A Game Changer For Israel, Palestine, And The Middle East

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Coping with future water crises, wherever they may arise, will require efficient, adaptable and sustainable water management. It will also require ways of resolving water disputes. Nowhere is this more evident than in the Middle East, and in particular, in the context of the Israeli-Palestinian conflict.

Putting a Value On Water
Everyone knows that water is essential for human life. We need it for drinking, for bathing, for irrigating our crops, and for watering our livestock, among other things.

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Indeed, while water can be considered an economic good, it is a good with important special attributes that affect not only individuals but entire societies. For example, there are environmental effects of water use: mismanagement of water resources can have dramatic impacts on the environment that transcend personal property and even national borders. Similarly, there are clear social and economic considerations that impact the relative value of water - for example, many countries financially subsidize water for agriculture, implying that water used for agriculture has value to society as a whole, distinct from its value to the individual farmers involved.

Finally, water, whether abundant or scarce, has a value to a country as a whole. For any country with a seacoast,
the cost of seawater desalination puts an upper bound (a ceiling) on the value of water. For such a country, the value of water at the coast is no more than the cost of desalination. Realizing this leads to an important tool for resolving conflicts over existing water resources, in the Middle East and elsewhere.

Models for Smart Water Management & Cooperation

The idea that the next war in the Middle East will be about water is a myth - provided that potential disputants think about the matter rationally. Rational thinking about water requires thinking about the value of water rather than just its quantity and location, or disputes over ownership of it. Two important models have been developed to facilitate such rational thinking: “Water Allocation System” (WAS) and its improved successor, “Multi-Year Water Allocation System” (MYWAS). These models analyze information on current and potential future water sources, water-related infrastructure and demand for water. The resulting information can be the basis of smart decision-making on water-related issues, from conservation to new infrastructure development.

The models also take into account constraints that reflect, for a given country or conflict, the relevant social values for water. For example, extra importance might be placed on setting aside water for environmental purposes, subsidizing water for agriculture, or ensuring affordable water for the needy. Taking these constraints and values into account, the models optimize the benefits to be obtained from the available water.

In terms of water management, MYWAS empowers planners to specify a menu of possible infrastructure projects. The model then yields the optimal infrastructure plan, based on costs and benefits, specifying which projects should be built, in what order, and to what capacity. This feature is important not only to water planners but also to prospective donors and to firms engaged in the construction of water infrastructure.

The model can also be used to examine the effect of different climate change scenarios, for example, analyzing the optimal actions to be taken in case of drought. In addition, and perhaps most importantly for decision-making, MYWAS can determine the value of water for a country or region as a whole, or in the different geographic districts within a country, and how that changes over time. Beyond this, however, MYWAS can be used to guide mutually beneficial cooperation in water. By placing an objective monetary value on water for a given area, WAS/ MYWAS empowers countries - including countries in conflict over water resources - to voluntarily buy and sell short-term use of water resources, for mutual benefit. The seller would receive money it values more than the water it gives up; the buyer would receive water it values more than the money it pays.

Such buying and selling of short-term use would not prejudice any unresolved claims to ownership of the resource. Indeed, MYWAS enables all sides to enjoy the benefits from cooperative commerce in water, without waiting for an agreement on ownership. The parties could establish an escrow fund into which they would each pay (at MYWAS values) when using the disputed water sources. The resolution of the ownership question would then become a matter of resolving the ownership of the escrow fund - a much simpler matter than a conflict over water itself.

This is true whether the conflicts arise between countries or different water sectors within a single country. Given the likely increase in frequency and duration of extreme events, this approach builds in flexibility and adaptability in water systems necessary for the future.

Water and Building Regional Cooperation (and Supporting Peace)

Thus MYWAS can guide regional cooperation in water to the benefit of all parties. In the Middle East, Palestine is far ahead in the development and use of a MYWAS model. Lebanon and Jordan have each expressed a commitment to consider and use the MYWAS at least for their own domestic purposes. There are signs of renewed interest in Israel. All of these parties would gain not only domestically but also from cooperation, as would Syria.

Another cooperative arrangement among Iraq, Syria and Turkey with respect to the Euphrates would benefit all three parties. Further west, the perpetual problems of Egypt, and the other countries through which the Nile River flows, could be resolved, to the benefit of all. Similarly, the seven Emirates could benefit from MYWAS-guided cooperation. Most important, perhaps, MYWAS could help resolve the Israeli-Palestinian and Israeli-Arab conflicts.
For example, a principal part of water-related conflict between Israel and the Palestinians is the disputed West Bank Mountain Aquifer, a key water resource. For Israel and Palestine, the desalination upper bound implies that ownership of 100 million cubic meters per year of water from this aquifer is worth not more than $20 million per year (the cost of desalination on the coast, less the costs of pumping and conveying the aquifer water to Tel Aviv or Gaza). This is not worth continued tension, let alone war. Moreover, the WAS model shows that for 2020, Israel, Jordan, and Palestine gain, regardless of the allocation of water ownership among them, from cooperation in the use of water. Gains from such cooperation would be largest for Palestine, ranging between about $110 million to $220 million per year of additional water (depending on the assumptions as to who owns water). Israel would gain about $7 million to $103 million per year, and Jordan about $8 million to about $37 million per year.

By contrast, under the cooperative system, the value of a 10% shift in the ownership of the disputed Mountain Aquifer would only be about $15 million per year, and the gains from a similar percentage shift in the ownership of the disputed Jordan River (claimed by Israel, Jordan, and Palestine) about $25 million per year. This means that, for Palestine in particular, the gains from cooperation in the use of water are far larger than the gains from a shift in ownership. This does not pre-judge final ownership, which, in due course, the parties can resolve through negotiations.

Furthermore, according to the model, both Palestine and Israel would gain from the construction of a sewage treatment plant in Gaza, with the treated water sold to Israel for agricultural use in the Negev. This means that Israel would have a financial incentive to assist in financing such a plant. Alternatively, outside donors might do so to facilitate cooperation and conflict resolution between the two parties. While, at present, Israel has not agreed to such cooperation, there might be a prospect of involving Israel in connection with the Arab Peace Initiative.

Finally, there are other important benefits to MYWAS-guided cooperation. In particular, as populations and other factors change, an agreement on the quantities of water that two or more parties can extract from a source, such as the Nile River, can easily become out-of-date and a source of new tension. MYWAS-guided cooperation provides a flexible means of adjusting water usage among countries as economic needs evolve over time, so that all parties benefit.

Water: Not a Problem, But a Solution

For the purpose of achieving efficient, adaptable and sustainable water management, there are now commitments to proceed with WAS and MYWAS in Jordan, Lebanon, and Palestine. All Middle Eastern states can benefit from these tools and their use can lead to cooperation and problem-solving among those states themselves and between those states and Israel - to the benefit of all parties.

The challenges to peace in the Middle East are many. Water should not be among them. Rather, it should be a source of beneficial, tangible cooperation and problem-solving that can help strengthen the basis for peace. Properly sponsored, there is a great opportunity here, both in the Middle East and around the world.

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