

Conserving Agricultural Landscapes in the Highlands of Eastern Africa: The Prospects of Water as an Entry Point

by

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Introduction

The agricultural landscape in the highlands of eastern Africa is characterised by increasing fragmentation and serious degradation mainly due to high population pressure and limited use of available technological innovations. Participatory natural resource management (NRM) action research by the African Highlands Initiative (AHI) for the past 12 years has shown that an important reason for limited use of technological innovations in the region is lack of innovative methodologies and approaches to motivate communities' interest in investing in land management. Past efforts have overlooked the crucial role of local communities in the design, planning and implementation of land management projects effectively undermining their experience, local knowledge and priorities. The experience of AHI in integrated natural resource management (INRM) has shown that working with communities based on a strategic entry point that address their priority constraints has a great potential for multiple beneficial effects. In this article, case studies from Ethiopia and Tanzania are used to demonstrate the importance of using water source rehabilitation as a strategic entry point to stimulate communities' interest in soil conservation. Apart from ensuring clean and reliable supplies of water the strategy enhanced the communities' social capital by promoting collective action, an important pre-condition for tackling laborious tasks such as soil conservation which individual farmers cannot handle on their own.

Identifying strategic entry point

Participatory NRM action research inevitably requires long term engagement with communities with the possibility that farmers might lose interest as they view the whole process time wasting. This was recognized early by AHI, which led to the adoption of strategic entry points to stimulate long term interest of farmers and communities in its work (Amede, 2003; German, 2003; Mazengia, *et al.*, 2007; Mowo, *et al.*, 2008). Two types of entry points are identified; farm level entry points which bring benefits to household level, and landscape level entry points which bring benefits at community level. Whether farm level or landscape level, strategic entry point must meet the following criteria; (i) be of high priority to the community, (ii) bring quick benefits to build trust between the community and outside actors, (iii) be likely to give benefits as early as possible and (iv) be accessible to most households, to avoid undermining the enthusiasm of large portions of the community (German, *et al.*, 2006).

The African Highlands Initiative adopted integrated watershed management as a socially optimal approach to NRM in the highlands of eastern Africa (German, 2003). Strategic entry points were then identified after an iterative process of engagement with the watershed communities. To ensure that all voices were heard, the different social groups based on gender (sex and age), wealth and location in the landscape were considered. This way the views of different members of the communities can be adequately incorporated into the

prioritization and planning processes. The procedure for identifying entry points is summarized in 8 steps; In Step 1 local leaders are informed about the project mandate to get their support. This is followed by conducting focus group discussions based on the different social groups to identify watershed issues (Step 2) after which a single list of identified watershed issues is generated (Step3). In Step 4 participatory ranking of identified issues according to the different social groups is conducted, followed by data analysis to generate average ranks by village, sex, age, landscape location and wealth levels (Step 5). It is in Step 5 that watershed issues of high priority across all social groups are highlighted. In Step 6 entry points are then identified based on results of Step 5 and this is followed in Step 7 by a planning session to explore the causal interactions among identified watershed themes. Clusters of issues to be addressed through integrated solutions are generated in this step followed by participatory watershed planning for prioritized issues (Step 8) where all watershed residents are involved through popularly elected representatives.

Water, an important entry point across the highlands of eastern Africa

Throughout the highlands of eastern Africa there is a decreasing trend in the number of springs and streams, and the water levels for the few remaining water sources due to environmental degradation (Mansoor *et al.*, 2006; Mowo, *et al.*, 2007; Mazengia *et al.*, 2007). Limited water availability and poor water quality hinders community members from effectively utilizing their labour in productive enterprises including agricultural production. This is mainly because a lot of time is wasted in search for water especially during the dry season and in the treatment and care for victims of water related diseases. In the Ethiopia highlands water for both human and livestock was a top priority constraint and hence considered by watershed communities as an important entry point for other watershed management activities. Women and children in these highlands were reported to be spending up to 10 hours in search of water during the dry season (Mazengia *et al.*, 2007). Meanwhile in Lushoto, Tanzania, Meliyo *et al.* (2006) noted that women and children were spending up to 5 hours in search of water during the dry season. Water quality (Figure 1) in the study sites is an important constraint throughout the year due to abuse of water sources (Figure 2). The importance of adopting strategic entry point for sustained communities' interest in overall NRM is illustrated in the following case studies from Ethiopia and Tanzania.



Figure 1. Poor water quality in the highlands of Ethiopia



Figure 2. Abuse of water sources in Lushoto, Tanzania: Washing clothes.

Case study 1: Water source rehabilitation as an entry point to NRM in Galessa Watershed, Ginchi, Ethiopia

In the Galessa Watershed, water (availability and quality) was ranked number 2 and loss of indigenous tree species number 1 constraints. However, spring development was chosen as an entry point over the loss of indigenous tree species due to the formers' ability to bring faster returns to the community in terms of increased amount of water supply and of good quality. Benefit from planting indigenous tree species cannot be realised in the short term hence fails to meet one of the important criteria for a strategic entry point. Rehabilitation of springs was accomplished through construction of concrete collection chambers with contributions of labor, material and money from watershed residents. The various steps followed in spring rehabilitation in Galessa were:

1. Watershed characterization to determine the status of natural resources,
2. Formation of spring management committees at village level based on spring location
3. Agreement on objectives for spring management,
4. Identification of relevant stakeholders at Woreda (District), Peasant Administration (PA) and watershed levels,
5. Consultation with the different stakeholder groups on their views and solutions spring management,
6. Participatory by-law development with watershed residents and spring users,
7. Implementation of by-laws (which govern contributions to spring development and maintenance) and
8. Periodic follow-up and participatory monitoring and evaluation.

Case study 2: Water source rehabilitation as an entry point to NRM in Baga Watershed, Lushoto, Tanzania

In the Baga Watershed water availability for irrigation and domestic use during the dry season was ranked number 1 by the majority of watershed communities from all categories. In addition, water quality was observed to be poor just like in Galessa, with water borne diseases ranking high in the local health centre (Wickama *et al.*, 2007). Major reasons advanced include mismanagement of water sources characterised by cultivation close to these sources, proliferation of undesirable high water consuming tree species near water sources (e.g. *Eucalyptus*) and grazing of animals near water sources. Coupled with this, is the poor enforcement of relevant bylaws for protection of water sources. These factors leads to significant amount of time wasted in collecting water for domestic use especially in the dry season, conflicts over irrigation water and prevalence of waterborne diseases. It was therefore decided that rehabilitation of springs to ensure quality and sufficient amount of water for domestic use and for irrigation as the entry point that will stimulate interest to other watershed issues. The steps taken in the rehabilitation of springs in Lushoto are summarized below:

1. Identification and prioritization of watershed constraints by watershed community,
2. Establishment of watershed committee (made up of representatives from all villages),
3. Demarcation of the water sources in all the watershed villages by the watershed committee, village and hamlet leaders,
4. Identification of priority water sources for rehabilitation by each village,
5. Awareness creation on the need for collective action in conservation of water sources,
6. Collection of building materials (sand, stones)

7. Identification and planting of indigenous water friendly trees and shrubs around the water sources e.g. *Ficus-Vallis chaudae* (Mikuyu), *Albizia schiniperiana* (Mishai), and shrubs like *Plectranchus laxiflorus* (Jeni) and *Cyperus sp* (Zia) and
8. Building of water collection structures.

The steps taken in the development and management of water sources in the Ethiopian and Tanzanian sites were essentially the same save for some minor differences. These were (i) identification and prioritization of watershed constraints by watershed community and (ii) formation of committee for the management of the water sources. In Ethiopia the committee was specifically for water source management while in Tanzania the overall watershed committee made up of representatives from 6 villages forming the Baga Watershed was charged with the management of water sources among other responsibilities.

Achievements

In both sites the rehabilitation of water sources attracted the interest of the communities who were prepared to contribute their labour in collecting stones and sand, planting water friendly trees around water sources as well as taking a leading role in the management of the rehabilitated springs. The later was achieved through enacting of by laws for the protection of springs to ensure that they are continuously discharging which quality water in sufficient amounts.

In the Baga Watershed in Lushoto, of the 30 water sources earmarked for rehabilitation in 2006 twenty six (26) have been completed. Farmers have reported a significant reduction in the time spent for collecting water from 5 hours to as low as 10 minutes in some villages (Figure 3). An in-depth study on how farmers are using the time saved from collecting water is currently underway. However, in a quick survey of 300 households, 60 % of respondents reported using the time saved to implement other watershed activities such as soil conservation and planting trees (Wickama *et al.*, 2007).

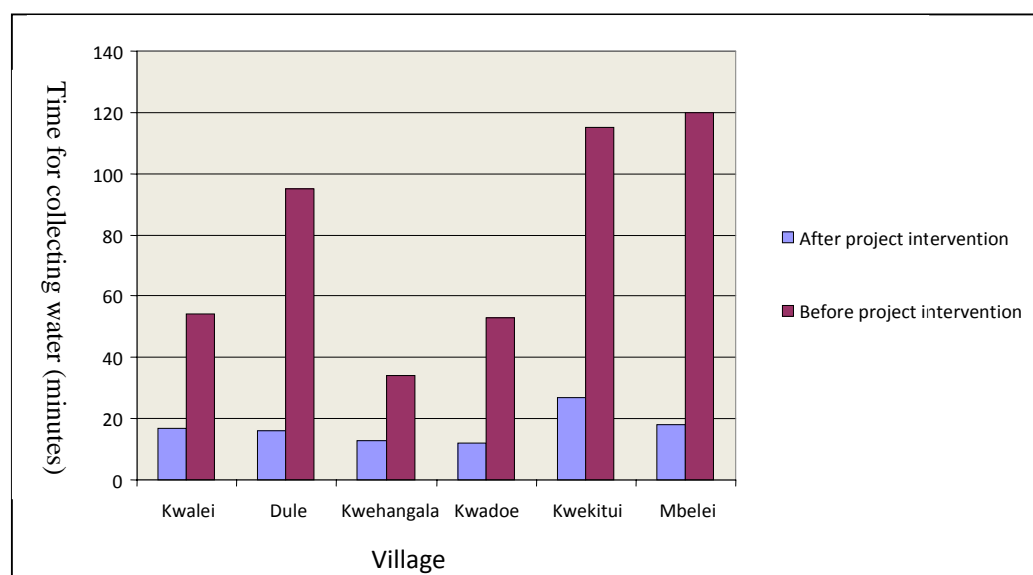


Figure 3. Time spent in collecting water before and after project intervention in 6 villages in Lushoto, Tanzania.

Improved water quality in the Lushoto site has led to reduction of incidences of water borne diseases reported in the local health centre. For example, in a study by Petekwa and Wickama (2007) incidences of water borne diseases reported in the health centre of one of the watershed villages dropped from 77 in 2006 to 22 in 2007. Another outcome is an enhanced social capital as farmers' recognize the importance of collective action in addressing issues that individual households cannot do on their own.

In the Ginchi site (Ethiopia) a total of 3 springs have been rehabilitated and are managed well without external support. Figure 4 shows one of the rehabilitated springs in Ginchi. Farmers have reported improved water availability for domestic and livestock use and there is increased confidence and trust among community members as they interact to address a common problem. Through their collective strength all farmers are actively participating in soil and water conservation around the springs to ensure continuous water discharge and of high quality. Further, time saved from collecting water is being used effectively in other watershed related activities such as implementing niche compatible agro-forestry. The watershed community have water source management committees and enacted bylaws for managing water sources.



Figure 4. One of the rehabilitated water sources in Ginchi, Ethiopia.

Lessons learnt

Major lessons learnt are that the introduction of innovations in communities should consider the communities priorities and devise innovative ways of incorporating them in the process. Earlier attempts to addressing NRM issues have not had much impact because they were very much detached from what the target communities consider issues of priority. Identification of communities' priorities can effectively be achieved when participatory approaches are used where end uses play a major role in the research to development process. Appropriately selected entry point should meet the criteria for an entry point as narrated earlier in this document. Well chosen entry points will not only ensure buy-in by the target community but have the potential for soliciting political good will from the local leadership as they see their people's constraints being addressed. This is important in scaling out to reach more

communities. Proper management structures of water sources coupled with appropriate bylaws should be in place since it is the lack of them that led to the degradation of the water sources. When bylaws are enacted by the communities themselves they have a high success rate in terms of their enforcement because they are not imposed from above. For interventions like most NRM practices that take long to yield desired results the use of entry points is the appropriate path that will ensure long term interest by the target communities.

Conclusion

In this study, adopting appropriate entry points in addressing priority constraints has shown to be a strong motivating factor in stimulating communities' interest in the management of agricultural landscapes. The study shows that water availability and quality is an important entry point in the highlands of eastern Africa and once addressed the communities interest in other watershed activities is high. The use of participatory methods where users of research results are fully integrated in the research – development process and taking the views of the different social groups into consideration is important in ensuring commitment and quick buy-in of target communities. Finally, it is not enough to rehabilitate water sources but equally important is the establishment of water source management structures (committee and bylaws) and periodic monitoring to ensure proper implementation of agreed activities.

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