Water sector ripe for innovation and investment, finds Stanford-led report

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A Stanford-led report concludes that the water sector offers many opportunities for technological innovations. Credit: Stanford Woods Institute

Investors looking for promising growth markets would do well to consider their water bill.

"While the water sector offers many opportunities to innovate and deploy new technologies, in practice the sector has barely tapped the

potential those technologies offer," conclude the authors of a new Stanford-led report, "The Path to Water Innovation," which recommends spurring innovation by revising pricing policies, regulatory frameworks and financing.

Water's artificially low price in most of the United States is one factor holding back innovative new water technologies, according to the report's authors.

The report makes the case that policymakers should match the economic cost of supplying water and foster more private-sector innovation by:

- Creating state "innovation offices" to coordinate and support pro-innovation policies
- Ensuring that water prices capture the full cost of delivering water, including water withdrawal's impact on rivers and fish
- Using tiered pricing systems that ensure large water users are paying the true marginal cost of supplying them with water
- Decoupling utility revenue from the quantity of water sold
- Putting a public benefit charge on water to fund water innovation
- Reviewing statewide water regulations with an eye toward avoiding geographical inconsistency and promoting innovation

The U.S. water industry has long been hampered by artificially low rates, geographical and functional fragmentation, and system complexity, among other factors. In the West, particularly, water law is a complicated and often fraught overlap of government jurisdictions involving literally thousands of agencies. While other resources, such as energy, have seen technological revolutions in recent years, water has failed to attract much venture capital or corporate capital investment.

"New technologies must overcome low prices, regulatory barriers and a frequent lack of access to capital and other funding," said Barton "Buzz"

Thompson, the Robert E. Paradise Professor in Natural Resources Law at Stanford and Perry L. McCarty Director of the Stanford Woods Institute for the Environment. "Thankfully, steps can be taken to remove all of these barriers, although some steps may be politically difficult."

Thompson co-authored "The Path to Water Innovation" with Newsha Ajami, the director of urban water policy at Stanford's Water in the West program, and David G. Victor, director of the Laboratory on International Law and Regulation at the University of California, San Diego.

The paper was released during "New Directions for U.S. Water Policy," a recent forum at Stanford that featured comments from California Gov. Jerry Brown, former U.S. Treasury Secretary Robert E. Rubin, Facebook Chief Operating Officer Sheryl Sandberg and a range of experts from federal and municipal agencies, universities, agricultural interests, businesses and nonprofits. The forum, co-hosted by the Stanford Woods Institute and The Hamilton Project at the Brookings Institution, focused national attention on the Western United States' ongoing drought, market mechanisms for mitigating water shortages, the path to water innovation and global warming's impacts on water resources.

"Short-term and long-term sustainable management of our water resources requires new and innovative thinking," said Ajami. "We are tapped out on traditional solutions."

Technological innovation in the water sector could bring a raft of benefits ranging from the conservation of scarce water supplies to the expansion of water supplies through technologies that recycle or desalinate, for example.

The time is right for change. Across the West, drought has left wide

swaths of agricultural land brown, with massive wildfires raging through tinder-dry forests, residential wells tapped out and unemployed farm workers crowding food pantries. The drought is projected to cost the agricultural sector about $2.2 billion in 2014. The social and ecological damage is also profound.

As a result, public awareness and support for new water management approaches is growing. California's legislature recently passed comprehensive groundwater regulations for the first time, and the state's voters have approved Proposition 1, a $7.5 billion bond effort to expand water storage, water recycling and other water management efforts.

Beyond political urgency, there is climatic urgency. Water scarcity issues will only become more severe and complicated as global warming creates a new normal of extreme weather.

"We know with very high confidence that when we get low precipitation in California, we're about twice as likely to have a severe drought if it's also warm when precipitation is low," said Noah Diffenbaugh, a Stanford associate professor of environmental Earth system science and Woods senior fellow. "We're essentially approaching 100 percent risk of drought-inducing conditions because of this increase in temperature."

All of these factors make technological innovation in the water section imperative, Thompson said. "Water is going to be the critical resource issue of the 21st century."

More information: "The Path to Water Innovation" is available online: woods.stanford.edu/sites/defau … pson_paper_final.pdf

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