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Africa: Smallholder Farmers Driving New Trend Against Climate Change

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BY BUSANI BAFANA, 27 AUGUST 2012

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INTERVIEW

Bulawayo — Small-scale irrigation schemes can provide the biggest opportunity for boosting food security in Africa, according to Meredith Giordano, the research director at the [International Water Management Institute](#).

As World Water Week began in Stockholm on Aug. 26, the institute released an international study that shows how water management innovations could boost crop yields and raise household income on the continent.

According to the report, "Water for wealth and food security: Supporting farmer-driven investments in agricultural water management," published on Aug. 24, expanding the use of smallholder water management techniques could increase yields by up to 300 percent in some cases, and could add tens of billions of dollars to household revenues across sub-Saharan Africa and South Asia.

The report, the result of a three-year AgWater Solutions Research Initiative coordinated by Giordano, shows for the first time how enterprising smallholder farmers are using their resources innovatively to finance and install irrigation technologies.

Giordano said that it is clear that smallholder farmers are driving the new trend that has the potential to cushion them against climate change. Excerpts of the interview follow:

Q: Is irrigation the solution to adapting to climate change?

A: It is one of a range of feasible solutions. With predictions of increased frequency of extreme weather events (flooding and droughts) in Africa, capturing and storing floodwater and using it for irrigation is one option for agricultural adaptation to climate change.

Investing in smallholder agricultural water management (AWM) provides increased options for farmers, increased incomes and food security, which in turn foster greater resilience and capacity to adapt to climate change.

Q: How can science and technology contribute to making irrigation viable for smallholder farmers?

A: Research such as that conducted under this project can provide information for investors on what, where and how to invest to support smallholder AWM for poverty reduction.

Many viable, small scale AWM technologies already exist, but important areas for future technology research and development include improving the efficiency of small pumps and exploring new - or reducing the cost of existing - alternative sources of energy (e.g., solar).

Satellite images and remote sensing can provide data on groundwater resources, water storage and distribution patterns, crop yields, droughts and flooding to facilitate expansion and scaling up of small-scale irrigation. They also allow monitoring of environmental problems in near real time, so that effective solutions can be quickly implemented.

Q: What has been the problem with large irrigation schemes in the developing world, especially Africa?

A: There are a wide range of AWM options for poverty alleviation and economic growth -- from improving rain-fed and small-scale irrigation to constructing large-scale



Photo: Karen Connif/IWMI

In Ethiopia muscle power is the only option for many farm pumps, but even these can drastically improve farm yields and incomes.

irrigation structures.

The continued rise in food prices and the threat this poses to the food security of the vulnerable poor have led to a renewed interest and focus among investors in large-scale irrigation schemes, which, given that very little irrigation infrastructure exists in sub-Saharan Africa, are indeed relevant and warranted.

However, large-scale investments can be expensive and only reach smallholders who farm close to where the systems operate. Moreover, the focus on large scale overlooks significant investment opportunities within the smallholder AWM sector -- a growing, farmer-driven trend that is already increasing incomes and food security of the rural poor and has the potential to benefit millions of smallholder farmers in sub-Saharan Africa alone.

The performance record of large-scale public sector irrigation schemes in Africa has been poor due to high capital and operating costs, poor cost recovery and service delivery that is supply, rather than demand, driven. These problems can be avoided or better handled in small-scale irrigation systems.

Q: Irrigation has its own challenges, for example, with initial infrastructure installation and maintenance. How can farmers address this?

A: Indeed, even small-scale irrigation requires upfront investments and regular operation and maintenance costs. Supporting rental markets, for example, can be an option to help smallholders who cannot afford to buy AWM technologies, such as motorised pumps, and who lack the technical knowledge to maintain them.

Other solutions include training both farmers and dealers on which technologies best suit different needs and how to operate and maintain equipment. Existing agricultural networks can provide effective outlets to disseminate information about AWM technologies, prices, vendors, and after-service support, while others can provide the necessary training and capacity-building on equipment installation and maintenance.

Q: Can irrigation save scarce water resources, if at all?

A: Investments in AWM technologies can improve water use efficiency. For example, investments to upgrade community-managed river diversion irrigation schemes in Tanzania have resulted in improved water productivity through more efficient water conveyance. Drip and sprinkler irrigation can deliver water to match crop requirements and can save water compared with large-scale canal irrigation systems.

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