

Water Technology on the Bully Pulpit

On December 14, the Obama administration invited leaders from industry, government, and academia to the White House to discuss approaches for fostering innovation in the water sector. The meeting was motivated by the prominent role that water had played in the recent UN climate change conference. The struggles of state and local leaders facing droughts in California, Texas, and the Colorado River Basin as well as the damage caused by floods in New York, Miami, and New Orleans also had captured the attention of the executive branch.

Near the end of one of the sessions, a group of panelists was asked about actions the government could take to help create more effective solutions to the nation's water challenges. They responded with the usual litany of ideas related to regulatory reform and funding for their favorite projects. Despite a diversity of opinions, one idea resonated with the entire group: have the president talk about water in the next State of the Union address. After the applause died down, an administration official let the audience know how unlikely he thought it was that the issue of water could push its way onto the president's list of top priorities by saying, "duly noted."

Perhaps President Obama would respond differently if he knew what happens when a nation's leader puts water technology on the bully pulpit.

Early in his presidency, John F. Kennedy identified the development of better desalination technology as an issue of national importance. In response to a question at a press conference about how the U.S. was countering Russian successes in the space race, the president explained that strategic investments in technologies that could improve living conditions could counter the appeal of communism by saying, "If we could ever competitively—at a cheap rate—get fresh water from salt water, that would be in the long-range interest of humanity, and would really dwarf any other scientific accomplishment."

Kennedy's speech was only the start. The president followed through by creating the Office of Saline Waters within the Department of the Interior. With a budget of over \$150 million per year for research and development in current dollars at its peak, the office funded research that ultimately led to the development of the reverse osmosis and capacitive deionization technologies that are critical to current efforts on potable water reuse and the desalination of seawater and brackish waters.

The U.S. federal government's enthusiasm for water research, which continued during the Johnson administration, jump-started a new way of providing cities with water. But unlike medical devices and military research, water technology did not create a profitable industry that could hire lobbyists to advocate for funding. When the nation hit an economic rough patch in 1973, President Nixon allowed Congress to cut the budget of the Office of Saline Waters by about 90%. Research on water technology continued at a diminished scale in the National Science Foundation, the Bureau of Reclamation, and the Department of Energy, but it has never recovered to the levels needed to refill the innovation pipeline.

Over the past five decades, other world leaders have recognized the strategic importance of water technology. For example, Singapore's founder, Lee Kwan Yew, made the development of a reliable, local water supply a national security issue—actively embracing the issue through public appearances and funding research that created one of the world's leading innovation ecosystems on water technology. The leaders of Israel, The Netherlands, and most recently, China, also have prioritized research on water technology. The decision to elevate water technology to the national stage was not made to satisfy a lobbyist or to achieve glory through the award of an international prize. Water has been the priority of national leaders who recognized its importance to the economy and national security.

In response to concerns about water security, U.S. taxpayers will likely spend billions of dollars in the next decade on water recycling and desalination projects. Much of the technology underlying these investments can be traced back to the initiative that President Kennedy started half a century ago. Other investments that the country will make in water-efficient agriculture, leak detection, and flood protection will have been made possible by the actions of other visionary world leaders.

As the effects of climate change on water supplies intensify in coming decades, the world is going to need new water technologies to compensate for the loss of snowpack and the shifting of precipitation patterns. We are also going to need innovative approaches for protecting critical infrastructure from floods exacerbated by sea level rise and storms of greater intensity.

For the U.S. president, overcoming the divisive politics of groups that deny the existence of climate change and believe that government has no role to play in advancing technologies for climate change adaptation means that the creation of any new initiative will require that he make it an administration priority. President Obama used his most recent State of the Union addresses to advocate for a manned mission to Mars, to announce a new precision medicine initiative, and to emphasize the risks posed by climate change. He has indicated that he wants to use the last year of his presidency to follow through on the commitments that he made at the Paris Climate Conference. I can think of no better way for him to do so than to tell the nation about a bold new program to create the next generation of water technologies.

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