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Opinion: The Water Deficit

Current farming practices draw too much of the world's freshwater supplies to be sustainable. A change is needed to support growing agricultural demand.

By David Molden | August 23, 2011

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A woman watering vegetables in a wetland in Mozambique
MATTHEW MCCARTNEY

The pictures look familiar to the point of grim cliché. Starving children in Somalia dying in droves as drought desiccates the landscape. Yes, we have seen this horrific scene before and too many times.

But what's happening there, while an extreme example, is not an isolated event. It is just one of a series of food-related crises of the past year that have many questioning the ability of current agriculture systems to provide adequate food, fiber and fuel in the face of environmental, population and political challenges. The famine in northern Somalia was preceded by weather-

related crop losses over the last year in Russia and Australia, which contributed to a rapid rise in food prices. This in turn fueled food insecurity throughout the developing world and contributed to unrest in Tunisia, Egypt, and elsewhere.

Much of today's farming problems stem from decreasing availability of freshwater. Agriculture currently withdraws about 70 to 90 percent of our developed water supplies, and increased use of water for irrigation in many of the world's "breadbasket" river basins has already depleted major rivers, including the Indus, the Colorado, the Yellow River, the Jordan, and the Murray-Darling, and caused steep drops in levels of groundwater. With climate change further constraining water availability, how can we expect farmers to achieve 70 percent more food production over the next 30 years to keeping pace with the growing population?

There is simply not enough water to support farming as it is currently practiced.

A [new report](#), released at World Water Week in Stockholm this week, warns of the urgent need to reconsider how critical water, land, and ecosystem resources are used to boost crop yields. Produced by the United Nations Environment Programme (UNEP) and the [International Water Management Institute \(IWMI\)](#), with a range of partners, the report proposes how water resources can continue to support the health of an ecosystem while addressing the demands of farmers and other local users.

Technically, it is possible to "fix" agriculture, while ensuring long-term sustainability and environmental health. But in devising solutions, we must assign value to ecosystems, recognize environmental and livelihood tradeoffs, and balance the rights of a variety of users and interests. And we cannot ignore the inequities that result when such measures are adopted, such as the reallocation of water from poor to rich, the clearing of land to make way for more productive farmland, or the preservation of a wetland system that limits fishing rights.

But the changes required to find a balancing act between ecosystem health and food security are not incredibly radical. For example, farmers upstream could adopt practices that would yield good quality, clean water for the downstream cities. City dwellers would make payments to these farmers for the cost associated with these new practices; and for investments in more sustainable practices that would



A man collects water for irrigation from a wetlands in Matobos, Zimbabwe.
EDWARD CHUMA

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produce more food with less water.

Other possibilities include efforts to store water, prevent erosion, promote vegetation, and recharge groundwater—all necessary for healthy environments and agriculture. Indeed, watershed programs across India and elsewhere in Asia are working with poor rural communities to establish more water-conservative farming strategies.

Furthermore, farmers in some of the driest regions of the world are incorporating trees into their farms, which help stabilize water resources for the entire area while providing natural fertilizers for their crops and fodder for their animals.

These activities offer hope that farming can be transformed into a sustainable practice and expanded with the growing population. But to fulfill the promise of this new movement that embraces both agriculture and conservation, change must take place on a massive scale and on a global stage. Whether it takes place in the laboratory or in the field, we need nothing short of a revolution in the way we think about land and its cultivation. But with farmers and conservationists working together, we just might ensure that the world's most vulnerable people have enough to eat, while preserving the ecosystems that cradle us all.



A woman with her crops grown in a wetland in South Africa
MUTSA MASIYADUMA

David Molden is Deputy Director General of Research at the International Water Management Institute (IWMI), and a co-author of the [new report](#) published by IWMI and UNEP, "An Ecosystem Services Approach to Water and Food Security," released this week at the World Water Week in Stockholm.

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