

**Statement of
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**Subcommittee on Europe, Eurasia, and Emerging Threats
of the
House Committee on Foreign Affairs**

**Water as a Geopolitical Threat
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Chairman Rohrabacher, Ranking Member Keating, and Distinguished Members of the Subcommittee. Thank you for the opportunity to testify before you today on about global water security.

The Symposium on Water Innovation in Massachusetts is an association of industry executives focused on bringing clean, abundant water to global markets through innovative technologies created in the great state of Massachusetts.

The Water Supply-Demand Imbalance

Natural sources of water are limited and in fixed supply. Less than 3% of the earth's water is fresh water, and most of that is ice. Just 0.3% of the earth's water is surface water, the most accessible form available for human use.

Yet, worldwide demand for water is accelerating due to: 1) rising population; 2) faster growth in diets rich in proteins that depend on agricultural production, and; 3) expanding consumption of goods that contribute to standard of living, but which require water in their production, like your iPhone. This supply-demand mismatch is continually widening.

With fixed natural supply and widening demand, conflict is common. War is the most extreme result, but other serious and damaging events include border disagreements, property rights disputes, economic harm, environmental harm, and other consequences which are destabilizing at a minimum, affecting long-term relationships and trust within nations and between nations. These conflicts have taken place across the globe – between Malaysia and Singapore for example, or Tajikistan and Uzbekistan – and closer to home in the “Tri-State Water Wars” of Alabama, Florida, and Georgia, which remains unresolved to this day despite Congressional action, or the recent Supreme Court review of the Red River Compact between Oklahoma and Texas, or hundreds of other examples which have been well-documented by the State Department, UNESCO, and the Pacific Institute.

Depending upon the strength of each party in a water dispute, their aim may be to control the greatest share of water, or when addressed more amicably, to divide a finite pie fairly. Regardless, because supply is usually insufficient to meet demand, often no one is happy with the outcome. So the source of the conflict is not resolved. It comes back again another day, metastasized, while infiltrating other issues regarding political power, economic vitality, health, and even homeland security.

Can the supply and demand mismatch be brought into better balance, thereby reducing a primary reason for water conflicts?

Water Tech: Bending the Water Supply & Demand Curves

It is often taken as a given that supply *is* fixed, and demand can *only* increase. Neither is true. Today I would like to share with you two examples of where *both* the supply and the demand curves for water have been bent. This new approach

is successful in changing the paradigm of neighboring water relationships -- from the historic approach of dividing up scarce resources -- to a new approach which achieves water independence, fosters ongoing cooperation, and enables mutual economic empowerment.

The solution I'm describing is water technology, or "water tech."

Water tech is biology, chemistry, physics, mechanical engineering, and information technology deployed in novel ways to increase the supply and manage the demand of water.

These two words together are not part of an everyday vocabulary, because historically we look only to negotiations and agreements and dams and allocations of fresh water to solve our global water challenges. But water tech brings new tools to the table that serve thirsty populations, enable economic development, and ameliorate crises.

Water tech is a multi-billion-dollar industry in my home state of Massachusetts that serves global markets. I'd like to speak with you today how our industry, and notably Singapore and Israel use water tech to increase international security.

Case Studies: Singapore, Israel

Singapore became independent of Malaysia in 1965, but its dependence on Malaysia for water continued, which was made indelibly memorable when the Prime Minister famously threatened to cut Singapore's water supply. Without sufficient fresh water sources, and a growing economy, Singapore made a choice. It would *engineer* its water independence by increasing supply and managing demand through a program named "Water for All." It used "four taps" to do so:

imported water, new reservoirs, and two technology taps: recycled water and desalination. Singapore's *national* commitment to these technologies of recycled water and desalination changed its position within a decade from dependence, constraint, and conflict, to abundance and the absence of conflict due to water disputes. The biggest drivers of the change were the adoption of these two technologies, which now supply 40% of all Singaporean water. An extra outcome of perhaps equal significance is that Singapore has used its success to become a global hub for water industry, attracting capital and a parade of international leaders to learn its methods.

Israel has not only bent the water supply-demand curve for itself, but also for its neighbors. Israeli is recognized as the world's leading source of water tech innovation. The modern state of Israel was founded in a land of sand and swamp, and famously, Israel made the desert bloom through novel water management and the creation of drip irrigation. Today, Israel exports carrots to Russia – because it can do so cheaper and with less resource consumption, despite the fact that Russia borders the world's largest lake.

Israel's rapid economic growth however continued to tax its very limited natural water resources, while demand from its neighbors for the same water sources remained a serious source of conflict. Israel made the decision to satisfy all its water needs – and restore its lakes -- by making a national commitment to desalination and recycling. Today, Israel is the #1 water recycling country in the world, reclaiming 75% of its water, with #2 Spain coming in at 17%. And in desalination, 85% of Israel's domestic consumption is supplied by turning Mediterranean Sea water into drinking water – and I can tell you it tastes great.

Now here's the kicker. Just last month, Israel, Jordan, and the Palestinian Authority announced an agreement to exchange fresh water, salt water, desalinated water, and brine (the byproduct of desalination) from where it exists or can be built, to where it is needed. This project, known as the Red Sea – Dead Sea Canal, improves the lives of Jordanians, Palestinians, and Israelis. There were two key enablers – the will to get it done and energy-efficient desalination. Notably, it was arranged by the principals themselves, without the glare of international mediators, although the World Bank played an important role in project finance.

Israeli innovation in drip irrigation, scaled-up desalination, water recycling, smart water networks that cut water loss, novel water treatment methods, and other water tech is satisfying its water needs, diminishing a source of conflict, and importantly, enabled it to form new agreements with its neighbors based on opportunity, not just avoiding hardship.

In my written testimony, I call your attention to a Wall Street Journal editorial from this week which thoughtfully addresses this specific topic.

<http://online.wsj.com/news/articles/SB10001424052702303345104579282062737273526>

With its great success bending the curves of water supply and demand, Israeli companies are bringing their water tech expertise around the world, changing the supply-demand balance globally. For example, the largest desal plant in the Americas, a \$1b project in California, is being designed by an Israeli firm (with project finance from a Massachusetts company), which will lessen conflict between southern California and its neighbors. And, the top drip irrigation companies are Israeli, bringing abundant food production to parched places around the world. The best regarded smart water network company, with installations from Europe to South America to Australia, is Israeli. And, the

water in most bottles of Coca-Cola in Europe is run through a treatment process using Israeli technology. And we know that Coca Cola is necessary for global peace.

In my state of Massachusetts, we see water tech as a way to solve the problem of inexhaustible demand and fixed supply of water. We bring our state's characteristic strength in innovation, and our billion-\$ water tech companies, and dozens of water tech start-ups to meet the needs of thirsty global buyers. We believe that water tech is both good business, and a strategically-important national export which creates water security by bringing supply and demand in sync.

Enabling Water Tech to Serve U.S. Global Security Interests

What can Congress do to enable water tech to serve our global security interests? The US is a tough market for new water tech to succeed, and as a result, we lag behind other nations in attracting water tech and exporting water tech to help ameliorate water security crises. Here are four methods that enhance our ability to use water tech as a tool of advancing US foreign policy interests:

- 1) The overall US partnership with Israel around R&D is an enormous benefit to our economy, and to advancing our interests globally. HR 3683, The US-Israel Energy Cooperation Enhancement Act, expands the existing collaboration in energy R&D to now include water. The more we can leverage cooperative advances with Israel in water tech to correct supply-demand imbalances, the more we can defuse global water conflict. The bill was approved last month by voice vote in the Energy & Commerce Committee, and both the House and Senate version awaits a floor vote.

- 2) The Clean Water State Revolving Fund, administered by the EPA, has been enormously successful helping states to build and maintain water infrastructure. But the loan terms are understood by the states to discourage the use of new technology because penalties are assessed for approaches that fail. Without risking the water supply, terms can be made less onerous so that states will be more likely to choose new approaches that have better results, versus sticking with inefficient methods. Once proven in the US, water tech has a better chance of succeeding abroad in water conflict hotspots.

- 3) EPA review of new technology is a necessary to protect public health and the environment, but often the agency is unable to approve new technology because it does not have the processes to evaluate it. As a result, the US is often seen as a less desirable place to invent or deploy new water tech. To rectify the situation, EPA evaluative mechanisms can be streamlined to keep up with advancements that meet our needs at home, while being promoted abroad to increase water independence globally.

- 4) The Export Import Bank is an essential credit source for exporting American goods, but water tech is not identified as one of its eight key industries, and the key countries it targets do not correspond closely to where water conflict is occurring. Congress can engage the Bank to align its programs with US foreign policy interests around defusing water disagreements.

If water tech is to be seen as a worthy instrument in our foreign relations toolbox to address global water security, then leveraging U.S. R&D funds, global partnerships, project finance mechanisms, and regulatory process is essential to addressing water supply-demand imbalances and defuse crises.

It's been appropriately noted that the American export of social media has enabled open communication among oppressed people, and thereby fosters freedom.

In a similar vein, I submit today that water tech sustains life by creating clean and abundant supply, while enabling economic opportunity, and defusing one of the most enduring sources of human conflict.

Thank you for your interest.