AGWATER SOLUTIONS
Improved livelihoods for smallholder farmers

JULY 2009

This briefing note synthesizes the presentations made by the AgWater Solutions Project team and discussions that followed with the workshop participants.

ZAMBIA NATIONAL CONSULTATION

Introduction

The AgWater Solutions project is helping to unlock the potential of smallholder farming through agricultural water management (AWM) solutions. This includes technologies and approaches, such as soil moisture management, drip irrigation and water harvesting techniques, as well as the supporting policies, institutions and business models. Partnerships are key to the success of the project. As such, the project promotes collaboration at all levels with, and between, a range of stakeholder groups including researchers, policymakers, investors, farmers and implementers.

The National Consultation Workshop was an opportunity for such engagement and for participants to share their opinions on AWM solutions that could be out-scaled in Zambia. This briefing note provides a short summary of the discussion held during the workshop and the AWM solutions prioritized. For more information on the AWM solutions being used in Zambia please see the Situation Analysis Briefing Note, which is also available on the project website.

Potential AWM Solutions in Zambia

- In-situ seepage and recession systems (e.g., flood plains, dambos, canals).
- Conservation Agriculture.
- Basic water application models (e.g., digging shallow wells and using buckets).
- Low-cost water-lifting devices (e.g., treadle and rope-and-washer pumps).
- Motorized water-lifting devices.
- Micro-irrigation schemes with small dams.
- River diversion weirs.
- Electric water pumping systems.
- Review of VAT and Import Tax on agricultural machinery, equipment and inputs.
- Microfinance.

Zambia's AWM Potential

Zambia has a wealth of water resources for use in AWM and current water withdrawal is only 7% of actual renewable water resources. The Fifth National Development Plan (FNDP), 2006-2010, aims to increase this by expanding AWM solutions; however, only 2% of the agricultural budget goes to irrigation and smallholders are poorly positioned to benefit from the incentives for investment. Factors such as traditional land tenure and lack of markets add to the complexity, especially where commercial schemes are being introduced.

Lack of infrastructure also constrains AWM but there are efforts (e.g., Farm Block Development) to combine agriculture and infrastructure including roads and irrigation. In addition, agro-processing and linking farmers to markets are important parts of the whole package to enable smallholder farmers to improve their incomes.

AWM Challenges and Policy Options

The Government of Zambia has prioritized irrigation in the FNDP through the Agriculture Sector's Irrigation Development and Support Programme. The National Irrigation Plan (2001), which aims to make Zambia's agriculture less dependent on rainfed irrigation and to contribute to poverty alleviation and economic growth, envisages intensive development of Zambia's water resources for irrigation. The approach is to promote commercial irrigation enterprises by establishing an enabling environment and introducing alternatives to formal irrigation schemes, for example, small-scale AWM solutions. The Department of Agriculture is working to bring together government departments, the private sector, and farmers to implement the Policy.

A Commercial Value-chain Approach

International Development Enterprises (IDE) is one of several organizations introducing a commercial value-chain approach to agriculture in Zambia. The objective is to raise farmers' incomes by: introducing affordable micro-irrigation; capacity-building, with a focus on gender; linking farmers with input suppliers; and facilitating access to credit to buy irrigation technologies. Currently, 17,500 farmers are being targeted by IDE, which equates to 1% of rural households in Zambia. IDE has facilitated access to imported pumps but also emphasizes working with local manufacturers as this supports job creation, lower prices and maintenance.

Discussion of AWM Solutions in Zambia

Participants were asked to identify three AWM solutions that they felt would be most promising in each agroecological region of Zambia. The outcome is given in Table 1.

Table 1: Ranking of Promising AWM Solutions

AWM Technology	Agroecological region[1]			
	R1	R2	R3	Total
Individual farmer, low-cost technologies (treadle, rope and washer, drip)	8	9	7	24
Individual motorized pumps	7	5	5	17
Conservation Agriculture	8	6	0	14
Small dams	6	7	0	13
In-situ seepage and recession systems	4	3	6	13
Diversion weirs	1	1	9	11
Wetland canals	3	4	0	7
Communal pumping	1	1	0	2

[1]R1= low rainfall; R2= medium rainfall; R3=high rainfall; for more information on zones see the Situation Analysis Brief.

Comments arising from this prioritization included:

- Technologies were used as the key variable to distinguish different solutions even though a solution encompasses many complementary factors, e.g., farmer training and market linkages. This broader definition of a solution will form the basis for the project's analysis.
- As a result of the above point, outgrowers schemes were not considered in the initial ranking, but they should be in future analysis.
- To assess whether a technology is promising or not, it is important to consider the physical and ecological situation of the available water resources. For Zambia, it makes sense to link the technology to one of the three agroecological regions (see Table 1).
- Although one particular technology can be used by an individual or by a group, in practice some technologies are typically communal and others individual. It is therefore important to specify the ownership arrangement of the technology.

Discussion on the scoring

Low-cost technologies for individual farmers scored high because ownership and control were seen as important factors. Investments in AWM solutions can be expensive, and farmers are more willing to make the investment if they have control over management.

One reason that the communal pumping scored least was that there was confusion over whether it referred to a community borehole or a large-scale irrigation scheme. These would be ranked differently. For clarity in analysis, the "communal pumping" category needs to be split into small, medium, and large scale.

The low score is also indicative of challenges faced by communities managing shared boreholes. Some of these challenges can be overcome if the borehole is provided by a company (e.g., outgrower schemes), as in Kaleya and Nega Nega, and current investments (e.g., by the World Bank and the African Development Bank) focus on this type of arrangement. Furthermore, the classic community pump can work if there is a strong participatory process, capacity-building, control and user-friendly tools for maintenance and management structures, e.g., Village-Water, Sanitation and Hygiene Education committees. In Chibombo, boreholes with windmills and tanks are being used successfully.

Small dams are also communally managed, but they scored higher as they are seen as easier to operate and have the benefit of their multiple uses. Management of community water schemes should be for multiple purposes because this increases the commitment to operation and maintenance by all members of the community, not just farmers.

Overall, while communal systems can be effective and can have a larger reach, Zambia's thinly spread population makes out-scaling more difficult.

Next Steps

The suggestions raised in the workshop are being taken forward in the choice and design of the in-depth case studies and in the ongoing stakeholder dialogue process.

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Comments received from representatives of:
Ministry of Agriculture and Co-operatives (MACO); University of Zambia; Concern Word Wide; Aquagro; National Irrigation Research Station (NIRS); Zambia Agriculture Research Institute; Pelum, Zambia; Catholic Relief Services; Zambia Land Alliance.

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