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Need for Water Could Double in 50 Years, U.N. Study Finds

By [CELIA W. DUGGER](#)

More than two billion people already live in regions facing a scarcity of water, and unless the world changes its ways over the next 50 years, the amount of water needed for a rapidly growing population will double, scientists warned in a study released yesterday.

At the worst, a deepening water crisis would fuel violent conflicts, dry up rivers and increase groundwater pollution, their report says. It would also force the rural poor to clear ever more grasslands and forests to grow food and leave many more people hungry.

The report, which draws on the research of more than 400 hydrologists, agronomists and other scientists, was sponsored by the [United Nations](#) Food and Agriculture Organization and the Consultative Group on International Agricultural Research, the world's premier network of agricultural research centers, among others.

The authors of the report, "Water for Good, Water for Life: Insights from the Comprehensive Assessment of Water Management in Agriculture," concluded that countries confronting severe water shortages cannot simply employ the same strategies for increasing food production that have had dramatic success over the past half-century.

Since 1950, the acreage of land under irrigation — a driving factor behind the Green Revolution that helped Asia feed itself — has tripled. But some parts of the world, including the breadbaskets of India and China, the cotton belt of Central Asia and swaths of the Middle East, are reaching the physical limits of their water supplies.

Sub-Saharan Africa, the world's poorest region, has lacked the financial wherewithal to build dams and irrigation systems to get water to farms and homes in rural areas where most people live.

"We have to learn how to grow more food with less water," said David Molden, the principal researcher at the International Water Management Institute in Sri Lanka and the coordinator of the study.

"That's imperative. We can't just keep expanding the land used."

In Africa, where having an adequate food supply is still a life-and-death issue, the scholars say governments and donors should focus on relatively inexpensive, small-scale methods for irrigating small, often widely scattered plots of land.

For example, farmers could use small tanks to store rainwater and apply it to crops through simple drip irrigation during dry spells. Farmers could also operate treadle pumps to tap into groundwater. Such pumps work like a stair stepper in the gym, cost only \$50 to \$100 each and are powered by the farmer's own labor, not costly fuels.

"A lot more people could benefit from these small-scale technologies in Africa than from a large dam," said Mr. Molden, a hydrologist. "You can buy a treadle pump and install it immediately. You have to wait 5 or 10 years for a dam to be built."

But the authors of the study, released in Stockholm at an international conference on water, also note that while these technologies may be simple, installing them on a national scale and maintaining their use would be no easy matter. For example, a country like Ethiopia, with very low rural literacy levels, would need to train people to carry out such a plan.

Water alone would not be enough. Farmers need credit, crop insurance and roads to get their products to market. They need [AIDS](#) treatment, and they need fertilizers to nourish their land. A major study released

in March found that three-quarters of sub-Saharan Africa's farmland is severely depleted of basic nutrients to grow crops.

The report also raised the specter of global [climate change](#), and its potential to alter patterns of rainfall, especially in the poor countries near the Equator.

The more rapid glacial melt in the Himalayas is now increasing the water flowing into India, Nepal, Pakistan and China, but it may mean much less water in future years, the report said.

"To me, that's quite frightening," Mr. Molden said.