India's Water: To Infinity and Beyond

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Imagine if the United States were one-third its size and had four times the number of people living in it. Then imagine the stress on the natural and human-made infrastructure. You now have an initial understanding of the water challenges India faces.

India's population ranks second largest in the world, with China's being the largest. According to the US Department of Agriculture's International Macroeconomic Data Set (Dec. 13, 2018), India is expected to become the most populated country in the world before 2030. Economically, as measured by gross domestic product (GDP), India is fifth in the world (behind the United States, China, Japan, and Germany), and by 2030 it is anticipated to be fourth. That sort of growth is dependent on water.

AWWA has partnered with Indian water professionals for years. In June 2015 AWWA took a significant step in developing a local community of Indian water professionals by opening the doors to AWWAIndia, which is headquartered in Mumbai. At the time of its launch in 2015, AWWAIndia had approximately 90 Indian members. Today, it is about 300 members strong.

The signature event for AWWAIndia is its annual conference, known as the Annual India Conference and Exposition (AICE). In December of last year, AWWAIndia held its third edition of this conference in Mumbai.

One of my favorite moments was when Shirish Kardile closed the first day with words of wisdom. Shirish, the first-ever volunteer chair of AWWAIndia and a long-time member of AWWA, is insightful and candidly reflective about India's water future. He sees parallels between the United States' journey to solving its water problems and the path India could take. His remarks at AICE19 highlighted that during the 1950s, 1960s, and 1970s, the water situation in the United States was similar in many ways to what is prevailing in India today—US drinking water sources were contaminated, similar to how India's are. Shirish attributes the great strides the United States has made in water quality to the creation of the US Environmental Protection Agency (USEPA), Safe Drinking Water Act, and Clean Water Act, and he feels that these serve as models for India. Shirish fully understands that these are significant accomplishments, not easily achieved. As a demonstration that big changes are possible, he likes to remind his audience that the year before creating the USEPA, the United States put the first man on the moon—two great accomplishments in a short time. As Shirish likes to say, "If you can put a man on the moon. . ." You can probably finish the sentence.

Among the current water focuses of India is the redrafting of its National Water Policy. The chairman of the Drafting Committee, Dr. Mihir Shah, attended AICE19; he spoke of what he called "hydro-schizophrenia." He used this term to refer to the non-integrated management of India's drinking and agricultural water supplies—the challenge being that when an aquifer is used for both drinking and irrigation without a holistic management strategy, it is usually the drinking water supplies that fall short. Dr. Shah and several other presenters spoke of the opportunity and challenges of India's new goal to provide piped water to all rural households by 2024—a massive endeavor indeed.

Several speakers addressed the important cultural aspects of providing water in India. Dr. Ann-Perry Witmer, from the University of Illinois, shared insights on why providing safe water is more than a technical challenge. To be successful, she said, the designers must understand the importance of context, which requires infrastructure designers to consider a community's needs and conditions (i.e., context); success is as much related to the designer's adaptation to societal conditions as it is to technology and technical knowledge. Dr. Witmer's guidance on the importance of context resonates as true for all water professionals, no matter where we work and live.

Dr. Malini V. Shankar, a former high-level government official who served as part of the India Administrative Services and who has recently joined the AWWAIndia Advisory Board, seems to agree with Dr. Witmer. As she says in the October 2019 issue of *Smart Water & Waste World* ("States Need to Strongly Engage With the Community to Raise Awareness"), "The water engineer is an agent of social change, and this calls for a combination of attributes—technical knowledge with emphasis on its effective application, commitment to the cause of providing water, humanistic view of the end-user, and the skill to dialogue with the community."

It goes without saying that Indian water professionals recognize that India's water challenges are multifaceted—but as discussed by those attending AICE19, they are solvable. After all, their space program has successfully made it to Mars.

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