Guest Commentary- 'Business as Usual' Management of Water and Agriculture Will Cripple Paths to Sustainable Development

By Frank Rijsberman, Jeremy Bird, and Andrew Noble

Water is a constant in our lives – so ubiquitous we barely notice it. But extreme water variability has become the new normal. São Paulo, Brazil is one of several regions experiencing unprecedented drought. Malawi is still reeling from last month's flooding. Extreme water variability is the new normal. As agricultural scientists, we must take note: the biggest consumer of the world's water is agriculture, so how we farm in the future matters. Our job is to come up with innovations that will help sustainably provide healthy and nutritious food to a global community.

It is one of humankind's greatest success stories that we now grow more food now than ever before. But the very foundation of agricultural production has been eroded by improper management of soil, water and landscapes. 1.2 billion still live in extreme poverty, and the global population is set to significantly increase. The demand for food may outstrip supply by 2030 if we do not make the right decisions now.

2015 marks a critical juncture for humanity. The forthcoming adoption of the United Nations Sustainable Development Goals (SDGs) will dictate the international development agenda for the next one and a half decades. Add to that the highly anticipated new climate agreement that is likely to emerge from December talks in Paris, and it is clear we are at a watershed moment.

Severe water shortages will not just affect regions in developing countries

Demand for water around the world will increase by 55% over the next 15 years, according to the authors of a new UN report, *Water for a Sustainable World*, that was launched in New Delhi last week. This a further wake-up call. The Report warns that some regions in the world may become uninhabitable due to severe water shortages. This will not just affect some developing countries, but also include regions of North America and Southern Europe. It sounds alarming, and it is, but the good news is that there is much we can do to head off such calamities in some regions. In water stressed countries like Australia and parts of the Near East new technologies and better resource management have already proven that we can make our water go further, whilst still allowing for economic growth and safeguarding our natural systems.

Farmers are the guardians of the world's water resources

But what works in Adelaide may not necessarily work in Addis. And that is where science can step in. At CGIAR our researchers are identifying locally relevant water solutions and incentives for uptake that can have a real impact in some of the world's poorest countries. Farmers are the guardians of the world's natural resources, and agricultural research empowers them to improve water use efficiency, double harvested rainwater, halt the loss of biodiversity. Add to these simple land preparation techniques such as land grading, being trialled in Pakistan by CGIAR, and there are already indications that water savings of up to 20% can be made with no loss of output. Reduced water pumping also means less carbon emissions, easing pressure on the global climate.

Also this week, the Nature Conservancy (TNC) and partners that include the International Center for Tropical Agriculture (CIAT), launched the Tana-Nairobi Water Fund. It aims to increase farm productivity upstream while improving water supply and cutting costs of hydropower and clean water for users downstream. This endeavour is designed to generate US$21.5 million in long-term benefits to Kenyan citizens, including farmers and businesses.

It’s not only about increasing productivity but ensuring agriculture addresses past land and water degradation, and positively contributes to the environment. In Central Asia, the International Water Management Institute (IWMI) is working with farmers to rehabilitate salinized land using licorice. Planting licorice provides multiple benefits to the ecosystem and restores the productive use of land. The licorice biomass can be used as a source of fiber for livestock and the roots for pharmaceutical products. There is the potential to bring back into productive use more than 760,000ha alone in Central Asia.

Such affordable improvements coming from agricultural research in nutrient and water management will be especially crucial for millions of cash-strapped smallholder households.

Water must have a dedicated Sustainable Development Goal

Much is being achieved, but more needs to be done. The authors of the UN report mentioned above call for a dedicated global Sustainable Development Goal for water. They should be heeded. Such a goal will help protect water resources from over exploitation and pollution while ensuring that they are properly managed for all. It further supports the human right to safe drinking water and sanitation as well as other rights including those to life, of the child, of an adequate standard to living, and health.

Agriculture and water research is already providing many of the answers to our global resource challenges. We stand at a crossroads, and failure to invest in further innovation could now be catastrophic. But if we take the right action, the right path, we can be confident of a brighter, and more water-secure future for years to come.

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