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# Joint Statement

# The Case for Expanding Smallholder Irrigation in Sub-Saharan Africa

Resulting from:

Joint Workshop on Smallholder Irrigation in Sub-Saharan Africa

Water for Food Conference
University of Nebraska
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*Sponsored by:*

*Water for Food Institute at the University of Nebraska*
*KickStart International*
*Bill & Melinda Gates Foundation*

*in association with:*

*Water, Land and Ecosystems Program of the CGIAR*

# Draft Joint Statement on Expanding Smallholder Irrigation in Sub-Saharan Africa

*On April 24, 2016, the Water for Food Institute at the University of Nebraska, KickStart International and the Bill & Melinda Gates Foundation, in association with the Water, Land and Ecosystems Program of the CGIAR, co-convened a workshop on the opportunities and challenges of increasing irrigation for smallholder farmers in Sub-Saharan Africa (SSA). A panel of experts provided an introduction to smallholder irrigation in SSA, an overview of recent studies measuring the availability of groundwater in SSA and comparing the yield gaps of irrigated vs. rain-fed agriculture as well as a review of lessons learned on irrigation from the perspective of agricultural water management. Over 150 distinguished presenters and attendees of the 2016 Water for Food Conference contributed to the break-out portion of the workshop. Panelists facilitated group discussions to identify; the benefits of expanding smallholder irrigation in SSA; the challenges thus far preventing this expansion; and the best next steps to act-on and promote smallholder irrigation to improve the lives of millions of the world's poorest farmers there.*

*A synthesis of the ideas that came out of this workshop was reported back to the Water for Food Conference on Monday, April 25 by Dr. Martin Fisher of KickStart International and is reflected in the following draft statement. A core group of initial stakeholders re-convened on Wednesday, April 27 to commit to finalizing and disseminating this draft statement as the first step in building a platform for aligning knowledge on and support for expanding smallholder irrigation in SSA.*

## Background

Despite the relative abundance of water resources in SSA, only some 5% of agricultural land in the region is irrigated, compared to 20% globally and 40% across South Asia. Furthermore, 40% of the irrigated area in SSA is under large-scale or commercial production that benefits only a limited number of smallholder farmers and two-thirds of this irrigated land is concentrated in just three countries – Sudan, South Africa and Madagascar. Conservative estimates show that available groundwater alone can sustainably support irrigation on up to 20% of agricultural land in SSA without negatively impacting the environment.

There is growing evidence that smallholder farmers in the region can realize substantial income gains by using small-scale technologies to irrigate from shallow groundwater and surface sources. Additional studies have demonstrated demand for small-scale irrigation tools from smallholders as well as their willingness to invest in these assets. An increasing number of smallholders are starting to irrigate but, to feed Africa in the dry seasons and ensure its full food security, millions more need to join them. Yield-gap analyses show that the continent cannot be food self-sufficient from rain-fed agriculture alone. Greatly increased uptake of irrigation was a vital success factor of the 'Green Revolution' in India — improved water management and irrigation enabled year-round production and greatly enhanced the benefits of improved seeds and soil fertility to increase overall agricultural productivity and food security.

A significant expansion of irrigated agriculture (in the areas where water resources can support it) will substantially improve both the overall prosperity of the region and the lives of millions of smallholder farmers. Only with irrigation can smallholders grow and sell multiple cycles of high-value crops per year, transforming subsistence farms into full-time, profitable businesses and overcoming the vicious feast-to-famine cycle that traps smallholders in poverty. While rain-fed harvests are sold for low prices in oversaturated local markets, irrigated produce can be sold for much higher prices during the dry seasons when food is scarce. In addition, with climate change the rains in Africa are becoming increasingly unpredictable and the ability to irrigate greatly increases a farmer's resilience. Only with irrigation can they save their rain-fed crops when the rains fail, and replant new crops when floods wash away their harvests.

Despite the expected gains, increasing irrigation by smallholders across SSA will not be easy. To succeed will require a concerted effort to develop the appropriate evidence base, to understand the constraints that have held back the development of irrigation in the region to date and to develop and implement a comprehensive set of public and private sector approaches to address and overcome these constraints.

## The workshop attendees agreed that:

(1) **There is great potential for the expansion of smallholder irrigation to increase food and income security across Sub Sharan Africa (SSA) by 2050.** Significant evidence from Asia and multiple studies support this claim. Specifically we believe that the expansion of smallholder irrigation can:

- Promote broader food security by enabling smallholders to get higher yields of a greater diversity of irrigated crops and save rain-fed crops when rains fail due to climate change.
- Provide smallholders with increased incomes earned year-round, preventing their slide back into poverty during dry seasons while enabling additional investments in inputs and the diversification of household income sources.
- Improve rural economies by significantly decreasing risk in the agriculture sector and encouraging increased private sector investment in local value chains.
- Positively impact the environment as individuals will only practice good stewardship once they can adequately provide for themselves and their families. In addition, there is an opportunity for SSA to leapfrog many of the less environmentally-friendly forms of smallholder irrigation.

(2) **In order for smallholder irrigation in SSA to reach its potential, we will have to overcome some major challenges/constraints including:**

- Market failures: Smallholders in SSA are some of the world's poorest, hardest to reach and most risk-averse farmers. They are dispersed across large rural areas characterized by poor transport and communications infrastructure, and are food and income insecure on a regular basis.
- Government failures: Limited government capacity to provide agricultural extension to smallholders is coupled with rent-seeking behaviors by local officials. In addition, governments have typically favored expensive large irrigation schemes which have all too often resulted in wasted resources and failed projects. This, combined with the perception of irrigation as damaging to the environment, have limited the interest of donors to fund irrigation.
- Culture: There is very limited history of irrigation across SSA and the strong culture of rain-fed farming makes the transition to irrigation a major behavior change.
- Lack of a Champion: Irrigation in SSA generally falls between the agendas of the Water and Agriculture Ministries, it lacks a strong private sector advocate and it falls foul of many environmentalists.

**There is also a need to recognize and mitigate certain risks including:**

- The depletion of renewable/non-renewable aquifers and other potential environmental damages (from soil salination and pollution run-off) from over-irrigating.
    - Mitigation Measures: Develop low-cost methods to measure and increase aquifer recharge rates, and leapfrog environmentally damaging irrigation methods like flood and basin irrigation, to adopt efficient pressurized-hosepipe, sprinkler and drip irrigation systems that use substantially fewer water resources.
- Conflicts over water rights.
    - Mitigation Measures: Study best practices and use these and proven legislative controls to limit the risks.

(3) **In order to overcome these challenges and greatly expand smallholder irrigation, major interventions will be required by stakeholders from the public, private and social sectors, including:**

- Develop more affordable irrigation technologies for small holders and the business models for promoting and selling them.
- Educate smallholders on the benefits of irrigation while developing and testing new methods to encourage and accelerate behavior change around irrigation.
- Develop and promote farmer-friendly financing mechanisms with MFIs, banks and PAYG systems to reduce the economic barriers preventing the expansion of smallholder irrigation. And promote irrigation as a viable and economically beneficial activity.

(4) **We suggest that the immediate next steps to move this agenda forward should be:**

- Map the key stake-holders and identify/appoint a champion to help coordinate efforts and communications to increase smallholder irrigation in SSA
- Create and launch an online platform to coordinate and share data, best practices/lessons learned and catalyze investments and cooperation around the mission to expand smallholder irrigation.
- Coordinate and mobilize a wide range of stakeholders from national/local governments, NGOs, multilateral orgs, donor agencies, the private sector and rural farming communities in SSA around the need for expanding smallholder irrigation.