

 **JAIN**[®]
Jain Irrigation Systems Ltd.
Small Ideas. Big Revolutions.®

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Sub: Press Release

Dear Sir,

Forbes invited Shri Anil B. Jain, Vice Chairman and Managing Director of the Company to share his perspective on the present water challenges and the market-based innovations that can provide solutions.

Please find attached herewith extract of interview of Shri Anil B. Jain for your record and reference.

Please acknowledge.

Thanking you,

For Jain Irrigation Systems Ltd.


A. V. Ghodgaonkar
Company Secretary

Water Innovations For A Hot, Hungry Planet

[Lorin Fries](#) Contributor

[Food & Drink](#) How technology is transforming food and ecological systems



Man at a Punjab Reservoir Photo ©J. Carl Ganter/Circle of Blue/circleofblue.org. Used with Permission

Water crises are among the [top five global risks](#) in the world today. Nearly a third of the global population [copes without access to safe water](#) and as many as [700 million “water refugees”](#) could be displaced due to intense water scarcity by 2030. Against this backdrop, we need to nourish a growing population – and yet agriculture uses [nearly three quarters of our freshwater resources](#).

For Jain Irrigation Systems Ltd (JISL), the world’s second largest micro-irrigation company, headquartered in India, these challenges are core to their business strategy. I invited Anil Jain, the company’s vice chairman and managing director, to share his perspective on our present water challenges and the market-based innovations that can provide solutions.

Lorin Fries: Why should we be concerned about water use in agriculture?

Anil Jain: Of the water withdrawn today for human uses around the world, the production of food and other agricultural products represent 70% of freshwater withdrawals—and beyond 80% in India. Yet less than 3% of global total water resources is freshwater. At the same time, we have increased need for food: in India alone, demand is constantly rising in view of



the ever-increasing population—[projected to be 1.5 billion by 2030](#)—and the improving per capita income. As an agri-food company, we feel that improving water factor productivity can reduce demand for agricultural water, while producing more food.

Fries: The last four years have been the [hottest ever on record](#). How does climate change affect water availability and use for agriculture?

Jain: The alarm bell is already ringing. Climate change is affecting the hydrological cycle and the quantity and quality of freshwater sources available for human use. The recent [IPCC special report](#) on global warming of 1.5°C indicates that agricultural economies, which includes India, would suffer pronounced impacts of global warming in the form of floods, droughts, water scarcity and decrease in food production, exposing a greater proportion of an already vulnerable population to poverty, food and livelihood insecurity in the near future. Scientists also indicate that water stress will be 50% more if warming does not stop at 1.5°C, and instead leads towards 2°C.

At the same time, we currently waste 60-65% of the freshwater withdrawn for irrigation on a global level. This results in the decline of water tables at an alarming rate. For instance, [NASA's findings](#) suggest that India's water table is declining at about 0.3 meters per year, outpacing the rate of recharge and replenishment, and prompting the use of expensive deep-water equipment which has put the groundwater under severe stress.

Another often-overlooked factor is the link between climate change and the energy consumption for pumping water. India tops the list of largest groundwater-abstracting countries. [Irrigation alone consumes up to 20% of India's total electricity](#), representing roughly [4% of India's total carbon emissions](#).



Anil Jain, Vice President and Managing Director, Jain Irrigation Systems Ltd. Courtesy of Anil Jain

Fries: How does Jain Irrigation Systems Limited work on these challenges?

Jain: We believe “Water is life.” The company has pioneered a silent productivity revolution with modern irrigation systems and innovative agri-food solutions to save precious water and to increase crop yields. We have ushered in a new concept of Integrated Irrigation Solutions (IIS), enabling a “[Resource to Root](#)” process, tripling farmers’ productivity without creating pressure on water use or using excess fertilizers. We embarked into fruit and vegetable processing to ensure that the farmers get appropriate market linkages for their increased yields: we train more than 50,000 farmers, NGOs and government officials in our FAO-



certified Jain Hi-Tech Agri Institute every year. Through our solar- and biogas-based renewable energy solutions we also facilitate access to clean energy technology for farmers, which helps produce “more from less” in water- and electricity-starved areas.

Fries: Irrigation is one of humanity’s oldest innovations. What is new about your approach?

Jain: The prevailing inefficient irrigation practices in India account for significant energy consumption, with a substantial quantity of water going waste in the form of evapotranspiration, surface run off and percolation, without contributing to any yield increase. Drip irrigation methods demonstrate 70-90% water use efficiency, while conventional flood irrigation has field level application efficiency of only 40-50%. Drip irrigation also saves on the electricity used for pumping ground water, and improves the yield from 30-200% for various crops.

Fries: What models have you found for working with smallholder farmers?

Jain: One example is our onion contract farming model, launched in 2002. The company procures from over 5,000 contract farmer suppliers, approximately 70% of whom are smallholders. An agronomy support team supports the cultivators on seed sowing, fertigation, good agriculture practices (GAP) implementation and harvesting practices. The company then buys the produce at a minimum price established at the beginning of the growing season, or at approximately market price at harvest time, whichever is greater. Apart from an assured higher price, farmers’ relationships with JISL also allow them to obtain credit from commercial banks for marking information systems and other purchases such as seeds, planting material, and packaging.

For us, the advantages of contract farming include greater control over the quality and quantity of supply as compared to traditional procurement channels. We are also able to track each batch of the processed onion back to the farm, ensuring 100% “fork to farm” traceability. JISL has thus far applied the contract farming model to onion and mango, and plans to expand to spices.

Fries: You have incorporated emerging technologies such as the Internet of Things (IoT) into your business. How does this work?

Jain: Agriculture will look different in the future than it does today. Apart from innovations in irrigation and plant science, we will need more advanced automation, remote monitoring, bio-monitoring and advisory solutions. We undertake turnkey projects such as the world’s largest community-based micro-irrigation project on 12,300 hectares in Ramthal, Karnataka, involving over 7,000 farmers. The project is based on the IoT and equipped with Centralized Automation Control. A Decision Support System sends irrigation and agronomical advice to farmers through text messages. At individual level, smallholders may not require hi-tech arrangements like the IoT, but simple automation saves water and energy while helping with yield enhancement.

Fries: You recently acquired PureSense, ETwater and Observant. Why do these companies and their technologies stand out for you?



Jain: [PureSense](#) is at the forefront of field monitoring solutions and irrigation management strategies that enable growers to make fast field decisions within an easy-to-use software interface. The patented technology of [ETwater](#) integrates data science, machine learning and predictive analytics about weather forecast and environmental variables to automatically, optimally adjust to site-specific irrigation schedules. And [Observant](#) is a world leader in providing in-field hardware and cloud-based applications for precision farm water management.

Fries: Do you see such technologies as core to your business strategy in the years to come?

Jain: We believe that precision farming and the use of advanced technology in agriculture is the future. It promotes the use of scarce resources optimally and sustainably, which is a critical step towards water security, food security and energy security. While we are leaders in the world in drip irrigation, our acquisitions in the ag tech space will help us maintain leadership in bringing the most effective solutions to our farmers. Ag tech is the need of the hour.

This interview is part of a series on how technology and innovation are transforming food and ecological systems – and how to get it right for people and planet. The conversation has been edited for clarity and length.

