

The strategy of water

Kenneth Alan Grossberg

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Let There Be Water: Israel's Solution For A Water-Starved World

Seth M. Siegel, (St. Martin's Press 2015).

Safe, potable water. So essential to life and industry. But it's under threat worldwide. The nightly news often features a horrific water catastrophe: toxic lead pollution in the drinking water of Flint, Michigan; a dam in Iraq under attack by militants; California crops destroyed by drought; countries threatening war over access to river flows.

Unlike much of the world, Israel from early in its history instituted a national water policy that allowed a central authority to plan and build infrastructure, to charge for this precious liquid and to contribute to conservation and experimentation. Now that drought and overuse is becoming endemic in poor regions of the world as well as wealthy ones like California where it never posed so serious a problem before, the technologies and methods that Israel has developed offer help for urgent crises. Should the reader not be sufficiently aware of the global scope and scale of the problem Siegel engages in necessary consciousness-raising:

Water – an existential resource at risk

Once a commodity that was often taken for granted, water now requires a strategy to ensure stable and secure supply for a world reeling from climate change, pollution and overuse. As if on cue, Seth M. Siegel offers his magisterial study *Let There Be Water: Israel's Solution For A Water-Starved World*. A key lesson: strategy, and visionary leadership to implement strategy, is the main reason for the success story it relates.

The energy needed for operating cars, air conditioners, computers, and other appliances . . . utilizes almost unimaginable amounts of water. Several gallons of freshwater are needed to produce each gallon of oil . . . [1]

Natural gas and fracking require millions of gallons per site. Since the end of World War II, the massive natural underground reservoir called the High Plains Aquifer has been a key driver of agriculture in eight Great Plains states . . . wheat, corn, soy, and barley (grown there) provide fodder for America's cows and chickens, and grains for food production. These crops are also a major US export industry . . . Although the water in the High Plains Aquifer is a renewable resource, it took thousands of



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years of rain and snow to fill a large part of what has been depleted just since the 1950s when the over pumping began The water level in Lake Mead may soon be too low to permit further pumping, affecting the production of clean hydroelectric power for states in the Southwest.[2]

But for Siegel the key take-away is the fact that “water and infrastructure crises are almost always avoidable . . . with focused action by government, business and civic leaders.”[3] And he proceeds to explain how Israel has been able to quench the thirst of its businesses and citizens and to generate enough surplus to help relieve the water shortages of its Arab neighbors to boot. A brief summary of the surprising history of this project is instructive.

In the beginning

As early as the 1920s the Zionist leaders living under British control in what was then the Palestine mandate territory, were exploring ways to increase the supply of water to the Jewish communities springing up to house immigrants. The situation became more urgent after the publication of the British White Paper of 1939, a document that declared the land could not support an increase in population. The forecast made by the White Paper was used as the pretext for preventing Jews trying to escape from Nazi persecution in Europe to enter Palestine.

Out of a mission to supply sufficient water to allow for population growth by desperate refugees came the

idea of a national water carrier that would bring the precious resource from the north where it was abundant to the rest of the land where it was scarce. The plan required deep drilling in places like the Negev desert, pumping and transporting water from the Yarkon River in the Tel Aviv region to the parched south of the country, and over decades would ultimately build a vast underground infrastructure that became the National Water Carrier for the modern nation of Israel.[4]

The father of the initial plan was Simcha Blass, a Polish immigrant to the land who was a water engineer of uncommon insight and drive. In the 1940s he added other elements to his master strategy, including trapping and collecting storm water and treating and reusing sewage. This strategy evolved to become in the 1960s “an integrated, national system of water-resource management unlike anything seen before in the Middle East or in much of the world until that time.”[5]

Implementing the strategy in a young, developing country

The National Water Carrier construction during the early 1960s was actually the third phase of Israel’s water strategy. The new infrastructure had to function equally well at sea level, *and* at 700 feet below sea level in the north by the Sea of Galilee *and* at almost 3,000 feet above sea level in Jerusalem. It also had to be able to withstand wet, cold winters and dry, hot summer conditions.[6] Siegel helps his readers appreciate the

gargantuan scope and expense of this project for a young, small country like Israel by comparing it to building the Panama Canal, which had been “the most expensive public works project in American history” up to the time of its construction: “. . . on a per capita basis, adjusted for inflation, Israel spent six times more building the National Water Carrier than the US did building the Panama Canal.”[7]

The fruits of an ambitious water strategy

One result of the National Water Carrier system is that Israel has been able to push the edge of the southern desert farther and farther south, opening up new lands for settlement and agricultural development.

Not only were the pessimistic forecasts of the British economists of the 1940s proved wrong, but Israel’s water strategy demonstrated conclusively that “planning, respect for technology, determination, and risk taking” can achieve mastery over nature: “From a country that could barely feed itself when it had a much smaller population, today it is not only self-sufficient in fruits, vegetables, dairy and poultry, it also exports billions of dollars of high-quality, water-intensive produce each year.”[8]

Like all good strategies, the impact of this one was multifaceted.

For example, as Siegel notes, the new ability to access northern water reduced the need to rely on wells drilled along the coast that were at risk of salt water seepage. Ultimately, the presence of an integrated national water system also allowed rivers that had become open dump sites to be rehabilitated and sewage canals were cleaned up and remade into places for recreation and nature. According to Siegel, starting in 1939, thinking about water was transformed from

being a local or regional concern to a national mission.[9]

As a former head of the Israel Water Commission put it, “You can tell a lot about a country by the way it manages its water.”[10] That can be applied to the way any organization manages any of its major resources, and the implications for strategy are important. There are, for example, times when command and control are indispensable tools for implementing a strategy and other times when entrepreneurship and a looser rein on implementation are appropriate. In the case of water, because Israel centralized the control and pricing of this scarce resource it was able to flexibly allocate it by subsidizing the price of water to farms and industries while raising it to discourage citizens from wasteful overuse.

Oded Distel is the Founder and Director of Israel NewTech, Israel’s National Energy & Water Program at the Ministry of Economy & Industry. This program has spearheaded Israel’s water and energy ecosystem since its founding in 2007 by bringing all the stakeholders – start-ups, entrepreneurs, companies, multinationals, academia, regulators, policy makers and investors – together to cooperate in order to deliver smart solutions for global challenges in the Cleantech arena. In a recent online column, Distel asserted that Israel now produces 20 percent more water than it consumes, allowing exports to its neighbors.[11] Additionally, Israel has a trove of water knowledge to export throughout the world. Remarkably, the water sector in Israel is almost economically self-sufficient.

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A California connection

In June 2016, Israel’s Ministry of Economy and Industry hosted the Israel-California Water Conference in Marina Del Ray to promote a comprehensive and practical approach toward a sustainable water future for California. By bringing together leaders from the California and Israeli business communities, government authorities, academia and a wide spectrum of water technology experts, the ICWater Conference hoped to accelerate technology partnerships, explore project finance and business models and promote policy initiatives that will position California as a leader in water stewardship.

In his blog, Distel specified five cornerstones of Israel’s water revolution, learning he suggested that can be applied to California’s own water challenges. If successful, the Golden State and other jurisdictions will begin their own water revolutions as well, ushering in a new age of water management and conservation across the planet. Those five cornerstones are:

1. Education and conservation:

Israeli children are taught in preschool the importance of conserving water. Only use as much water as you need, they are told, because every drop is precious. This not only encourages them to carry these values throughout their lives, but they also influence their friends, parents and grandparents to conserve as well. During Israel’s latest drought, which peaked in 2009-2010, the Israel Water Authority ran a TV ad campaign encouraging conservation.

2. Wastewater reclamation and reuse:

Israel currently reuses 86 percent of its wastewater, with the goal of reaching 95 percent by 2025. Sixty percent of Israel’s fruit and vegetables are grown using recycled, purified water.

3. Government policy: By law, every drop of water that falls from the sky or is found in Israel’s lakes, seas or underground aquifers belongs to the state. Individuals, farmers and businesses in Israel do not have rights to water from rivers or lakes on or next to their property, nor any other natural water rights. This legislation innately led to centralized control of the country’s water resources and greatly reduced endless inefficiencies created by competing water districts. Other actions that the government has taken to provide for a secure water supply include the development of a nation-wide water collection/ reservoir system.

4. Water and agricultural technology:

Israel’s reputation as the “Start-Up Nation” extends to innovations in water and agriculture technology. Drip irrigation was invented in Israel and has become the local standard for watering crops, with upwards of 75 percent of Israeli farms using the technology. At present, Israeli drip systems account for 50 percent of the world’s low-pressure irrigation systems. Nevertheless, despite its proven benefits for water conservation and increased crop yield, only 5 percent of farms worldwide use drip irrigation – many use outdated flooding techniques instead.

5. Desalination: Israeli companies built and operate five desalination plants providing over 25 percent of the nation’s water supply and 80 percent of household water. Israeli companies have installed more than 350 desalination plants in close to 40 countries, including the new Carlsbad plant in San Diego, the

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largest in the Western Hemisphere, producing enough water to meet the needs of approximately 400,000 people.[12]

All in all, the ways Israel has dealt with its water problem gives us a case to learn from when tackling other types of decisions where politics, geography and nationalism are intertwined and there is an urgent need for innovation. Siegel has done an excellent job of spelling out how an existential resource strategy can be

implemented by giving us a detailed and nuanced description in *Let There Be Water*.

Notes

1. Siegel, S.M., *Let There Be Water: Israel's Solution For A Water-Starved World*, (St. Martin's Press, 2015), p. 5.
2. Siegel, *ibid*, p. 3.
3. Siegel, *ibid*.
4. Siegel, *ibid*, p. 25.
5. Siegel, *ibid*, p. 26.

6. Siegel, *ibid*, p. 37.

7. Siegel, *ibid*, p. 39.

8. Siegel, *ibid*, p. 40.

9. Siegel, *ibid*, p. 40.

10. Siegel, *ibid*, p. 42.

11. Distel, O. "Israel's water revolution and its overflow for the world", June 27, 2016, *The Times of Israel*. Blog address is http://blogs.timesofisrael.com/israels-water-revolution-and-its-overflow-for-the-world/#utm_source=Start-Up+Daily&utm_campaign=90e9543dc2-2016_06_28_SUI6_28_2016&utm_medium=email&utm_term=0_fb879fad58-90e9543dc2-54595401

12. Distel, *ibid*.

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