

This briefing note summarizes the preliminary case study findings for discussion and comment

Community-based watershed management could be a significant factor in helping the government achieve its aim of making agriculture the driving force of economic development in Ethiopia.

The Opportunity

Ethiopia has a history of watershed management initiatives dating back to the 1970s. The basic approach has shifted from top-down infrastructure solutions to community-based approaches. There is now a supportive policy and legal framework in the form of policies that facilitate decentralized and participatory development, institutional arrangements that allow and encourage public agencies at all levels to work together, and an approach to natural resources that reflects local legislation and tenure practices.

Evidence suggests that Ethiopia has not yet achieved the full potential of its surface and groundwater resources. Watershed management programs based on lessons learned over the past several decades offer new opportunities to reduce farmers' dependence on rain-fed, low-productivity subsistence agriculture, reverse land degradation and increase the level of water use and local participation in water management. The challenge is not one of "finding solutions" but negotiating solutions that are inclusive and equitable and steer the country towards its stated goal of making rural agriculture the basis of economic growth.

The Research

AgWater Solutions researchers assessed watershed development activities in three locations to determine how management efforts can be scaled up across the country. Researchers visited six study sites, two each in Tigray, Amhara and Oromia (Figure 1).

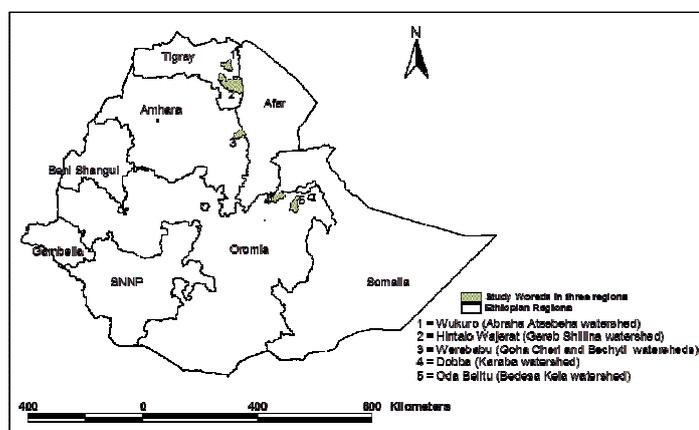


Figure 1. Watershed study sites

WATERSHED MANAGEMENT IN ETHIOPIA

Based on a report by Gebrehaweria Gebregziabher

The two watersheds in each region were chosen to reflect one successful and one less successful watershed. The watersheds are located on the eastern side of each region where moisture shortage is a limiting factor and watershed degradation is high.

Main Findings

Whilst there was sometimes considerable variation across watersheds, the overall economic and social status of the communities in the study areas improved following watershed interventions.

Watershed size and hydrogeology play a critical role in management. In this study, macro-watersheds, such as the Abraha-Atsbeha watershed, performed much better on all performance indicators than smaller watersheds. Improvement of groundwater was more pronounced in watersheds with permeable geological formations (e.g., sandstone and colluvial deposits of Abraha Atsbeha).

Land and crop productivity and additional area for cultivation increased over the years as a result of land rehabilitation activities, increased availability of water for supplementary or full scale irrigation and the introduction of new agronomic practices.

Farmers have gained tangible economic benefits (Table 1). The productivity gain of individual farms in the upstream areas are mainly from the in-situ rainwater conservation, while farmers in the downstream areas have increased access to irrigation water particularly from groundwater. In the lower reaches, farmers are able to cultivate two or more times a year because of higher water availability during the dry season.

In terms of socio-economic indicators:

- Farm income increased on average by 50 percent;
- Improvements in food security from 20 to 90 percent were reported; and
- Access to health and education services increased by 20-50 percent and 50 percent respectively.

Table 1. Positive impacts of watershed management

Watershed	Average farm size of households (ha)	% reduction in soil loss	Increased production area (%)	Crop production and productivity increment	Improvement of fodder availability (%)
Abraha Atsbeha	0.75	80	20-50	3 fold	100
Gereb Shilina	0.75	50	5	5-20%	80
Becheti	0.4	60	5-20	2.5 fold	50
Goha Cheri	0.36	75	5-20	20-50%	60
Karaba	0.25	90	20-50	2 fold	95
Bedesa Kela	0.5	35	5-20	5-20%	50

Potential Impact

Ethiopia has 12 major river basins (including one lake basin and three dry basins) and can be divided into 17 livelihood zones using FAO's mapping methodology (see Project's website). Agriculture is the main driver of the economy, accounting for more than half of the country's production. Over 80 percent of the population live in the regions of Oromia, Amhara and the Southern Nations, Nationalities and People's Region (SNNPR), which together with Tigray are known as the major regions. Given the current favorable policy framework and the government's aim to make agriculture the driver of economic development, community-based watershed management offers a promising water management solution.



Investment in watershed Management and improved water availability (Abraha Atsebeha Watershed, Tigray, Ethiopia)

Solutions

- Informants identified the most urgent problems as land degradation and moisture stress, shortage of water, shortage of animal feed, flooding and sedimentation, human and animal health, and local management capacity. Various land rehabilitation and conservation measures are being employed (soil and water conservation structures, reforestation, gully treatment, area enclosures) along with water harvesting, rural water supply, and income diversification. Since a 'one size fits all' approach does not work, site specific watershed development solutions should be identified that take into consideration local situations.
- In terms of capacity building, managing watershed externalities within and outside a watershed requires cooperation among various stakeholders to build and strengthen institutions, social norms and regulations, and to develop systems of sharing responsibilities and benefits. The country's watershed management policy needs revision to address land tenure and community rights issues.

These findings and recommendations are preliminary and are reproduced here for the purposes of discussion. The AgWater Solutions Project welcomes all comments and suggestions. These should be directed to AWMSolutions@cgiar.org, please write "Ethiopia" in the subject line.