



Let There Be Water: Israel's Solution for a Water-Starved World

Seth M. Siegel

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As every day brings urgent reports of growing water shortages around the world, there is no time to lose in the search for solutions.

The U.S. government predicts that forty of our fifty states-and 60 percent of the earth's land surface-will soon face alarming gaps between available water and the growing demand for it. Without action, food prices will rise, economic growth will slow, and political instability is likely to follow.

Let There Be Water illustrates how Israel can serve as a model for the United States and countries everywhere by showing how to blunt the worst of the coming water calamities. Even with 60 percent of its country made of desert, Israel has not only solved its water problem; it also had an abundance of water. Israel even supplies water to its neighbors-the Palestinians and the Kingdom of Jordan-every day.

Based on meticulous research and hundreds of interviews, *Let There Be Water* reveals the methods and techniques of the often offbeat inventors who enabled Israel to lead the world in cutting-edge water technology.

Let There Be Water also tells unknown stories of how cooperation on water systems can forge diplomatic ties and promote unity. Remarkably, not long ago, now-hostile Iran relied on Israel to manage its water systems, and access to Israel's water know-how helped to warm China's frosty relations with Israel.

Beautifully written, *Let There Be Water* is an inspiring account of the vision and sacrifice by a nation and people that have long made water security a top priority. Despite scant natural water resources, a rapidly growing population and economy, and often hostile neighbors, Israel has consistently jumped ahead of the water innovation-curve to assure a dynamic, vital future for itself. Every town, every country, and every reader can benefit from learning what Israel did to overcome daunting challenges and transform itself from a parched land into a water superpower.

Let There Be Water: Israel's Solution for a Water-Starved World Details

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From Reader Review Let There Be Water: Israel's Solution for a Water-Starved World for online ebook

Robert says

A must read for everyone as Israel's water story is a lesson for the entire world to learn from. The author tells the tale of Israel's approach to water conservation and supply from all angles: geopolitical, scientific. And environmental.

Joan says

I think this is an essential book all leaders from the Mayor of San Diego to the governors of the southwestern states as well as many other states should read. I'd like to send a marked copy to Governor Snyder, where an Israeli water official pointed out that another reason besides the security Israel has to keep in mind is security from toxins. The Israelis have done remarkable things to deal with water. A tiny country in the middle of a desert region, surrounded by water thirsty enemies and filled with refugees from the Holocaust, Soviet Union, etc over the decades, spent a lot of money and thought on how to deal with water. And did succeed magnificently! Now Israel can export water. As well as water intensive crops. And probably most importantly, water expertise. The author comes across as rather laudatory, but then, there is plenty of reason for that. An area that has very little water resource is now a water exporter and a leader in all things connected with water. Drip irrigation was invented by the Israelis. They are experts in desalinization. They have processed their sewage so 80% of the water can be reclaimed and hope to reach 90% soon. They use much of the reclaimed water from sewage for agriculture. They have bred plants that can manage just fine in higher sodium water. If we Californians copied just a few of what the Israelis have done, I don't think we'd have a water crisis at the moment. They have freed their country from worrying about drought because they have enough water to manage even if in the midst of one. One of the most fundamental differences is that all Israelis are taught from babyhood on that water must not be wasted. Also, water is controlled by the Israelis as a public good and under state control, not cities, other districts, or individuals as here in California anyway. I am enthusiastic enough that I'm recopying this review on FB which I never do. I strongly encourage people to read this and tell others about this book!

Cindie Harp says

Fascinating -- micro history of water in Israel with applied solutions to regional spots all over the world including the U.S. Reads like a novel....

Eric Hausman-Houston says

Despite what may not appear to be a gripping subject, this was fascinating.

JQAdams says

Siegel here approaches the hugely important topic of efficient water management through the lens of Israeli policy. Israel's successes in this regard are very interesting and significant, so that seems like a promising tactic. Yet the resulting work has turned into an extended glossy pamphlet: relentlessly chirpy, boosterish, and superficial. The number of things that are described as "revolutionary" is almost comical, with the seemingly obvious attempt to exploit brackish water resources in a desert somehow even doubling up to be "counterintuitive and revolutionary"; few of the policies have any drawbacks mentioned; and interviewees regularly spout soliloquies that read like advertising copy. On the rare occasions when a difficulty is encountered, it is breezily dispensed with: apparently the international officials trying to allocate water between Israel and Jordan initially gave more than the Israelis hoped to Jordan, but fortunately the relevant person "was convinced" to change the distribution in a more pro-Israeli way. How was he convinced? By whom? This book won't say, apparently because dwelling on the roadblock would darken the sunny tone, though the author does have the chutzpah seven chapters later to refer back to that cryptic throwaway line as having explained the situation. By the time you get to a section, describing the reuse of treated sewage, whose header is "From Waste to 'Wow!'" (no, really, that's the actual heading), it's hard to feel like you're not reading something aimed at slightly dim children: *My First Book of Israeli Water Policy*.

It's too bad, since I ultimately very much agree with Siegel that the innovations he describes, from drip irrigation to dual-flush toilets, are ideas that deserve broader implementation. This book isn't the place to learn seriously about their trade-offs and practicalities, though. That makes it somewhat harder to take seriously when the book spins stories of water solving pretty much every political and policy problem the world might have.

Wijnand Marchal says

Water and Israel, a story too good to be true. Indeed, Israel has provided itself and the world with innovative techniques to optimize water use. But at what expense? The water rich resources from West Bank and Jordan Valley are used by illegal settlers and carried to mainland Israel, and as such millions of Palestinians are deprived from the natural resources that are rightfully theirs. As far as readability and information on water policies this book is both accessible and a great resource, but it's full of repetitive glorifying the Israeli mayam miracle. To the extent of another hallelujah book of this sort "Start up nation". In other words, "Let there be water" is one-sided and definitely doesn't provide the reader with an honest picture of the politicized regional water problem.

May says

Informative. I knew nothing about water treatment. This speaks of the use of technology in the deserts of Israel to allow clean water. It goes through both psychology as well as the various parts of water treatment. I think it's relevant because where this is needed most are unstable areas. Israel is not so stable as Dev countries who might preach about water quality. Def worth a read if you're interested in the topic.

Ray says

Water availability is already a precious resource in much of the world, and many areas are struggling to meet their needs. For example, some have blamed the origins of the ongoing political unrest in Syria on the sustained drought over the past several years. California and the southwest regions of the United States have imposed water restrictions on their citizens and industries due to continuing water shortages. Likewise, Brazil is dealing with ongoing water shortages, even though they continue to have a generous rainfall. And as bad as this water problem may be today, it is only projected to get worse in the coming decades in many regions due to the effects of a changing climate. So Countries which have succeeded in managing their water resources have valuable lessons to share. One of these countries is Israel. "Many, if not most of us," are aware of the fact that Israel "has made the desert bloom, transforming an arid, infertile land into an agricultural oasis in the Middle East. How they did that is a story worth telling, and Seth Siegel does just that in his book, *"Let There Be Water"*.

Siegel "shows what can be accomplished when mankind is faced with this type of challenge. Israel today supports a population of approximately 8-1/2 million people. Yet when the land of Palestine was under the British Mandate after the First World War, it was thought to be able to support only a very limited population", perhaps around two million, due to its desert-like setting with very limited water. *"Let There Be Water"* discusses how "the government of Israel has "transitioned from a water-challenged land to a water exporter. This was accomplished even though the country was half desert, rainfall has diminished since the state was founded, and their population increased ten-fold. Mr. Siegel describes how they were able to? convert much of the desert into farming communities? by utilization of brackish water, "by developing drip-irrigation techniques, "by instilling a water-saving "mentality among "their citizens, "by utilizing waste water conversion, develop"ing? desalination plants, creat"ing? new farming techniques and new seeds for their arid climate, etc. It provides a very hopeful and optimistic view for the future as water becomes even more of a precious and limited resource for the global community.

"While many countries have developed a relationship with Israel to copy their water management techniques, those techniques and attitudes may be slow to be accepted in the United States. Even in my State of California, where we've been in a severe drought condition for several years and water restrictions have been imposed, many people seem reluctant to change their water use habits. Generations of Americans have been brought up to appreciate our "inexhaustible" resources, our abundance of riches, our blessings living in this "land of plenty", and conserving and restricting access to "natural "resources is an unnatural concept. "Many have come to believe that we're "exceptional", "that our God-given natural resources "can be used "without regard to "any finite limits, and the free market? is the best management policy. So this book, talking about how government "policy, and not individuals or the free market, w"as used to "transform Israel from a desert land to a Country which "exports water and water-technology "may be a hard sell for many.

Yet Siegel provides a road map of how water can be conserved without harming the citizens or the economy. Almost all the the techniques discussed in the book can be used in other areas around the world. However, success is dictated by several factors, not the least of which is educating the public and our elected leaders, research and development funding, and a political climate which allows elected officials to work together for the public good. *"Let There Be Water"* is an excellent guide showing how all this can be accomplished.

Yehudit Reishtein says

It was fascinating to learn how Israel, through a variety of methods decreased its dependence on scant rainfall and became a country of abundant water. It is the only country in the world that has less desert today than it did 100 years ago. On the way it developed new methods of farming and irrigation, desalination, and reclamation of water. It even exports water to neighboring areas. The author even discusses how other water-starved areas, like southern California, can help themselves by adopting some of Israel's strategies.

Sameer Alshenawi says

I think here in Egypt we have to learn from Israeli experience in this field . With technological innovations , political foresight and powerful public mindfulness combined with a great water management , Israele enjoys now water abundance.

A good book read it and know what science can do for a country.

Harold Citron says

As the human population of the earth continues to grow, environmental constraints have become a an increasing concern. Being able to harvest enough healthy food and sufficient access to clean water have been two key areas of focus over the years for the world's poor, but often a back-burner issues for many in the wealthy industrialized world.

Unfortunately, recent droughts have exposed weaknesses in even the wealthiest and most advanced nations.

Given water's critical requirement in sustaining life, its absence poses an immediate and potential life-threatening risk to the many millions of people on the planet. What has been absent from the many discussions and debates are solutions to the limitations of potable water.

Siegel's book is one that addresses these issues, focusing on Israel as a case study. The book provides a historical overview of the Country's various plans and programs to maximize the utilization of this scarce resource. Rather than delving deeply into any one program, the reader gains a broad perspective of how Israel has interwoven government programs, private businesses, and disparate parts of society, from agriculture to individual consumers, to form a web with the goal of increasing the Country's water supply. But this is not a book that provides either a deep engineering or political analysis. It's notability is showing how the various parts create a greater sum of the whole.

While one can complain about the 'sunny' attitude taken by the author, the fact is, Israel has had multiple and notable successes in this field worthy of emulation. Both within the country and abroad, improving the water supplies of disparate nations, including China, pre-1979 revolutionary Iran, and various states in Africa.

Closer to home, the book unveils how despite the political animosity, and even blatant hatred of the Jewish state by its neighbors, Israel's government has worked to improve the water resources of Jordan and the Palestinian Authority. Israelis have a right to be proud of such achievements.

Milkman3367 says

My rating is based on the timeliness of the issue of water security and how to achieve it, which this book elucidates. A must-read for anyone who is concerned about our future.

Fraser Kinnear says

Considering Israel's climate, population size, access to rivers and lakes, and relationship with its neighbors, the country ought to be enormously insecure about water security. Instead, throughout their history, Israel has put a strong emphasis on water security, and today is a world leader in water recovery, conservation, and management.

This book goes into detail on a wide variety of initiatives that explain how Israel got where it is, but the most important drivers have been:

- Pricing water at its true cost (most governments subsidize water to be effectively free)
- Being diligent about maintaining water infrastructure
- Establishing a powerful and independent government authority that has complete control over the entire water value chain, and investing 100% of water sales back into the program
- Putting almost all of its agriculture on drip irrigation
- Making huge investments in desalination

Israel has always been motivated to conserve water and invest in water security. In fact, in 1939 (before Israel was even incorporated), the UK decreed that Jews should stop relocating to Palestine, because the region could not support the strain on water supplies.

Some random facts I found interesting:

- 600 million people experience water shortages today.
- Raising a pound of beef takes 17x more water than growing a pound of corn
- Much water around the world is lost from shoddy infrastructure. London loses 30% of its water. Chicago 25%. Many places in the middle east and china lost upwards of 60% of their water due. I remember incredible losses of water in LA last year when a pipe burst near UCLA
- The population of Israel nearly doubled in the first 6 years of its existence, so there were enormous strains on infrastructure
- Adjusting for inflation, Israel spent 6x more building the National Water Carrier than the US did building the Panama Canal.
- Cutting water losses by a few % points is normally enough to offset the water creation of an entire giant water desal plant
- Drip irrigation saves 50-60% of the water used by flood irrigation. Plants also grow faster with regular irrigation from drip as opposed to flood
- Drip irrigation also reduces runoff of fertilizer, which with flood irrigation ends up in lakes and rivers, spurring blue-green algae blooms that destroy those ecosystems
- Only ~5% of irrigated agricultural fields use drip irrigation and <20% use any irrigation at all
- Israeli agriculture has reduced the amount of fresh water it uses by ~60%
- Rain capture is actually a pretty unsanitary and expensive way of supplying water, as opposed to sewage treatment. The main reason is sewage treatment is far more regular, predictable, and easy to collect and divert. These features make the water very attractive to farmers

- A reservoir with a capacity of ~800 million gallons flow per year can cost ~\$10M to build
 - About 35% of household water use is for flushing toilets
 - Sumerian civilization fell in part because the irrigation methods of their agriculture gradually added too much salt in the soil to grow anything
 - On average between 70% and 90% of the contents of orally ingested medicines get absorbed by the body, the rest is excreted and end up in our water system. We're not yet sure of the magnitude of the impact on our environment
 - Reverse osmosis through membrane filtration is the dominant desal methodology, and is how 60% of desal plants around the world operate
 - The global water industry has annual sales of \$600bln, making it bigger than biotech and telecomm, and only slightly smaller than pharma. 75% of those sales are for legacy utility systems, the rest for high tech
 - Very cool company Takadu uses big data for water infrastructure management. Israel's water utility served as a great first customer / business incubator
 - Israel took a cue from Thatcher and privatized many of its government programs in the 1990s (national airline, state owned banks, telephone monopoly, and a water infrastructure advisory group that was profiled in the book)
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Charles says

A description of hope for the future

The news media in the United States has publicized the recent major droughts in Texas and California, but the problem regarding a lack of water is global. Around the world, the overwhelming majority of people do not have a dependable supply of clean and safe drinking water. One of the main trigger mechanisms of the current bloody civil war in Syria was a lengthy drought and the same situation has fueled the conflict in South Sudan. Potential conflicts are developing between China and India, Egypt and Ethiopia, China and Vietnam and Turkey and Arab countries over announced plans to build dams on rivers that supply water to different countries downstream. Many people have convincingly argued that the major wars of the immediate future will be over water rights.

There is one place where the management of water resources has led to increased cooperation between hostile neighbors and that is between Israel and her Arab neighbors. During the gestational period of the Israeli nation, the far-sighted leaders understood that there could be no Israel without a solution to the problem of limited water. This book describes the history, technological advances and consequences of Israel adopting a national water use policy.

There are two main principles to the Israeli water policy, the first is the national policy that no water is physically handled without it being metered and paid for. Rain that naturally lands on your land is free, but if you capture it or the dew running off of your roof, you must pay for it. All citizens are constantly being reminded of the need for efficient use of water in the country. A national controlling board made up of qualified technocrats independent of political control makes the decisions regarding water use.

The second primary principle is the "all of the above" approach to the development and maintenance of water resources. Everything from water extracted by sewage treatment to desalinization plants to drip irrigation to more traditional water management have been enacted and efficiently executed. One of the major international exports of Israel is their expertise in the management of water resources.

One of the most pleasing details of the program is that Israel provides water to Jordan and the Palestinian territories, in fact it is one of the few ways in which they cooperate. There has been an ebb and flow to the diplomatic isolation of Israel over the years, in many cases it was the desire for Israeli expertise in water management that was the first step in the renewal of relations.

One of the fascinating sections was the description of Israeli involvement in the creation of major water management projects in Iran under the Shah. Iran is a country with limited water resources and the Israelis helped develop water management infrastructure in Iran that is still being used thirty years after the Shah was overthrown.

Given all of the major problems, it is easy to be pessimistic about the future course of conflicts over water. While Israel is a small country and not all that they have done can be implemented elsewhere, reading this book gives the reader a reason for optimism for the future. When the alternatives are new water technologies or the ancient solution of armed conflict, it is nice to know that there is a potential for a technological solution.

This book was made available for free for review purposes and this review also appears on Amazon.

Niki says

This book contains a fascinating perspective on Israel and its people that we don't usually get through the media. I was drawn in by the natural challenges faced by the people of the region and the success that they have found in dealing with their water issues. I was surprised and pleased to see that though the author dealt with the political situation in Israel, it did not overshadow his main premise of water challenges across the globe and how countries and peoples can find solutions through the example of Israelis both average and extraordinary.
