



Joint management of shared aquifers

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MOST NATURAL RESOURCES HAVE been the source of international controversy and conflicts. The fact that nature does not always draw its boundaries to coincide with the designs of man makes it imperative for people, who otherwise would have been outside the political influences of events, to be dragged in. In many cases shared groundwater aquifers have been the cause of international tension for several years. Some states with shared aquifers have solved their problems peacefully, others have reached agreement on joint management of the aquifers only after several wars – as in the case of India and Pakistan in the years in 1948, 1965, and 1971.

In the case of the Israeli-Palestinian water situation, the sources of surface water (Rivers Jordan and Yarmouk) and ground water supplies (the Mountain Aquifer and the Gaza Aquifer) cross the limits of their political boundaries so that other political entities such as Jordan, Syria, and Lebanon are indirectly associated. Allocation and management of transboundary water resources assumes great importance to the states affected, and all parties need to agree on their management.

The aquifers serve as the major long-term storage for the area as a whole, and are susceptible to overpumping and pollution. Such long-term storage is the central element in any water management system in a semi arid region, and thus availability of Israeli-Palestinian water resources is vital to both Israelis and Palestinians alike (Brooks 1992; Naff 1993; Medzini 1996).

Unless both sides cooperate and jointly manage their shared water they both stand to lose, in terms of the long-term viability of their water systems. In other words, the only real choice both sides face is between a lose-lose situation if they do not cooperate, and a potential win-win situation if they do. Information about technical elements of aquifer management, the issue of water rights and the division of water between the two parties is available in various other publications, and are discussed by Palestinian and Israeli representatives. This paper has a narrower scope, and will attempt to identify an appropriate institutional body for joint management of shared aquifers. It depends on the discussions and papers presented in three workshops held in Jerusalem in June 1994, November 1994 and 1996 on Joint Management of Shared Aquifers with the participation of Palestinian, Israeli, and international experts. (Feitelson and Haddad 1994; Haddad and Feitelson 1994). This paper considers the management of Israeli-Palestinian resources, and recommendations can be applied to other shared water resources.

What tasks should a joint aquifer management institute attempt?

Prior to development of a joint Palestinian-Israeli groundwater management institutional structure, it would be premature to consider details of planning, engineering, monitoring legal, economic, and administrative roles that such an institution could adopt (Eaton and Eaton 1994). However, it may be useful to consider a range of roles for such an institution as follows:

Planning, engineering and monitoring capabilities

- Initiate and coordinate research;
- Ensure that water rights of each party are honoured as determined by mutual agreement;
- Identify the location, volume, and quality of groundwater, by aquifer;
- Optimise utilisation of available waters;
- Collect and exchange relevant data concerning the transboundary aquifers;
- Monitor surface water discharges that could affect groundwater quality;
- Model groundwater migration, recharge, and depletion under various scenarios;
- Conduct geographical surveys and hydrological tests;
- Cooperate and collaborate in the development of transboundary aquifers (e.g., through artificial recharge); and
- Assess the quantity and quality of shared groundwater and surface water resources.

Legal capabilities

- The right to purchase water from local sources or from outside the area of jurisdiction;
- The right to spread surface water, including reclaimed waste-water, on the ground for water aquifer recharge;
- Authority to protect the aquifer from diminution of water quantity or quality and to control abstraction;
- Authority to borrow funds and let contracts; and
- Power to resolve disputes, subject to law.

Institutional capabilities

- Regional or multi-community support for aquifer management appropriate to the geographical scale of the area of jurisdiction;
- Internal expertise to be technically self-sufficient;
- Financial independence to be attractive to private financial markets for loans;

- Training and employment of local citizens so as to develop expertise; and
- Encouragement of public participation.

Setting up possible structures

There are many possible forms of joint management, and they are varying in their goals, means and levels of cooperation. This paper will identify one possible structure. The first stage in setting up possible structures for joint management of shared aquifers is the identification of the elements that should be included in every joint management structure. These elements include: mission and activities, governance, staff, decision making and dispute resolution, funding, and external involvement.

Constitution

The institutional body should be created in the form of a commission or authority, considering both Palestinians and Israelis to practice a defined variety of activities or functions.

Legal status and authority

The commission would need to be approved by both parties, represented by the two governments.

Staff

Each part should have the following specialists: hydrologist, hydrogeologist, economist, lawyer, biochemist, and administrative staff.

Structure

The proposed divisions for the commission are shown in Figure 1 and as follows:

1. Aquifer Planning and Monitoring Division with the following units: Design Unit, Quality and Protection Unit, Artificial Recharge Unit, and Drought and Flood Plans Unit;
2. Hydrological Division with two units: Hydrometrological Unit and Aquifer Model Unit;
3. Legal Division; and
4. Economics and Finances Division.

Decision-making

Both parties should be equally represented. In case of disagreement between the parties, a third party (an agreed impartial international body) should act as arbitrator.

Funding

The commission should have a budget that will be financed by the two respective governments. International institutions may also participate in funding for special problems that may arise.

External involvement

There should be full transparent co-ordination and co-operation between the commission and all concerned institutions at national and international levels, due to the sensitivity of the subject.

Conclusions

- Discussion of water issues in the Israeli-Palestinian context has so far focussed primarily on water quantities. It is very important to find mutually acceptable ways for joint management of the aquifers;
- It is useful to discuss joint management of shared aquifers specifically, rather than consider them as components of the overall water resources;
- Joint management is essentially an effort to identify win-win situations, in which both sides have mutual interests;
- It is essential to establish institutions for the joint management of the transboundary aquifer and to bring together Palestinian and Israeli specialists – possibly under the guidance of some international professional association- to lay the foundation on which a future commission could be built; and
- This paper advances one possible structure to joint manages shared aquifers. Determination of the full institutional structure is only possible when detailed institutional functions are determined.

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