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Water systems at risk from growing demand for food - expert

22 Aug 2011 00:15
Source: [Alertnet](#) // [Laurie Goering](#)



A farmer works in a rice field in rural Sri Lanka. Photo: Sanjini de Silva, IWMI

By [Laurie Goering](#)

LONDON (AlertNet) – Efforts to feed an extra 2 billion people by mid-century could lead to widespread destruction of forests, wetlands and other natural systems that protect and regulate the world's water, researchers warn.

But finding ways to boost agricultural production while protecting nature could produce big benefits, including reduced poverty and hunger in some of the world's most fragile countries and hikes in food production that are sustainable beyond 2050.

"Given that we have to produce more food, how do we do that and not destroy ecosystems? That's the biggest question in agriculture right now – not producing more food but doing it sustainably," said David Molden, research director of the Sri Lanka-based [International Water Management Institute](#).

The question is particularly urgent as water runs short in some of the world's most important food-producing regions, including the plains of northern China, India's Punjab and the western United States, as well as in a broad swath of the Middle East and North Africa.

The shortages are in part a result of population hikes and water overuse, but are also being worsened by the impacts of climate change, including more severe drought, extreme temperatures and increasingly unpredictable rainfall, Molden said.



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As climate variability increases, "we're bound to face some shocks to the system," he said in an interview with AlertNet, as his institute released a new report on building "agro-ecosystems" to protect water and food security.

The report asserts that "it is possible to feed everyone without massive and irreversible damage to our ecosystems – damage that would ultimately endanger both water and food security in the future."

Making it happen, however, is a huge challenge, the report acknowledges.

MORE FOOD, LESS WATER

The good news is that both researchers and people confronting water shortages around the world are coming up with some creative ways to produce more food with less water. Those include everything from raising fish in rice paddies to planting trees on farmland to protect and enrich soils, Molden said.

"The best people to figure it out are local people. It's their survival. It's amazing what kinds of things they come up with," he added.

In Africa, where degraded soils are a widespread problem, some farmers are switching from plowing fields to "minimum tillage" systems that protect the structure of the soil, allowing it to absorb and hold more water. Such changes can help get farmers through short drought periods that could otherwise damage their crops, the researcher said.

Under traditional plowing and planting systems, only about 20 percent of rainfall is absorbed into crops, with the rest lost to evaporation and runoff. Improving soils – through planting fertilizer trees, adding compost and avoiding tilling fields, for instance – can help crops absorb up to 70 percent of the rain that falls, Molden said.

That is particularly crucial as climate change increases the variability of rainfall and snowmelt, making the water available to farmers less reliable, he said.

"When you're sitting on the brink of water scarcity, a five to 10 percent difference (in water availability) is huge," Molden added.

One encouraging sign is that agricultural experts increasingly understand that simply clearing land for agricultural expansion – including cutting trees and draining wetlands – is not the best way to boost production in the long run because of the impacts it can have on water availability, Molden said.

But that growing realisation is not always translating into action.

"It's possible to feed everybody and still come up with a good healthy environment," Molden said. "But that's not the track we're on."

Right now, "we're going into (water) debt and somebody, sometime, will have to pay for it," he said.

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Radha Kunke

Yesterday at 8:55 AM

while it seems that the solution to increase agricultural production would be to clear more and more land and bring it under cultivation, the fact is that we have a very inefficient system of agriculture. And no, I do not mean only the Indian, small-holdings way. The industrial farms consume huge amounts of energy and water and their footprint is way too high. Added to this is this insatiable demand for water, where we need to use it more efficiently rather than just draw, draw, and draw on the groundwater... We need a change in mindset. Our agriculture using SRI methods have proved very successful. http://www.wotr.org/Casestudy_Damarigedda-SRI.html It has not only increased productivity but also has used water effectively, while at the same time eliminating the toxic effects of excessive use of pesticides...
