

Enough water for enough food? Trends and Prospects in Water Management for Agriculture.

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The water-for-food equation is straightforward. There will be more people from 6 to 9 billion by 2050. Already more than half are living in cities. More people will have more wealth and consume more calories in the form of meat, milk and fish. Estimates place the need for additional food production at about 70 to 100% more than we produce now. More food requires more water. If we continue producing food the way we do now, up to twice as much water would go into food production in the form of evapotranspiration. Given that we have water scarcity now; that we have reached or surpassed limits already with groundwater decline, shrinking rivers and threatened fisheries; that climate change brings more risk and uncertainty; something has to change.

There are only a few basic pathways of using water to grow more food with the Earth's water: continue to expand rainfed and irrigated land and water use; increase productivity of water and water resources; encourage trade in food commodities; and to modify our food and fiber consumption practices. Large scale land expansion for agriculture is no longer a viable solution because of ecological limitations.

Much of the discourse on water today tends to be around reducing water usage in agriculture by reducing wastage, increasing water productivity, virtual water trade. These are all valid, especially for physically water scarce river basins where water is already over allocated to various uses, ecosystems are threatened, and competition for limited water resources is high. This global discourse tends to hide a second reality – that of economic water scarcity, where in spite of abundant river flows, groundwater or rain, access to water for food production or household use is limited. Yet, it is surprising how little attention is given to the water for food issue across sub-Saharan Africa.

Much of the African, Caribbean and Pacific Group of States (ACP) region falls in the category of economic water scarcity. In these areas of high poverty and limited water access, there is scope to use more water for food production. In pockets of poverty, expanding access to water through a range of water management solutions holds the key to food security and poverty reduction. However, how the water is developed and managed will be much different than the designs that served us well for the green revolution. There is a range of options that include small scale water management options including supplemental irrigation, use of groundwater and water harvesting techniques complementing conventional large scale irrigation. Increased water storage, utilizing small and large reservoirs, groundwater, wetlands, and soil moisture, is critical to provide water access, and is a key climate change adaptation measure. In fact, the highest gains in water productivity are to be had in the areas of lowest yield coinciding with pockets of poverty. Here the basics (water, fertilizers, seeds and good farm practices) can go a long way in dealing with water problems and in reducing poverty.

Will there be enough water to grow enough food? The Comprehensive Assessment of Water Management in Agriculture concluded that it is *possible* to produce the food needed, but if present practices continue it is not probable that we will solve the many poverty and environmental challenges confronting us. This will require some serious change in how we think and act on issues of water.

