

## Israel's Future Water Needs

by Kermit Zarley 1/27/2005

In my book, *Palestine Is Coming: The Revival of Ancient Philistia* (1990), I propose that the Israeli-Palestinian conflict be solved by letting Israel have all of the West Bank and creating an independent, sovereign Palestinian state in a very expanded Gaza Strip that reaches twenty-five miles further north and south and almost as far eastward in the south in what would assimilate "the land of the Philistines." In this book I briefly discussed the water needs of such these two geographical locations of the two states.

Since my book was published, I have learned more about the water needs of Israeli Jews and the Palestinians living in the West Bank and Gaza Strip and how these needs might be met with the establishment of a future Palestinian state. And most of this information I have learned very recently.

Water scarcity is becoming an important problem in many regions of the world. And experts project that this problem will only worsen in the future due to an increase in population, agriculture, industrialization and water pollution. The rate of increase in the worldwide use of water is double the rate of increase of the world's population. World population was about 6 billion people in 2000 and is projected to be double that in 2050.

The UN identifies nations that suffer from severe or moderate water scarcity. In 1955, only seven nations endured severe water scarcity, three of them in the Middle East. In 1990, this list had increased to thirteen, with eight of them in the Middle East, one of them being Israel/Palestine. UN studies indicate that by the year 2025 another ten nations will be added to this list.

Israel supplies water to a large portion of its population by means of its National Water Carrier (=Kinneret-Negev Conduit), which is mostly for irrigation. This system of canals and underground pipelines transports water beginning at the northwest end of Lake Kinneret (=Sea of Galilee), loops around and heads southwest to the coastal plain and then extends straight down the coastal plain past Tel Aviv, keeping about ten miles east of the Mediterranean Sea, and terminating just outside the southern end of the Gaza Strip. This water transport system is the lifeblood of much of Israel's agricultural production.

Israel's National Water Carrier taps into two main sources of water, which it must share with others. About 2/3<sup>rd</sup> of Carrier water comes from Lake Kinneret, which represents 30% of Israel's total water supply. Israel shares the use of Lake Kinneret water with neighboring Jordan in accordance with their 1994 water treaty. The Jordan River empties into the northern Lake Kinneret, which serves as a large holding lake. Then the Jordan River continues again at the south end of Lake Kinneret, joining it with the Dead Sea over sixty miles south. Lake Kinneret is a pear-shaped freshwater lake that is 13 miles long and 8 miles wide. It has been so drastically depleted that its water level is now no more than four to six meters deep. Thus, Israel's future source of water in Lake Kinneret is becoming increasingly tenuous. And the reduced flow of Jordan River water that empties

into the Dead Sea has caused that sea to dry up at an alarming rate, so that its level has dropped over 200 meters from normality.

Israel has two ingenious plans to fill the Dead Sea with seawater to make it a suitable environment for edible fish. Dead Sea water is extremely saline, thus its name. Some reasons are that it is landlocked, being the lowest place on earth at over 1,300 feet below sea level, and its humid, high temperatures result in much evaporation. Israel wants to build an east-west canal that would transport Mediterranean seawater to the southwestern side of the Dead Sea. The other plan is for Israel and Jordan to jointly transport seawater from the Red Sea northward via a canal that would traverse the Arabah, provide hydroelectric power for both states and empty into the southern end of the Dead Sea. These projects would greatly decrease water salinity in the Dead Sea and raise its shoreline to normal levels or above.

Israel's other main water source for its National Water Carrier is the West Bank Mountain Aquifer, which supplies about 1/3<sup>rd</sup> (25% to 40%) of Carrier water. Aquifers serve as natural, underground, water storage facilities. This aquifer consists of three sub-basins that partially straddle the West Bank demarcation line. In fact, this aquifer provides West Bank Palestinians with 80% of their total water.<sup>1</sup> Even though this aquifer lies almost entirely in the West Bank, Israel uses 83% of the water pumped from it and therefore only 17% goes to the Palestinians. This is why West Bank Palestinians allege that Israel is "stealing" their water.

Israel has one other water supply: the Crystal Plain Aquifer. It is located in the coastal plain between Mount Carmel and Rafah in the Gaza Strip and extends under the Mediterranean Sea. Israel has a lofty reputation for having developed commercial drip irrigation. Yet Israel has mismanaged the Crystal Plain Aquifer. It has allowed salts and nitrates from agricultural wastewater to seep into it. And Israel has depleted this aquifer's water table to below sea level, causing seawater to infiltrate it. The result is that at least 20% of the water in the Crystal Plain Aquifer has become contaminated.<sup>2</sup> When this happens, the damage is usually irreversible.

Israel spends enormous sums of money in securing water supplies and transporting water. Depending largely on rainfall, 35% to 55% of Israel's energy costs go to pumping and moving water.<sup>3</sup>

The World Health Organization (WHO) estimates that an acceptable amount of water consumption for the basic personal needs of food, drinking and sanitation is 250 liters per person per day. But desert peoples are accustomed to using less water. Israeli Jews use over 300 liters of water per day whereas Palestinians use 50 liters of water per day. Israel's water needs are therefore much greater than those of the Palestinians.

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<sup>1</sup> Llan Berman and Paul Michael Wihbey, "The New Water Politics of the Middle East," *Strategic Review*, Summer 1999, 4.

<sup>2</sup> Kent Hughes Butts, "The Strategic Importance of Water," *Parameters*, U.S. Army War College Quarterly, Spring 1997, 9.

<sup>3</sup> Adel Darwish lecture delivered at the "Geneva Conference on Environment and Quality of Life," June, 1994, 14.

Desalinization plants are not the answer to the water needs of either Israel or the Palestinians largely because of lack of petroleum. Desalinization is very costly, requiring large amounts of energy. (Nuclear energy being used substantially for desalination remains very doubtful.) It costs \$1 to \$2 to desalinate a cubic meter of seawater. Desalinization therefore occurs mostly in the oil-rich Persian Gulf states. Because of such high costs, desalinated water is used almost exclusively for personal use.

Farm irrigation is the big water user. Worldwide, 73% of all freshwater used by humans goes for agricultural irrigation; 21 % for industrial use; 6% for personal use. Irrigation water produces 33% of the world's food supply. Yet irrigation is inefficient, with only 37% of it being absorbed by crops.<sup>4</sup> Drip irrigation crops absorb 90%.

Water is a very integral part of the Israeli-Palestinian conflict. If Israel were to give back the West Bank to the Palestinians, it is questionable that Israel could exist without most of its vital water source. In 1989, Israel's Minister of Agriculture, Rafael Eitan, asserted concerning relinquishing control of the West Bank Mountain Aquifer to a Palestinian state located predominantly in the West Bank, "It is hard to conceive of any political solution consistent with Israel's survival that does not involve complete and continued Israeli control of the water system."

In contrast, if Israel were to accept my geographical proposal for resolving its conflict with the Palestinians, Israel would gain all of the West Bank and therefore all of the water available for use in its Mountain Aquifer. This would considerably alleviate Israel's need for water. The main reason is that most of Carrier flows goes to the coastal plain to irrigate crops there. In my proposal, Israel would forfeit its coastal plain beginning at the Nahal Sorek, about ten miles south of the center of Tel Aviv, and extending south approximately fifty miles to the present Israeli-Egyptian border. This coastal region that Israel would forfeit uses a large part of Israel's water transported in its National Water Carrier. Instead, this coastal region would be joined to the Gaza Strip to become part of the Palestinian state. The Palestinian state would be watered by Egypt's Nile water that would be transported by an extension of its Al Salam Canal. (See my article, "Extending Egypt's Al Salam Canal to the Palestinian State.")

In conclusion, if a future Palestinian becomes established mostly in the West Bank, as world attention as been focused ever since Israel took possession of this Palestinian territory in the Six-Day War of 1967, Israel will give up access to a significant water source—the West Bank Mountain Aquifer. But if the future Palestinian state were to be established in the region I am proposing, Israel's water situation would be considerably improved.

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<sup>4</sup> UN figures; indebted to Kent Hughes Butts, "The Strategic Importance of Water," 3-5.