

# **NEW TRENDS IN ISRAEL'S WATER LEGISLATION AND IMPLICATIONS FOR COOPERATIVE TRANSBOUNDARY MANAGEMENT**

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## **ABSTRACT**

Inasmuch as the interim Israeli-Palestinian agreement in water provides a reasonable institutional basis for transboundary cooperation, it is well to consider the adequacy of internal legal frameworks for addressing water management challenges. River and stream restoration received a major boom when Israel's Water Law was amended in 2004 to include nature as a legitimate recipient of water and required annual reporting from the Water Commissioner about the magnitude of allocations. Other areas, such as upgraded sewage treatment standards, river basin management authorities need to be improved if streams quality is to be improved. Runoff from highways and roads constitutes an environmental hazard that needs to have more specific statutory controls. A proposed amendment to the Water Law has been submitted to that end. Desalination, an emerging technological solution for water shortages is not regulated comprehensively in Israel yet and will require greater legislative attention. Water markets are also a likely way out of present Israeli-Palestinian tensions over water resources. Beginning with the Water and Sewage Corporation Law of 2001, Israel's legislation in the area of water began what appears to be a new stage in its evolution, with a move towards privatization. This paper considers the new directions that are emerging with regard to Israeli water legislation and their ultimate impact, if any, on cooperative ventures and management programs in the region.

**KEYWORDS:** water management, legislation, pollution, stream restoration, desalination

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## **INTRODUCTION**

From a legal perspective, meaningful cooperation in transboundary watersheds is a two-stage process.

- 1) An agreement is required between the two parties stipulating common objectives, an institutional framework for coordination and concrete areas of activity;
- 2) Subsequent internal “ratification” of the agreement by the parties must take place, including enactment of corresponding laws and regulations along with the allocation of sufficient human and economic resources for implementation.

Israel’s agreement with the Palestinians from September 28, 1995 in retrospect offers a reasonable basis for cooperation. The issue of water quantity allocation was largely left to be resolved in the negotiations over the final status. (Interim Agreement, 1995) But Article 40 of Annex III to the agreement contains much more than the rudiments of a transboundary water treaty. Indeed a Joint Water Committee created under section 11, is empowered with, with broad authorities to make managerial decisions, exchange information, grant licenses for wells, monitor and resolve disputes. The committee, comprised of an equal number of Palestinian and Israeli members, continues to meet and function, despite the almost complete breakdown of all other political structure created under the Oslo accords. This testifies to the “robustness” of

the institutional aspects of the agreement and the common perceptions of the parties that neither sides interests is served by conflict and disengagement on the water issues.

From the perspective of international legal theory, no less impressive is the “JSETs” – or “Joint Supervision and Enforcement Teams” created under section 17 of the agreement. This joint Palestinian/Israeli inspection framework, whose role is detailed in schedule 9 to the agreement, was be comprised of no less than two representatives from each side with parallel vehicles. The teams were given authorities to rectify a host of infringements from pirate extractions to contamination of aquifers and even ensure ”operation and maintenance of systems for collection, treatment, disposal and reuse, of domestic and industrial sewage, of urban and agricultural runoff, and of urban and agricultural drainage systems.” The JSET

framework offers a refreshing level of specificity and tangible commitment by the parties. In fact such a pragmatic approach to enforcement is unique in the international arena, even ten-years after its establishment. While political unrest has temporarily neutralized the JSET activities, the JWC continues to be a viable basis for dialogue and decisions.

In short, the agreement forged by Israeli and Palestinian diplomats almost a decade ago, at least formally, remains legally binding and is still a surprisingly innovative and effective instrument for ensuring cooperation. When one compares the existing Israeli/Palestinian agreement to the newer generation of transboundary water agreements (e.g., the Icomati basin agreement between South Africa, Swaziland and Mozambique or the Lake Peipsi arrangement reached between Estonia and Russia) (UNESCO, 2004) setting aside the issue of actual allocation, it seems more than a reasonable basis for continued cooperation. Hence, especially at a time of diplomatic stagmentation and enmity, it may not be a valuable use of time or energy to focus considerable efforts on envisioning the next “generation” of agreements. The present one offers a sound basis for the cooperative effort necessary to preserve shared Israeli and Palestinian water resources.

Rather, it would be well for both sides to “get their own house in order” legislatively. Ultimately, the dust will settle and the initial water quality and quantity challenges facing the two parties will remain unchanged, exacerbated if anything by the recent period of violence and environmental neglect. Ensuring that the ratification measures are in place, therefore constitutes a constructive response to the present breakdown for the Israeli and Palestinian water management communities. Presumably, when the peace process resumes, having the domestic legal frameworks required to address transboundary problems intact and operating will expedite the next stage of progress at the bi-lateral diplomatic level.

This paper, therefore, attempts to evaluate the sufficiency of the existing legal infrastructure in Israel in the context of transboundary management. Several revisions to Israeli law have implications regarding transboundary issues and are worthy of mention. The Palestinian National Authority has enacted a Water Law in 2002. A

comparable assessment of its provisions and other statutory or regulatory tools available to Palestinian water managers constitutes the other half of such an exercise and is beyond the scope of the present study.

Objective criteria for evaluating domestic implementation of transboundary water agreements have been proposed by Lindstrom (1997). In examining the prospects of successful application of the water management agreement in the Incomati Basin, she identifies some 28 principles by which local transboundary implementation can be assessed. These include checking: whether water law is consistent with a constitution and a bill of rights, if the catchment area is the administrative management unit, whether there is a minimum allocation for the environment, if the characteristics of the water are acknowledged, whether there is cooperation down stream users, etc.

While such formal tests offer an interesting basis for evaluation, they may ultimately offer only limited insights about the adequacy of the present legal Israeli or Palestinian frameworks in helping to resolve the sides' actual transboundary challenges. In such an assessment it is important to enhance the level of resolution and allow the substantive environmental or hydrological dynamics to drive the results of such an evaluation. Accordingly, a series of Israel/Palestinian transboundary water challenges were compiled and the specific adequacy of present Israeli laws for solving them considered. These issues include:

- Transboundary stream restoration;
- Pollution from highways and roads that cross geopolitical boundaries;
- Wastewater treatment standards;
- Desalination's cumulative environmental impact; and
- The establishment of water markets and privatization.

### **ISRAEL'S FRAMEWORK FOR WATER LEGISLATION**

Before embarking on this assessment, a cursory review of the history and provisions of Israel's water law is essential for understanding the legal framework for addressing transboundary issues. After presentation of this legislation, the treatment of the above issues under present Israeli laws will be discussed.

At the heart of Israel's water management legislation is the Water Law of 1959. The statute has been defined as essentially an "enabling act" that provides for government control over water resources and charges it with providing an orderly supply. (Laster, 1976). Institutionally, overall authority for execution is granted to the Minister of Infrastructure (previously Agriculture) while a Water Commissioner, as head of Israel's Water Commission, has responsibility for implementation. The law cancels private and riparian rights to water, making water the public property subject to control of the State. (Water Law, 1959).

For its first twelve years, the law had few provisions that focused on water quality protection, but this changed in 1971, with a comprehensive amendment in the form of an expanded section 20A. (Tal, 1994) Water pollution, broadly defined to include all point and nonpoint sources that change the physical, chemical or biological make up of water is largely prohibited. The Water Commissioner was granted extraordinary authorities to issue a series of "orders" to address pollution problems. Among these are "Clean Up" orders to return a water resource to its original states, "Allowing Orders" that are the functional equivalent of discharge permits and orders requiring submission of sewage plans. Most draconian are the power granted the Commissioner to issue a "Stopping" Order, which literally turns off the taps for anything but drinking water. (Water Law, 1971). Authorities to promulgate water quality protection regulations, that had been largely dormant under a series of Agricultural Ministers were transferred in 1989 to the newly established Ministry of Environment. While there has been a steady stream of new pollution control regulations promulgated by the Minister of Environment, (Tal, 2002) the requirement for broad governmental agreement prior to adoption, as well as the advisory role played by a lethargic Water Council dominated by agricultural interests has served to limit this process.

Other laws exist which are worthy of mention. These include a Water Drilling Control Law, a Drainage and Flood Control Law, a Streams and Springs Authorities Law, a Local Authorities Sewage Law, the Public Health Ordinance and a Licensing of Businesses Law. The myriad of legislation, some originating from the period of the British Mandate, constitutes a patchwork quilt, which covers the main

environmental concerns and hydrological supply matters. Yet, the past thirty years has seen little fundamental change in Israel's statutory framework for regulation of water resources.

### **STREAM RESTORATION**

Without cooperation between Israel and Palestine, it will not be possible to improve water quality in the area's streams. (Many are of the opinion that because of their diminutive size and flow, calling any of Israeli waterways "rivers" is a misnomer.) There are 15 streams that cross the Palestinian/Israeli border. Twelve of these are major streams that flow year-round in a westward direction toward the Mediterranean Sea. All of these involve watersheds that are partially located in the Palestinian Authority, or in lands that will eventually be outside Israeli jurisdiction, and then flow into Israel (these include: the Na'aman, Zipori, Kishon, Taninim, Hadera, Alexander, Yarkon, Ayalon, Soreq, Lachish, Bsor, and Beer Sheva Streams). Similarly, there are three major streams with easterly flow to the Dead Sea or Jordan River that originate in Israel and cross into the Palestinian Authority (the Harod, the Southern Jordan and the Og Stream). At least part of each of these streams can be defined as highly polluted, posing a health hazard to users, endangering flora and fauna and unfit for recreational or consumptive uses.

From a hydrological perspective, the watersheds that contribute to the streams of Palestine and Israel overlie the primary aquifers from which most of the area's drinking water is drawn. During the 1950s and 1960s, most streams were transformed into sewage conduits, with fresh water tapped at stream sources for purposes of irrigation. (Tal, 2002). Streams were frequently repositories for industrial wastes, agricultural discharges and even trash. Today, the beds of Israel's streams still contain chemical residues from this period, including heavy metals and organic chemical compounds leaving a toxic sludge at the river base. Opportunistic flora in some areas so thrived on organic loadings, that they clogged natural flow and even created floods due to impaired drainage during winter rains.

Several additional factors contribute to the severity of pollution in the area's streams. The region's climate is semi-arid with minimal exploitable surface water to support the region's rapid population growth and urbanization. Increasing demand for water has led to

overpumping of the available groundwater and thus a drying up of the headwaters of many streams. A range of pollutants including non-point agricultural runoff, urban stormwater and discharge from industrial sites can be found in many streams. Conventional wisdom suggests that the predominant component of the pollution profile in Palestinian and Israeli streams involves treated and occasionally untreated municipal wastes. (Avnimelech, 1999) Indeed, only 30% of the Palestinian population in the West Bank is connected to a sewage network, with the remainder relying on cesspools. (Palestinian National Authority, 2000). In the other direction, considerable portions of the sewage of Jerusalem flows into the east, reaching the Dead Sea after meandering through parts of the West Bank.

Strategically, there are three major efforts required to return the life to these transboundary streams:

- 1) Reduce pollution discharges to the watershed to a level that do not exceed the streams' carrying capacity;
- 2) Increase year round water allocations to ensure a sufficient supply for the aquatic ecological systems; and
- 3) Provide an institutional framework with authorities and resources to address the entire watershed.

A look at Israel's water legislation suggests that in theory, most of the legal components are in place to make the change.

As mentioned, under section 20B of the Water Law creates a blanket prohibition on discharges to surface and ground waters:

*20B (a) A person shall refrain from any act which directly or indirectly causes, or may cause, immediate or subsequent water pollution; and it shall be immaterial whether or not the water resource was polluted before the act.*

*(b) A person shall not throw, or cause to flow, into or near a water resource any liquid, solid, or gaseous substance or deposit any such substance in or near it.*

While clearly, the quality of the water in Israel's streams testifies to the inadequacy of enforcement, it is difficult to envision more draconian language by which to proscribe polluting discharges. The

need to upgrade certain existing standards will be addressed subsequently.

Sufficient allocations of water are an obvious problem in a water scarce region with burgeoning population levels. The problem is made more acute in many streams by the fact that naturally they are not perennial streams, and only flow year-round due to release of sewage effluents. To dilute these nutrient rich waters requires a substantial allocation. While the Water Commissioner in practice allowed for considerable water to flow into nature reserves, streams and other “ecological” uses, such allocations until recently had no basis in law. Under section 6 of the Water Law, water could only be utilized for the following purposes:

- (1) domestic purposes;
- (2) agriculture;
- (3) industry;
- (4) handicraft, commerce and services;
- (5) public services.

While, some commentators attempted to call natural systems “public services” it was an extreme stretch of interpretation and there still was no clear Parliamentary directive to consider the needs of nature in allocating water resources. This changed during the spring session of 2004 of Israel’s Knesset when Water Law Amendment #19 was enacted which added a sixth use for water: “protection of natural values and landscape, including springs, streams and aquatic-habitats. Moreover, the Water Commissioner is now required to submit an annual report to the Knesset on May first of each year documenting and justifying the extent of the country’s water allocations to nature.

Israel formally recognized the value of managing its rivers and streams under “River Authorities’ with the 1965 enactment of the Streams and Springs Authorities Law. In fact, it has been extremely sluggish in launching such a system. It took 23 years to actually establish the Yarkon Stream Authority and since then only the Kishon Stream Authority has been added as an active institution for basin-wide management. Funding remains weak and the Authorities suffer from limited powers of enforcement. Proposed legislation has been drafted but foundered. Recently, the Ministry of Environment and the

Water Commission have agreed to jointly draft a new, more effective legislation to expand watershed management, but given previous legislative proposals to this end by environmental law professor Reuven Laster and others, such a statute is probably years away. Ultimately, such watershed authorities will have to be linked with Palestinian partner institutions (or perhaps even merged) if they are to lead to meaningful progress in the 15 streams that cross the Israeli/Palestinian border.

### **SEWAGE TREATMENT STANDARDS**

The single largest contributor to nutrient and bacteriological contamination of Israel's surface and groundwaters is the discharge of sanitary wastes. While Israel has become a "world leader" in wastewater reuse, its standards have not been updated. The present "20-30" standard required of sewage treatment operators (20 for BOD – 30 for suspended solids) under the 1992 Public Health Standards (Standard Setting for Sewage Effluents) are based on European standards that assume a considerably higher degree of dilution in surface waters. They certainly did not consider the sensitivity of Israel's ground water or the fact that the flow of many streams is comprised entirely of effluent itself.

For some time there has been an effort to upgrade these standards. The "Inbar" interministerial committee formally submitted its recommendations in 2002. The standards appear in Table 1. Headed by a Deputy-Director General of the Ministry of Environment, the proposed regulations would establishing a two-tier system, setting standards for release in Israel's streams and tougher controls for irrigation control. The list of pollutants was dramatically expanded. Some experts, in particular, former Israeli Water Commissioner, Technion Professor Dan Zaslavsky have opposed even these standards under the argument that they do not go far enough. Given the rapid salination of Israel's aquifers, effluents that are to be reused for agriculture should be treated, according to this view, down to drinking water quality levels.

The debate over the adequacy of the standards remains moot as even the less stringent "Inbar Standards" remain derailed, due to the anticipated costs of their implementation and the attendant objections to their adoption at the Ministries of Finance and the Ministry of

Interior. At present, the antiquated 20-30 standard remains the required level of treatment, and poses both a likely hazard to ground water quality and a major obstacle to river restoration. Before Israel can begin to demand improved common standards with the Palestinians for as basic a parameter as treated effluent, it must upgrade its own standards and treatment facilities.

### **RUNOFF FROM HIGHWAYS**

Like much of the world, Israel's roads and highways constitute a major nonpoint source of water pollution. The problem was highlighted in a 2000 petition to Israel's Supreme Court challenging the adequacy of an environmental impact statement prepared by the developers of the Trans-Israel Highway – the largest road construction project in Israel's history. (*Shanas v. National Planning Council* 2000) In a series of rulings, the Supreme Court accepted the petitioners' demands that water quality impacts be included in the document. This analysis led to the installation of retention ponds alongside the highway to collect and treat runoff from the highways.

The fact that such a major road was planned with complete disregard for the water quality impacts underscored the need for statutory intervention. Several visions of cooperation between Israel and its neighbors as part of the peace process include a matrix of east-west highways to connect Jordan to the Mediterranean and the West Bank to the Gaza Strip. The paving of such roads will surely exacerbate "fragmentation" of critical habitats and is likely to produce considerable pollution. Hence, it is important that road construction be subject to the same regulatory requirements that any pollution source would be.

A proposed amendment to the Water Law (Polluting Highways) has been circulating in the Knesset since 2002 with the sponsorship of MK Michael Malchior. The amendment would require "any one planning or paving a road or approving such a plan or paving, to "avoid to the extent possible any activity that pollutes water or is likely to pollute water, directly or indirectly..." The government has not yet supported the legislative proposal, but without a systematic look at highways' contribution to pollution loadings, a range of water resources may be in jeopardy. Such runoff can of course, easily cross the borders.

Table 1:

PROPOSED MAXIMUM LEVELS FOR DISSOLVED AND SUSPENDED ELEMENTS AND COMPOUNDS AND FOR DIFFERENT PARAMETERS IN EFFLUENTS FOR UNRESTRICTED IRRIGATION AND DISCHARGE TO RIVERS

PARAMETER	UNITS	UNRESTRICTED IRRIGATION*	RIVERS
Electric Conductivity	dS/m	1.4	
BOD	mg/l	10	10
TSS	mg/l	10	10
COD	mg/l	100	70
Ammonia	mg/l	20	1.5
Total nitrogen	mg/l	20	10
Total phosphorus	mg/l	5	0.2
Chloride	mg/l	250	400
Fluoride	mg/l	2	
Sodium	mg/l	150	200
Faecal coliforms	Unit per 100 ml	10	200
Dissolved oxygen	mg/l	<0.5	<3
pH		6.5-8.5	7.0-8.5
Hydrocarbons	mg/l		1
Residual chlorine	mg/l	1	0.05
Anionic detergent	mg/l	2	0.5
Total oil	mg/l		1
SAR	(mmol/L)0.5	5	
Boron	mg/l	0.4	
Arsenic	mg/l	0.1	0.1
Barium	mg/l		50
Mercury	mg/l	0.002	0.0005
Chromium	mg/l	0.1	0.05
Nickel	mg/l	0.2	0.05
Selenium	mg/l	0.02	
Lead	mg/l	0.1	0.008
Cadmium	mg/l	0.01	0.005
Zinc	mg/l	2	0.2
Iron	mg/l	2	
Copper	mg/l	0.2	0.02
Manganese	mg/l	0.2	
Aluminum	mg/l	5	
Molybdenum	mg/l	0.01	
Vanadium	mg/l	0.1	
Beryllium	mg/l	0.1	
Cobalt	mg/l	0.05	
Lithium	mg/l	2.5	
Cyanide	mg/l	0.1	0.005

\* From soil, flora, hydrological and public health considerations

Source: Gababay, 2002

## REGULATING DESALINATION

Given the pervasiveness of water shortages in the region, sea desalination is often seen as a panacea for region's water scarcity crisis. (Schiffler, 2003) Israel has begun to build a series of massive facilities that could increase water supply by as much as 30% at a price that is currently the lowest in the world (55 cents/ cubic meter). The Palestinian Authority in the Gaza Strip, where water quality and quantity have reached crisis levels, also completed two small desalination plants. The first, funded by a grant from the French government, is located in the northern part of the strip and produces 1,250 m<sup>3</sup>/day. The second facility produces 600-m<sup>3</sup>/day, based on a bank-filtration well and reverse osmosis technology, presently provides drinking water to 80,000 people in central Gaza. The capacity of both plants can and probably will be expanded. Indeed, the US/AID agency is considering financing a major desalination plant, which would provide 60,000 m<sup>3</sup> per day

Desalination, however, is an industrial process and as such poses clear environmental problems. Among the marine pollutants of concern are:

1. Chlorine and chlorinated by-products in thermal discharge in thermal processes;
2. Heavy metal contamination, e.g. copper resulting from corroding copper-nickel heat exchanger surfaces in distillation plants; and
3. Antiscalants (polymer and phosphate antiscalants added to the feed water to prevent scaling of membranes and other machinery) (Hoepner, 2002)

Cleaning solutions such as biocides, detergents, complexing agents, and oxidants constitute additional sources of concern. There are several jurisdictions who have begun to set discharge standards and implement specific regulations for control of desalination facilities. These include U.S. states such as Texas, Louisiana, Florida and California. (Schwaback, 1999) By way of contrast, despite Israel's enthusiastic embracing of the technology, a regulatory infrastructure was not set in place prior to construction activities. As desalination activities' cumulative discharges may have the potential to affect water quality and habitats along the entire Mediterranean Coast, this should be a top-priority for decision makers and legislators.

## **WATER MARKETS**

Many analysts argue that creating a regional water market would depoliticize the water conflict in the Middle East and lead to more efficient utilization of natural resources by all parties. (Fischer, 2004) The increasing feasibility of desalination transforms water from a “critical national resource” to a tradable commodity in public perceptions and gives some credence to the economic perspective.

Given the long history of the Israeli government’s intervention in allocation policies its traditional role as patron for local agriculture it is well to ask: Is it in a position to make such a radical shift in its policy orientation? It is interesting to note clear legislative trends towards “privatization” of water as a resource and a breakdown of the monopoly utilities in Israel. The Water and Sewage Association Law, passed in 2001 has the aim of privatizing the municipally operated sewage treatment facilities in Israel. The law creates a framework for establishing municipally overseen “corporations” who would take over the role of sanitation in the nation’s cities. Implementation of the law has been slow, with the Ministry of Finance frequently blamed for foot-dragging, concerned about loss of municipal tax revenues for financially-strapped cities. Yet, an amendment to the law, passed on the last day of the Knesset’s summer 2004 session requires cities to complete this privatization process within six years.

Amendment number 18 to Israel’s Water Law, proposed by the Israeli government, is also presently on the Knesset’s docket. Its stated objective is to “facilitate business competition” in the water sector, reduce subsidies and the centralization in water supply. Accordingly, the bill states that Mekorot, Israel’s national water utility would be prohibited “from engaging directly or indirectly in any activity that is not demanded for fulfilling its position as such.” Moreover, the past Minister of Agriculture, Shalom Simchon and a leader in Israel’s Moshav or “cooperative private farms” movement had been tentatively supportive of eliminating all subsidies on water supplied to agriculture, assuming that water quality can be assured.

Such trends constitute a striking departure from the traditional Israeli water supply policy, which supported the agricultural sector through subsidized water and the squelching of competition of any sort. With privatization an axiom in the past “right-wing” and “left-wing”

governments, and government corporations steadily being sold-off to the private sector, the stage has been set for a dramatic shift in water pricing and market supply.

## **CONCLUSION**

The Israeli-Palestinian Oslo II water agreement constitutes a good place to start in addressing transboundary water problems. While present Israeli laws in the area of water management are certainly reasonable by international standards and protective of the environment, several areas emerge where legislative reform would better promote solutions to transboundary problems.

These include:

- Expanding the number of Stream Authorities and granting them fuller authorities to manage watersheds and promote activities (and enforcement) involved in stream restoration;
- Adoption and implementation of standards that require better treatment of municipal sewage;
- Legislation that requires the abatement of potential of pollution from highways and roads;
- Regulations to control the potential deleterious impacts associated with large desalination facilities; and
- Continuing present trends towards increased openness to market-based schemes for water management.

Rather than bemoan the paralysis in transboundary cooperation due to recent political vicissitudes and turbulence, the Israeli and Palestinian water communities would be well to take advantage of the existing opportunities to improve their own legislative infrastructures. Of course a law is only as good as the commitment to implementation and the enforcement program that it spawns. Here, as ever, particularly in the area of water quality protection, Israel must continue to improve its performance. Yet, with modest modifications, Israeli law offers good prospects for progress in addressing joint water problems with Palestinians water managers, once the diplomatic process resumes and cooperative activities can take up where they left off.

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