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Africa: Making Every Drop Count - Water Usage in the Developing World

BY IAN POTTS, 22 JANUARY 2011

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UN Water reports that by 2025, developing countries will increase their water consumption by 50 percent and 75 percent of countries will face water scarcity by 2050. However, farmers in South Asia and sub-Saharan Africa are finding ways to conserve water with the help of cheap and accessible innovations.

Currently, agriculture consumes approximately 70 percent of fresh water used, with 15-35 percent of all agricultural water sources being used beyond sustainable levels. Efficient and dynamic water usage now can reduce these stresses dramatically and allow farmers to remain competitive.

"We also see a lot of challenges with declining water supplies and desertification in Sub-Saharan Africa," said Danielle Nierenberg, Senior Researcher at the Worldwatch Institute to MediaGlobal. "Farmers are losing their soil and water resources at an alarming rate."

The Worldwatch Institute's State of the World 2011 points to one affordable tool called the treadle pump. Roughly resembling a Stairmaster, treadle pumps use a person's body weight and leg strength to pump water from ponds, lakes, or streams into an irrigation system or directly to crops.

"There farmers are working with different NGO's to develop these very low-tech treadle pumps that are made of locally procured materials, they're very inexpensive, and they're very easy for farmers to use. Their children can use them, they're not very heavy, and they can be moved to different parts of a farm," said Nierenberg.

Treadle pumps were first developed in Bangladesh with the help of Denver-based International Development Enterprises (IDE). Costing roughly \$35, over 1.5 million have been sold in Bangladesh alone since 1980. NGOs like IDE and KickStart have brought variations of these pumps into Malawi, Tanzania, Mali, Kenya, and Burkina Faso.

Their low-cost and simplicity has created a new demographic of independent farmers. KickStart estimates that 301,000 people have rose out of poverty with the extra profit these pumps provide.

Another method for stemming water usage has come from a collaborative project between Columbia University's Columbia Water Center and the Punjab Agricultural University (PAU).

"Basically, these are the small technologies that are relatively cheaper; one is the small device we call the tensiometer," explains Dr. R.S. Sidhu, Department Head of Economics and Sociology at PAU to MediaGlobal. "It's two pipes, attached with a ceramic cup which helps to measure the availability of soil moisture to the roots of the rice crop."

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The instrument has been field tested in the Punjab region of India with great success, and the project is now testing in Gujarat under different conditions and with different crops.

"This technology that we have tested on the field, it saves around 30 percent of the water usage because under normal practices, farmers keep water standing in the crop," said Sidhu.

Though the Punjab is among the most productive and fertile farming regions in the world, Sidhu cites that groundwater resources are being overused by 45 percent. Priced at \$3, a tensiometer is affordable enough to be a viable option for the rural poor.

Not only will this help reduce water usage significantly, it will also increase crop productivity. Tensiometers will enable farmers to identify the perfect soil saturation for any given crop, and allow them to irrigate accordingly.

The Worldwatch Institute cites that we could bridge three quarters of the world's additional food needs for 2050 if farms like these were to increase to 80 percent of high yield farms. While these innovations may seem small, the impact that they are having is enormous. They are capable of boosting productivity by huge percentages, and can truly become life-changing.

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