“If the people in the region are not clever enough to discuss a mutual solution to the problem of water scarcity, then war is unavoidable.”

Water and conflict have different ways of overlapping. First, water scarcity in a region shared by different peoples can lead to competition, and – together with political, economic and socio-cultural factors – sometimes it is also an important conflict factor. Second, the control over water resources or the military targeting of water infrastructure can be used as a weapon to harm one’s opponent. Third, cooperation over water resources and joint development projects are possible, and may be an important source of confidence-building, potentially creating a positive “spill-over” even in non-water areas.

The Middle East is one of the tensest areas of the world and, as recent incidents show, the danger of war is not yet averted. Conflicts in the region are determined by deep political differences. However, hydrological matters represent an additional dimension to the Arab-Israeli conflict, a dimension the relative importance of which has been growing over recent years (Libiszewski 1995, p. 7). This article looks into different approaches of dealing with water issues in the process of peace negotiations in the Middle East. The reasons are outlined why one should foster cooperation rather than unilateral action on water management. The consequences from lack of cooperation have not only a detrimental effect on the water situation, but also severe socio-economic and political consequences.
Dwindling Water Resources in the Middle East

Water scarcity has been increasing year by year. Obviously, countries of the region will try to compete and exploit all available water resources, including the international ones. Overexploitation, especially of aquifers, and increased pollution of the waters, are today taking place in the Gaza Strip and in the West Bank at the expense of the coming generations. This may eventually create greater suffering and instability in the future. A
solution to the hydrological crisis is certainly not a sufficient condition for a lasting peace in the Middle East, but it is nevertheless an indispensable one. (Libiszewski 1995, p. 7).

<table>
<thead>
<tr>
<th>Water Withdrawals</th>
<th>Safe Yield</th>
<th>Israel</th>
<th>Palestine</th>
<th>Jordan (incl. Wadis)</th>
<th>Syria</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan River Basin</td>
<td>1320</td>
<td>645</td>
<td>0</td>
<td>350</td>
<td>ca. 200</td>
<td>1195</td>
</tr>
<tr>
<td>Mountain Aquifer West</td>
<td>679</td>
<td>487</td>
<td>121</td>
<td>-</td>
<td>-</td>
<td>608</td>
</tr>
<tr>
<td>Bank, Israel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coastal Aquifer Israel</td>
<td>240</td>
<td>240</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>240</td>
</tr>
<tr>
<td>Coastal Aquifer Gaza Strip</td>
<td>55</td>
<td>-</td>
<td>108</td>
<td>-</td>
<td>-</td>
<td>108</td>
</tr>
<tr>
<td>Other Aquifers Israel</td>
<td>215</td>
<td>283</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>283</td>
</tr>
<tr>
<td>Aquifer Jordan</td>
<td>275</td>
<td>-</td>
<td>-</td>
<td>507</td>
<td>-</td>
<td>507</td>
</tr>
<tr>
<td>Total</td>
<td>2784</td>
<td>1655</td>
<td>229</td>
<td>857</td>
<td>ca. 200</td>
<td>2941</td>
</tr>
</tbody>
</table>

Table 1: Water Resources and Withdrawals in the Middle East 1995 (in million cubic meters per year). “Safe Yield” means the estimate of the average renewable amount of water (Dombrowsky, 2003).

International water disputes in the Middle East have the potential of triggering and fuelling conflicts as well as threatening stability. On top of that, mismanagement of precious water resources has deteriorated already scarce resources. There is a constant challenge for national governments in providing safe water for drinking and agriculture to their rapidly increasing populations (Trondalen 2006, p. 5). Per capita water consumption in the Palestinian households lie far below 100 liters per day, which is the minimal requirement for health and sanitation fixed by the WHO. Also water quality, especially in the Gaza Strip, is below health-sustaining standards. (Dombrowsky 2003, p. 732).

<table>
<thead>
<tr>
<th>Population (in millions)</th>
<th>Total Water Consumption (mcm, in million cubic meters)</th>
<th>Agricultural (in %)</th>
<th>Industrial (in %)</th>
<th>Domestic (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Israel (1993)</td>
<td>5.1</td>
<td>1,754 mcm</td>
<td>63</td>
<td>6</td>
</tr>
<tr>
<td>Jordan (1992)</td>
<td>4.3</td>
<td>875 mcm</td>
<td>74</td>
<td>5</td>
</tr>
<tr>
<td>Palestine (1990 est.) (West Bank/Gaza)</td>
<td>1.8</td>
<td>210 mcm</td>
<td>62</td>
<td>38*</td>
</tr>
<tr>
<td>Lebanon (1990 est.)</td>
<td>3.3</td>
<td>1,060 mcm</td>
<td>74</td>
<td>7</td>
</tr>
<tr>
<td>Syria (1990 est.)</td>
<td>12.5</td>
<td>9,500 mcm</td>
<td>79</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 2: Water consumption by sector. * In the figures for the West Bank and Gaza Strip domestic and industrial consumption is accounted together. Note that Palestinian water resources, especially in the Gaza Strip, are highly over-used (Libiszewski 1995).

Many of the contested international shared water resources require some sort of agreed-upon arrangement, which provides for reasonable allocation and sharing of water (Trondalen 2006, p. 5). Many countries lack the capacity and have serious challenges in managing these international water resources, most notably with respect to the new ones (like the international transportation of water and the development of non-conventional water...
resources) (Trondalen 2006, p. 5). The rich economy of Israel seems to be the only one in the region to cope with this kind of new challenge According to UNCTAD, the Palestinian economy has been seriously affected by Israel’s recent measures, both strategic (e.g., building of the wall) and practical (e.g., border controls) measures. The organization argues that if Palestine’s economical development is hindered, a serious burden on future peace processes will be imposed (Wartenweiler 2006, p. 29).

In the future, non-conventional water resources, including desalination and international transportation of water by ships and pipes, are going to create new ways of cooperation. These new challenges will have to be handled under new co-operative modes (Trondalen 2006, p. 4). So far, the Israeli removal of 500 millions cubic meters of water from the Lake Tiberias and consequently from the Jordan River, has added to the tensions between the riparians. In 2005, Israel started to construct one of the biggest desalination plants of seawater from the Mediterranean in Ashkelon (annual production: 100 millions cubic meters drinking water). This newly available water might mitigate the dispute over water from the Jordan River between the Israel, Syria, Palestine and Jordan (Sauer 2006, p. 65).

Water as a Source of Conflict in the Middle East
Water resources in the Middle East are scarce by nature, and most of them are transboundary. Moreover, the catchment areas of water systems often coincide with disputed land. Competition over the use of shared resources is therefore pre-programmed. Israel, for example, receives more than half of its water resources from occupied Arab territories. Therefore territorial and hydropolitical interests are highly intertwined in the Arab-Israeli conflict (Libiszewski 1995, p. 7).

The area from which Israel has most recently withdrawn its settlers has been the hydrologically uninteresting Gaza Strip, where only minor aquifers can be tackled for water supply. Notably, the recently constructed wall in the West Bank between Salem and Alkana reallocates many wells to the Israeli side, out of Palestinian reach. These wells, collectively known as the Mountain Aquifer in the West Bank, are the most important water source in Israel and Palestine (Messerschmid 2003).

Water as a Weapon in the Conflict
Water-related infrastructure has been a military target of numerous skirmishes and wars throughout the course of the Arab-Israeli conflict. Since the early 1950s, when the Syrians fired at the Israeli Water Carrier (Israel’s main water works), through the first anti-Israeli military attacks of the PLO in 1964, up to the Israeli air strikes against Syrian and Jordanian diversion facilities in the second half of the 1960s, hydrological installations have always been a preferred target for actions aimed at weakening or castigating the enemy. Admittedly, this link must be regarded as a military instrument rather than as a causing dimension of conflict. Nevertheless, it emphasizes the importance given to water within the framework of the dispute. As water supplies and delivery systems become increasingly sensitive in water scarce regions, their value also increases as military targets (Libiszewski 1995, p. 102). To cite an up-to-date example, the first targets of the recent Israeli aggression in the Gaza Strip were the infrastructures of the towns and villages, among them the supplies for water and energy (Khalifa 2006, p. 37).

Another example regards the joint Israeli-Palestine water committee that has been founded in the scope of the Oslo agreement. It has been working despite the al-Aqsa Intifada. On January 31, 2001, the committee appealed to the conflict parties not to damage water infrastructure, due to the connection of Israeli and Palestinian water pipes and its civil purpose (Information Division, Israel Foreign Ministry; Jerusalem, 01.02.2001; cited in: Polkehn 2001). However, the Israeli secretary of infrastructure, Avig-dor Lieberman, warned that the water
supply of Palestinian residents could be completely cut off by the Israeli water system, if the Intifada persisted (Sadanand, Nanjundiah; Central Connecticut State University; cited in: Polkehn 2001).

The Role of Water in the Peace Process
Based on a historic analysis of Middle East occurrences, Aaron T. Wolf contends: 1) water as a strategic resource has played a larger role in regional conflict than is generally known; 2) water issues have precipitated some conflict and added to existing tensions in the region; and 3) occasionally, water issues have led to dialogue and attempts at cooperation (Wolf 1995). If emphasis is placed on easing regional water tensions, some breathing space might be gained, allowing for more complex political and historical difficulties to be negotiated. It has been shown that people who will not talk together about history or politics will do so when their lives and economies depend on it. (Wolf 1995).

During the course of the Middle East peace talks, several agreements between Israel, Palestine and Jordan were concluded which contain provisions on water: 1) Israeli-Jordanian peace treaty of 1994; 2) Interim (Oslo B) Agreement between Israelis and Palestinians of 1995; and 3) Trilateral Declaration of Principles for cooperation on water-related matters (1996) (Dombrowsky 2003, p. 734).

On the various bilateral tracks of the Middle East peace negotiations, water concerns are interlinked in different ways with political and territorial core issues of the conflict. Hydrological issues have been treated in all major agreements achieved so far. The most far-reaching results were obtained in Israel-Jordan negotiations where the water issue could be regarded as a genuine hydrological concern, quite independent from the other political dispute. The bilateral Peace Treaty of October 1994, besides clarifying the distribution of shared resources, explicitly lists a series of concrete water projects to be carried out in common (Libiszewski 1995, p. 92).

Hydropolitical negotiations on the Israeli-Syrian-Lebanese and Israeli-Palestinian track of the peace process are less advanced than those between Israel and Jordan. In the first case the water question is mainly to be regarded as part of strategic concerns and is thus subordinate to settling this dimension of the conflict (Libiszewski 1995, p. 95). Intensified interactions have been impeded so far by Syria’s and Lebanon’s boycott of the multilateral talks. The negotiation about an international agreement with Israel would have implied its political recognition (Dombrowsky 2003, p. 735). Future involvement of these two countries in the multilateral process seems therefore of great importance and should be encouraged (Libiszewski 1995, p. 95).

The Israeli-Palestinian water conflict will only be solvable through a combination of partial redistribution and future-oriented cooperation. Early progress in this field might intensify interactions and create functional interdependencies, thus fostering readiness of the parties to make compromises in the political core issues. Above all, concrete improvements in the water supply on the ground are needed. Beside political considerations, this is imposed by humanitarian concerns. By improving living conditions of the people, such a confidence-building step could demonstrate to the Palestinians that Israel is willing to seek a just and equitable solution to the water dispute.

The main reason that technical aspects of water management are not separable from the political problem of water distribution lies in the fact that improved management is normally coupled with high economic, social, and/or political costs. Each party will compare the costs of additional water with the costs of conventional resources. And no party will agree to expensive solutions if it believes it has outstanding claims to existing supplies (Libiszewski 1995, p. 94).

Concluding Remarks
The countries in the Middle East should decide whether to establish a regional mechanism on how to cooperate in the field of water resources management. It should especially be viewed against the alternative costs of doing nothing. Any regional mechanism has to tread a fine line between what some of the countries in the Middle East might consider being infringement of national sovereignty and areas that obviously are of international, rather than isolated national, concerns (Trondalen 2006, p. 9). The Arab League rejects any kind of ratification of an international agreement with Israel because this would imply its political recognition (Dombrowsky 2003, p. 735). However, the fact that some rivers and aquifers are shared necessitates some sort of basic cooperation.

Regional water management is intended both as a tool to alleviate the water crisis itself and as a vehicle to foster understanding and establishment of interdependencies among parties of the Arab-Israeli conflict. In the tradition of the functionalist and neo-functionalist schools of thought, the hope is that by creating a new perception of shared needs and interests, cooperation in the field of water could ease resolution of the underlying political conflict. Furthermore, cooperation on international water resources would significantly improve the management of those resources. However, the experiences made so far in the peace process showed that cooperation in the field of improving water management cannot be achieved independently of settling disputes on distribution of existing resources. On the contrary, one formula for success achieved in the Israel-Jordan peace treaty was the explicit combination of political and technical approaches within the same legal regime. Settlement of the distribution conflict was the prerequisite for making the provisions on envisaged cooperation possible. On the other hand, concrete projects fixed in the treaty helped overcome the zero-sum game on the distribution question and thus made a compromise easier (Libiszewski 1995, p. 93). However, the cases of Lebanon and Palestine do not yet illustrate such cooperation and benefits. This might be explained by a lack of national capacity in managing international cooperation of waters (Trondalen 2006, p. 9).

The present hydropolitical situation in the Middle East is one of intricate problems and delicate solutions. The distribution of scarce water resources in the Jordan River watershed is particularly precarious. The dangers of conflict and the opportunities for cooperation are both growing, as annual supplies are reached and often surpassed (Wolf 1995). It has been shown that, just as nations have shaped the flow of water, so, too, did water shape the face of history. As Middle East peace negotiations attempt to lift the riparians of the Jordan River watershed incrementally out of a perpetual cycle of violence, water can continue to “lead” the process towards ever-increasing cooperation (Wolf, 1995).

References


Economists for Peace and Security
http://www.epsusa.org