Compiled by Amy McIntosh

KU MCMAHAN

Food for Thought

Exploring the relationship between water scarcity & food production

Food and water are two basic necessities of life, but as water resources become scarcer worldwide, the impact on food production could be devastating. Securing Water for Food (SWFF) is a challenge designed to find and accelerate innovations to help alleviate the threat of water scarcity through new technologies and business models. W&WD Associate Editor Amy McIntosh asked Dr. Ku McMahan, team lead for SWFF, about the challenge and its goals.

Amy McIntosh: What is the relationship between water and food? How does water scarcity impact food production?

Ku McMahan: More than 70% of water use is in the food value chain. At the same time, roughly 2.8 billion people globally live in areas impacted by water scarcity. For nearly half of those people, demand is greater than supply. As demand continues to increase, there will be less and less water available for food production, processing and distribution. The resulting decrease in agricultural productivity drastically impacts agrarian and world economies. But growth in the agricultural sector is one of the most effective ways of raising incomes and reducing poverty in the developing world. Plain and simple, water access is vital to food security, our economies and our health, at home and abroad.

McIntosh: Which types of innovations are necessary to alleviate water scarcity?

McMahan: We look for innovators from all over the world who are interested in improving food production in the developing world from a number of different angles, namely water efficiency and wastewater reuse, water capture and storage, and desalination technologies. After extensive market research, SWFF found that technologies to combat these problems were not reaching all parts of the food value chain in developing countries due to issues like cost, lack of supply chains or market risk. In addition to technologies, we're also looking for cutting-edge, advanced business models that could also address this issue.

That's why SWFF looks for innovators who will think outside the box. For instance, one of our innovators, MetaMeta & SaltFarmTexel, has invented a non-[genetically modified organism], salt-tolerant potato that requires very little freshwater for cultivation. They have already harvested their first crop in Pakistan, where they are implementing and scaling up access to this potato will allow better land use in areas with high salinity and will reduce the pressure on freshwater resources.

McIntosh: What is the mission of SWFF?

McMahan: SWFF is a Grand Challenge for Development (a U.S. Agency for International Development initiative), so it is rooted in two fundamental beliefs about international development: Science and technology, when applied appropriately, can have transformational effects; and engaging the world in the quest for solutions is critical to instigating breakthrough progress.

Under this catalytic model, SWFF is looking for game-changing solutions that will increase water availability and promote efficient use of water in the food value chain. SWFF taps the transformative power of science and technology and the collective imagination and ingenuity of experts across a broad range of disciplines to bring scalable, affordable solutions for water efficiency in agriculture to the developing world.

We seek truly groundbreaking technologies and business models that go beyond what is already being done in this space. Innovations must have been designed with the end-user in mind and demonstrate an understanding of the local environment—local partnerships and presence are critical. In focusing on projects that are post-pilot with viable business models, we aim to "invest" in innovations that have a high potential to scale and achieve commercial growth.

McIntosh: Please give an example of a project that received funding and is creating a meaningful solution in a water-scarce area.

McMahan: One of our India-based innovators, MyRain, helps Indian farmers better irrigate their crops by using drip irrigation, which can increase water efficiency by up to 50% and can double crop yield. MyRain LLC uses a mobile software to train, support and transact with irrigation system distributors so they can more effectively sell, distribute and install new systems. The application helps promote a more efficient distribution network, create jobs and improve farmers' incomes. In working with MyRain, we have been able to not only provide them with funding but also technical assistance to help them refine their approach and business model. iWWD

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