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## The capital of water tech

**Water technology is increasingly viewed as the next big industry, and the competition to become its global capital is heating up. Impeller gets expert views on the various contenders.**

**By Nancy Pick, Illustration: Team Hawaii, Photo: iStockphoto**

Israel, ever inventive in the face of water scarcity, is now jockeying to become a center of water technology on an international scale. A hot spot for start-up companies, the country has developed advanced technologies in desalination, irrigation, leak detection, and water recycling. Israel boasts more than 150 water tech companies, whose exports generate more than 1.5 billion U.S. dollars annually. Has the country arrived as a global hydro hub?

According to Asit Biswas, the answer is a blunt “no.” A top world authority on water resources and winner of the 2006 Stockholm Water Prize, he is known for speaking his mind. “There are only two water centers of international importance: Singapore and Stockholm.”

Biswas is Distinguished Visiting Professor at Singapore’s Lee Kuan Yew School for Public Policy and President of the Third World Centre for Water Management in Mexico. He explains that water technology is big business, and in the race to become its global center, Singapore has taken the lead. The city’s International Water Week, launched in 2008, is growing more important every year. “Singapore has been remarkably successful at bringing in nearly all the big players in the water business,” he says. “Singaporeans are the best planners in the world – not only in the field of water technology but in everything they do – and Singapore wants to be the hydro capital of the world. I take my hat off to them.”

Charles Fishman, author of the new book *The Big Thirst: The Secret Life and Turbulent Future of Water*, says of Singapore, "They are driving incredible innovation in a very small space." Singapore's government is reshaping public attitudes about water recycling – even marketing bottled drinking water called NEWater, made from purified wastewater. Says Fishman, "You can't persuade people to use recycled wastewater if they don't understand why it's okay to drink it."

In 2010, Singapore's Water Week, held along with its World Cities Summit, attract-ed more than 14,000 attendees from 112 countries and regions. According to organizers, the total value of announced projects and investments came to a staggering 2.8 billion Singapore dollars (2.2 billion U.S. dollars).

Adding to Singapore's success, in recent years Siemens has moved its water R&D operations to Singapore, as have Toray, Nitto Denko and GE. Peter Gleick, a leading water expert and President of the Pacific Institute research center in California, is among those heading to Water Week this year. Gleick says Singapore's many water-related enterprises comprise "an interesting and strong mix."

**STOCKHOLM SERVES** as a different type of hydro hub; it's less about business and more about international networking. Stockholm's World Water Week began in 1991, Biswas recalls, as a Chamber of Commerce idea to boost tourism during slow summer months. In addition to the live jazz, dances and fireworks, the organizers added a symposium and a water prize to give the event gravitas.

After a few years the water festival went broke, but the symposium survives and fills Stockholm's hotel rooms every August. Above all, Stockholm's Water Week provides a meeting place for international organizations and for businesses "to show off their wares," Biswas says. "Really, it's an annual pilgrimage of the 'water people.'"

The Stockholm Water Prize, designed to convey some of the glamour of the Nobel, adds to the city's hydro prestige. Moreover, Stockholm is home to advanced water-related research, including biogas recovery from municipal wastewater, energy-neutral wastewater treatment and advanced oxidation for destroying drug residues in wastewater. Such projects "have generated a lot of international interest," says Ulf Arbeus, Vice President of Product Development for Xylem in Stockholm. Arbeus also chairs a wastewater research institute there. "We get delegations visiting from all over the world," he says.

Biswas's skepticism of Israel's progress notwithstanding, Fishman believes that the Middle East, a region where scarcity drives innovation, is a "really important arena" for water technology. Israel has made great strides improving efficiency in agricultural watering, a sector that accounts for 70 percent of water use worldwide. In Saudi Arabia, IBM has teamed up with local researchers to try to reduce the energy demands of desalinating seawater. And in the United Arab Emirates, the new 'green city' of Masdar is under construction, where water conservation technology will be built into every home and office. Zaragoza, Spain, has also worked to promote itself as a global hydro hub. In 2008 the city hosted a major international expo on the theme, "Water and Sustainable Development." But Biswas believes the expo's backers "lost a unique opportunity. As soon as the expo finished, the whole thing shut down."

In his book research, Fishman discovered Ontario, Canada, to be "a huge hub of water innovation." The province contains "dozens of water companies large and small," he says. "Ontario wants to be the Silicon Valley of water." Slightly to the south, the U.S. Great Lakes region represents another zone where Fishman saw companies driving water-tech innovation, in cities like Minneapolis and Milwaukee.

**THE NETHERLANDS**, a country in which water engineering drives the economy, is also working to make a name for itself in water technology. The city of Delft offers strong training in engineering and

is home to Deltares, a leading water research institute. In 2010, IBM teamed up with top-ranked Delft University of Technology to conduct research into water quality and flood prevention. Despite this innovative collaboration between big business and the academic world, Biswas feels this isn't enough to put Delft in the lead in the water tech industry. He also argues that currently there is no single great academic center for cutting-edge research. In the 1960s, Biswas says, Harvard University in the United States dominated the field. Subsequently, Colorado State University took over for several years as the world's top institution.

Since then, however, no university has reached critical mass of talent. Individual stars work in institutions scattered around the world. But, as Biswas says, "if you asked the world's leading water scientists to list the top places, you'd probably get 20 names – and none of them the same." Instead, Biswas says, the entire water research paradigm has changed in recent years. Funding for academic research has declined, so the private sector has risen to fill the R&D gap. "If you are looking for a good research career these days," he says, "you go to the Nestlés, Syngentas and Xylems of the world."

These companies offer the long-term funding for water research that is increasingly scarce in academia. In fact, he says, private-sector researchers are on the brink of revolutionizing water use and production practices in ways that may surprise water professionals. Based on initial findings at his center in Mexico, Biswas says, "I am now, for the first time, cautiously optimistic about the world's water future."

As for a third international hydro hub, Biswas says the only place with real potential is Berlin. If Singapore dominates in business, and Stockholm in networking, Berlin is positioning itself to be the water tech industry's intellectual center. The German capital hosted its first Water Dialogues as an idea exchange in the spring of 2011. It is also gearing up for the Blue Planet Water Conference in 2013, a major international event aiming to bring together specialists from industrial, energy, agricultural and environmental sectors in a holistic way. Of course, if Berlin's effort falls flat, Israel might yet surprise the world.