

WD EXCLUSIVE

In Conversation



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DRAWING PARALLELS IN THE WATER EQUATION IN AUSTRALIA AND INDIA

In conversation with Erik Schmidt, Deputy Director of the International Centre for Engineering in Agriculture at the University of Southern Queensland

A senior member of the research leadership team for the University of Southern Queensland, Erik Schmidt is an expert in water management and precision irrigation. His work on water resources management projects in countries like Australia, Bangladesh, Chile, China, India Nepal and South Africa, distinguishes him furthermore as an expert internationally. He sums up the challenges ahead for India's Irrigation sector for Water Digest.

Water Digest (WD): What is your opinion on the water sector in India? How does it stand today?

Mr. Erik Schmidt (ES): The challenges that India faces today in the water sector are significant, given the scale of its population and the scale of irrigation. There are still huge investments that need to be made in terms of increasing water use efficiency, for the huge agricultural population. I think the current focus is on technology as a mega solution for solving the problems. A big challenge is in marrying the large infrastructure being driven by the state departments, with the end user, i.e. the farmers on the ground; the majority of whom are small-scale and landless.

I think that the President of India was on target in his address, when he said that India will need to empower its people and give the ownership of the water sector to the people. Water management at the local level is going to play a critical role in this.

I'm impressed with the government agencies in India, for developing schemes benefitting the farmers, developing canal systems, dams and large infrastructure, and for the information management. And I think they are capable of driving them down to the people. It'll be interesting to see how they channelise their energies in blending infrastructure and technology with practices on the ground. We face similar challenges in Australia, except we have to deal with just 23 million people and not 1.3 billion people (as in India's case).

WD: What do you think are the key issues of implementing various projects in the water sector that need to be addressed here?

ES: A big challenge being faced today is in assuring power through electricity to farmers. 80% of the people currently depend on surface irrigation or flood irrigation done through diesel pumps.

How do we improve performance in that, while introducing new technologies like solar pumping, or drip irrigation, which is absolutely going to be the future? The gap that needs to be bridged is in replacing what's already on the ground with what's going to last us for the next 15 or 20 years. We're still struggling with these new technologies in terms of their cost effectiveness. At the moment, it could be driven by subsidy, but over a period of time, that will distort the market and create an imbalance between farmers who will be able to afford these systems, and the ones who will not, once the subsidy is gone. Even in Australia, which is a fairly advanced irrigation economy, and has probably higher capacity for innovation because of the smaller scale, drip and solar is still only emerging and is a small part of the total irrigation profile.

In Australia, we've been looking at providing trainings, and better management of the existing irrigation systems. For example, we managed programs where we took really low performing farms with 50 to 60% efficiency, and helped them increase efficiency up to 70 to 80% just by improving management in surface irrigation. There are similar opportunities in India as well.

WD: Treated wastewater is believed to have the potential to be reused in agriculture. How much potential and preparedness do you think exists for treated wastewater in India?

ES: Treated wastewater is certainly a great opportunity that is solving

two problems at the same time. It is taking away the problem of disposal of wastewater and also providing the soil with the required nutrients. I guess the challenge is, in terms of determining the value of the wastewater and its long term impact on the soil it is applied to; because water and the long term sustainability of soil are critically linked to each other.

When you use treated wastewater in a careful and measured way, even with drip irrigation, what often happens is, the soil environment around the roots gets impacted to some extent. Using treated wastewater can have some long term impacts on soil in terms of nutrients, salts and heavy metals, so it needs very close monitoring for its effects on the crop and its production. It is not only an easy solution, but a great solution as well, but a solution that needs to be managed carefully because of its negative consequences.

WD: Do they use wastewater for irrigation purpose in Australia as well?

ES: Yes, they do, and for the same reasons. Because, it is seen as a highly nutritional source of water as well, it is deemed a really good economic benefit. There are a number of schemes where farmers buy treated wastewater. They are actually paying for it because of the nutritional value. The farmers have to look at the nutrient input of this water, so that they can balance it by adding inorganic or artificial fertilisers.

WD: Please suggest some successful technologies from Australia, which can be replicated here and would work wonderfully in the Indian conditions.

ES: India is a global economy. Most of the technology that is available

in Australia is now available in India as well. India is an advanced country in terms of technology, IT and manufacturing. You has many big companies here, like Jain Irrigation and NETAFIM as good as we have in Australia. I think Australia has been good at monitoring and measuring. We have been able to monitor irrigation flows with the help of advanced metering and automation. So we are doing a lot of work by building smart irrigation systems, through accurate monitoring of the water going into the field, monitoring of the water in soil through different soil moisture sensing technologies, and then integrating that information to find out a way to apply water in a way which is responsive to what is happening to the ground.

WD: There must be huge data involved for such monitoring? Do you think there is preparedness

for handling that kind of data? Will it be a part of the technology that you think should be integrated with existing systems in India?

ES: I think there is certainly the capability or preparedness for that. I think many of the equipment suppliers have the platforms already to be able to capture such data. It's about obtaining the information from the sensors (flow meters), a lot of which is collected in the suppliers systems, which then could be integrated with the water authorities. I just came out of a session on informatics. It has shown to me that a lot of government agencies here have the capacity to do that at the national level. It is difficult to reach an ideal situation where a farmer could be self contained, by just utilising the available data, linking it with the water supplier and then using it to control the amount of water required in their field.

WD: What would be the message you would like to give to the readers of Water digest?

ES: I think water is an extremely important topic. It's a nice term, it rolls off the tongue very easily, but it's a very complicated topic as well. It's not gonna go away. We keep hearing of the nexus between water and energy and food. Water is really the middle part of that nexus, energy and food, sit around water. Many farmers in Australia now talk of themselves not as food producers, but as water managers, because water is the most critical element of all. Water conservation is a very complex problem that needs not only technical solutions but also economic solutions and social change.

