Geographic Review*, Vol. I, April 1960, p. 91. He gave a graphic description of how everyday life and commercial interaction among the communities living in regions adjacent to the new border lines were interrupted.

5 Thomas Naff and Ruth Matson, *Water in the Middle East: Conflict or Cooperation* (Westview Press: Boulder, 1984), p. 1.

6 Peter H. Gleick, "Reducing Risks of Conflict Over Fresh Water Resources in the Middle East" in *Water and Peace in the Middle East*, eds. J. Isaac and H. Shuval (Elsevier, 1994), pp. 42-44.

7 Gwyn Rowley, "Multinational and National Competition for Water in the Middle East: Towards the Deepening Crisis," *Journal of Environmental Management*, Vol. 39, 1993; Joe Stork, "Water and Israel's Occupation Strategy," *MERIP Reports*, Vol. 13, Part 6, July-August 1983, pp. 19-24; John Cooley, "The War Over Water," *Foreign Policy*, No. 54, Spring 1984, pp. 3-25; Thomas Stauffer, "Arab Waters in Israeli Calculations: The Benefits of War and the Costs of Peace," in *Israel and Arab Water*, eds. Abdel Majeed Farid and Hussein Sirriyeh (Ithaca Press, 1985).

8 There are numerous theories on the causation of war. See, for example, Keith L. Nelson and Spencer C. Olin, Jr., *Why War? Ideology, Theory and History* (London: University of California Press, 1979); Hidemi Suganami, *On Causes of War* (Oxford: Oxford University Press, 1996, 1997); Timothy M. Shaw, ed., *The Many Faces of Security In the Middle East* (London: Macmillan, 1993); Charles D. Smith, *Palestine and the Arab-Israeli Conflict* (New York: St. Martin's Press, 1996), especially Chapters 7, 8 and 9.

9 Samir N. Saliba, *The Jordan River Dispute* (The Hague: Martinus Nijhoff, 1968), pp. 26-31.

10 Miriam Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin* (Cambridge: Cambridge University Press, 1993), p. 100.

11 Sarni Hadawi, *Bitter Harvest: Palestine Between 1914-1967* (New York: The New World Press, 1967), pp. 284-285.

12 Nabil Samman, *The Water War. From the Euphrates to the Nile* (Arabic) (Amman, 1992), pp. 18-19.

13 John Cooley, "Lebanon Fears Loss of Water to Israel," *Christian Science Monitor*, Vol. 23, March 1978, p. 3.

- 14 Hof op. cit. Hof argued that "The Zionists, having been frustrated by maladroit British diplomacy and French obstinacy over sixty years ago, bided their time and finally struck in 1982, at long last achieving their cherished goal," i.e., capturing the waters of the Litani River, p. 38.
- 15 John Bulloch and Adel Darwish, *Water Wars: Coming Conflicts in the Middle East* (Victor Gollancz, 1993), pp. 1998-99.
- 16 It should be noted that the 1967 conflict is just one of the examples which Gleick sought to invoke to make his point. Among other examples were the 1991 Gulf conflict, the Vietnam War, the Korean War and some ancient conflict in Mesopotamia. All were supposed to have been water related. See Peter H. Gleick, "Fresh Water Resources and International Security," *International Security*, Vol. 18, No. I, Summer 1993, pp. 90-94.
- 17 Helena Lindholm, "Water and the Arab-Israeli Conflict," in *Hydropolitics: Conflicts over Water as a Development Constraint*, ed. Leif Ohlsson (London: Zed Books, 1995), p. 71.
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- 19 Rowley, p. 91.
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