

Enabling Equitable Collective Action & Policy Change for Poverty Reduction and Improved Natural Resource Management in Ethiopia and Uganda

African Highlands Initiative¹

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Abstract

The role of local and external institutions in natural resource management (NRM) is gaining attention in the literature. This has fostered greater understanding of the relationship between collective action and poverty, collective action and equity, and the conditions under which collective action institutions take root. It has also led to increased understanding of how uncritical practices by external development institutions can propagate social inequities in NRM. Yet little research has been conducted to understand how to foster local collective action institutions where they are absent, or to improve institutional practice. This research integrates empirical and action research in an effort to generate “working solutions” to institutional problems facing rural communities in their efforts to manage their natural resources in the highlands of Ethiopia and Uganda. Following a brief introduction to the literature and the research, findings are presented according to two distinct phases of research. Data are first presented on existing forms of collective action, the influence of local and external institutions on economic development, and NRM problems that persist despite their negative livelihood consequences. Action research themes selected from a list of identified problems are then presented in greater detail, with lessons learnt thus far in attempting to overcome institutional barriers to improved NRM. The paper concludes with a discussion of the implications of findings for research, institutional practice and policy.

Introduction

The role of institutions in natural resource management (NRM) is gaining attention worldwide as the shortcomings of individualized solutions to development and natural resource management challenges and uncritical development interventions come to light. This is true for both local and external institutions, each of which may be defined in terms social structures (organizations) or rules governing individual behavior (norms or policy). Attention to local institutions has been given extensive treatment in the literature on common property resource management (Leach et al. 1999; Ostrom 1990, 1999; Pandey and Yadama 1990; Wittapayak and Dearden 1999); agricultural extension and development (Coleman 1988; Heinrich 1993; Uphoff and Mijayaratra 2000; Woolock and Narayan 2000); and community-based natural resource management (Munk Ravnborg and Ashby 1996; Rasmussen and Meinzen-Dick 1995). Attention to the role of external institutions in development and natural resource management has been treated largely through the political ecological literature, where the negative spin-offs of external interventions on certain social groups has come to light (Rocheleau and Edmunds 1997; Schroeder 1993), and through the common property resource literature where the negative consequences of land tenure policies have been demonstrated.

Despite this increased awareness of the institutional foundations of development and natural resource management, development interventions continue to have a strong technological bias. Development and conservation interventions continue to be carried out with an uncritical view to equity, possible negative repercussions on certain social groups and to environmental sustainability, while local institutions (rules and

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¹ The African Highlands Initiative is an ecoregional programme of the CGIAR operating in the highlands of eastern Africa.

structures) remain largely invisible to outside actors. Yet the shortcomings lie not only with practitioners, but within research. Research on the institutional dimensions of development and NRM continues to emphasize problems rather than solutions. This research sought to address these shortcomings by integrating institutional analysis (for problem identification and targeting of interventions) with institutional interventions (for development of “good practice”). Findings suggest that action research on the institutional foundations of development and NRM is a fertile ground for research in support of practical development challenges.

This research is relevant for policy for several reasons. First, development actors tend to ignore local institutions and their role in livelihoods, preferring instead to set up new structures—representing both a lost opportunity as well as marginalizing local institutions that work. Secondly, research and development organizations focus on individual over collective decision-making, often leading to solutions that bring benefits to some groups at the expense of others (either because others do not access benefits, or because actions taken by some individuals have a negative impact on others). Finally, for the full potential of collective action to be realized in development and natural resource management, reforms in institutional practice and local policies are needed. This requires political commitment to equity in the ways in which development organizations interface with local communities and national policies translate to local-level practices, and to bottom-up policy reforms that can give extra weight to local agreements.

Literature Review

COLLECTIVE ACTION AND LOCAL INSTITUTIONS

Collective action and local institutions are often viewed rather uncritically as synonymous with social structures or formal organizations (see Knox and Meinzen-Dick 2000). This definition, collective action as direct actions carried out by groups of people working toward common goals (Lubell et al. 2002; Swallow et al. 2001; Tanner 1995), is by far the most widely used. These direct actions may range from two neighboring resource users managing a common boundary to a widespread social movement. Yet several other definitions of collective action and local institutions may be identified.

A second definition refers to issues of “representation.” Given the sheer number of resource users in watersheds, equal levels of direct participation in decision-making on natural resource management or interaction with outside actors is seldom possible. Mechanisms for effective representation of all watershed users in decision-making and benefits sharing are therefore essential to avoid extreme forms of elite capture of benefits.

A third definition of collective action relates to “political equality.” This dimension of collective action involves acknowledgement of diverse political interests around any given resource or management decision, and their effective integration into more equitable decision-making processes (German et al. in press; Sultana et al. 2002). While it has not been addressed explicitly in the collective action literature, it has nevertheless been treated extensively in the political ecology literature—which has done a great deal to expose the political foundations of NRM. This literature is replete with case studies exposing the negative social, political and ecological consequences of failing to establish mechanisms for representative decision-making in development or conservation innovations (Munk Ravnborg and Ashby 1996; Rocheleau and Edmunds 1997; Schroeder 1993). This political dimension of NRM has also been addressed in the literature on multi-stakeholder negotiations in natural resource management, which provides a useful framework for thinking about solutions to existing inequities.

A final definition of collective action merits mention here—namely, collective regulation of individual action (Meinzen-Dick et al. 2002; Ostrom, 1990; Pender and Scherr 2002; Gebremedhin et al. 2002; Scott and Silva-Ochoa 2001). This aspect of collective action tends to be treated separately in the literature due to its distinctive linkage to property rights and common property resource governance. In the context of this paper, however, it is considered to be part and parcel of each of the above forms of collective action due to the cross-cutting role of negotiated rules and regulations to all forms of collective action.

COLLECTIVE ACTION IN NATURAL RESOURCE MANAGEMENT

The role of collective action in development and sustainable management of common property resources is by now well documented. Collective action scholars have looked at the relationship between the role of collective action in enhancing farmer participation and human capital (Coleman, 1988; Heinrich, 1993; Uphoff and Mijayaratna, 2000; Woolock and Narayan, 2000); determinants and operational principles of collective action (Ostrom, 1990; Pandey and Yadama, 1990; Wittapayak and Dearden, 1999); and the conditions under which collective action can be a vehicle for enhancing equity in natural resource management (Kelly and Breinlinger 1995; Leach et al. 1999; Molyneux 2002).

Collective action is also a fundamental pillar of landscape or watershed-level natural resource management. Different from farm-level management, collective action is required to regulate rights and responsibilities to common property resources and public goods (Gaspard et al. 1998; Gebremedhin et al. 2002; Munk Ravnborg and Ashby 1996; Ostrom 1990; Scott et al. 2001), to manage biophysical processes that do not respect farm boundaries (Munk Ravnborg et al. 2000), to negotiate joint investments and technological innovations for enhanced productivity, and to regulate benefits capture (Meinzen-Dick et al. 2002).

In a recent participatory diagnosis of watershed-level natural resource management problems in highland areas of Ethiopia, Kenya and Tanzania, communities identified five different types of problems (German et al. 2006a). These include: a) problems associated with the management of common property resources (water, grazing lands, forest); b) problems of natural resource access and distribution; c) trans-boundary problems between neighboring farms or landscape units, including boundary disputes and negative influences on agricultural productivity; d) declining productivity due to the absence of collective action institutions; and e) livelihood problems that are best addressed through collective than individual action. Each of these classes of problems requires collective action to be effectively addressed. The first requires the strengthening of institutions for common property management, to regulate resource extraction and avoid resource degradation characteristic of open access situations (Ostrom 1990). Issues of natural resource access and distribution require collective decisions on benefits sharing within communities, as well as the reform of operating principles of service organizations so that outside interventions do not further existing inequities. Trans-boundary problems may require negotiations among neighboring landowners, or policy reforms to improve the governance of farm boundaries and biophysical processes that cut across boundaries. The last two problems call for individual resource users to come together to identify how agricultural productivity and livelihoods more generally might benefit from collective over individual action, and to negotiate rules and regulations to govern such innovations.

Collective action in watershed management also involves diverse functions (German et al. 2006b). Given the sheer number of users in watersheds and the tendency for outside interventions to structure positions of privilege vis-à-vis any given resource (Munk Ravnborg and Ashby 1996; Schroeder 1993), mechanisms for eliciting views on problems, solutions and progress must be negotiated and tested. The large number of resource users and the size of the watershed also require that effective and representative structures and mechanisms for structuring the community interface be designed to minimize the transaction costs for local and outside actors. Finally, given that natural resource management is an inherently political process (Rocheleau and Edmunds 1997; Schroeder 1993), collective action is needed for the negotiation of benefits from watershed management and related project interventions.

COLLECTIVE ACTION, EQUITY & EXTERNAL INSTITUTIONS

External institutions also have a fundamental role to play in agricultural development and sustainable natural resource management. All too often, this role has been played out in a negative manner, through failure to ignore self-organizing local institutions in the management of common property resources and imposing less sustainable property rights regimes (Ostrom, 1999), or by further entrenching existing inequities by creating the conditions for elite capture of program benefits or natural resources (Rocheleau and Edmunds 1997; Schroeder 1993). While a host of new approaches for multi-stakeholder engagement in NRM are now emerging, limited attention has been given in research to how external institutions can strengthen self-organizing local institutions or foster more equitable engagement with communities.

When looking into appropriate intervention strategies, it is important to understand both what to avoid and what to promote when seeking to enhance equitable collective action processes (Cornwall, 2003). Literature on the impact of exogenous institutions and projects on property rights, equity and NRM are an important source of information on what to avoid. Misinformed development interventions by government and NGOs have led to a host of unanticipated negative outcomes due to failure to understand existing institutions. Some authors point to how more formalized or rigid tenure systems increase risk due to more delimited resource access (Ngaido and Kirk, 2001; Turner, 1999). Other authors document how outside interventions can be seen as an opportunity for more powerful local actors to capture resources, or to place more rigid definitions of resource rights onto traditional systems that were more capable of providing for the needs of different social groups (Bloch, 1993; Davison, 1988; Kevane and Gray, 1999; Lastarria-Cornhiel, 1997; McDonald, 1991; Munk Ravnborg and Ashby, 1996). Finally, overly rigid rules for NRM often constrain rather than enable adaptive management (Nemarundwe and Kozanayi, 2003).

On the other hand, if outside interventions can influence the distribution of power and voice, there is potential for realigning the distribution of technologies, resources and benefits (Knox et al, 2002). If better managed, the tendency of extension benefits to go to wealthier farmers (Knox et al, 2002; Grabowski, 1990) may be reduced and collective action may limit the causal role played by wealth in determining resource access (Meinzen-Dick et al., 2002). Given the context of decentralization and devolution of policy structures in Uganda, Ethiopia and elsewhere (Raussen et al, 2001), and evidence of “elite capture” from similar experiences at the local level (Bachrach and Baratz, 1970; Munk Ravnborg and Ashby, 1996; Olsen, 2001), lessons on how to engage and empower more vulnerable groups are sorely needed. This is particularly true given the many, often discrete, ways in which elite dominance can be asserted (Bachrach and Baratz, 1970). These cases point to the need for a better understanding of the ways in which external institutions facilitate wealth acquisition by different social groups, and of strategies to foster more equitable outcomes from external interventions.

Regarding what to promote when designing outside interventions, it is important to look at successful examples of collective action in NRM, as well as elements contributing to these successes. Action research findings are pointing to the role of groups and diverse forms of social capital in enhancing farmer participation and human capital (Coleman, 1988; Heinrich, 1993; Uphoff and Mijayaratra, 2000; Wallis, 1998; Woollock and Narayan, 2000). This suggests that working with groups is likely to be most successful in enabling individual investments in NRM, due to reduced transaction costs (Meinzen-Dick et al, 2002) and other social benefits. However, group composition, dynamics and governance are fundamental (Davis et al., 2004), especially for managing the distribution of benefits from such interventions (Grootaert, 2001; Jassey, 2000; Molyneaux, 2002).

Research into collective action and property rights has also led to a better understanding of collective action in terms of its determinants, appropriate institutional mechanisms, and incentives (Johnson et al., 2003; Meinzen-Dick et al., 2002; Ostrom, 1990, 1999; Rasmussen and Meinzen-Dick, 1995). Factors known to condition collective investments in NRM include: the presence of clearly defined rules for resource management and access (including sanctions), a clear definition of members and boundaries of the resource, adaptive management mechanisms (monitoring systems, ability to modify rules as the need arises), conflict resolution mechanisms, and a manageable size of the user group and the resource (Ostrom, 1990; Pandey and Yadama, 1990; Wittapayak and Dearden, 1999). Each of these factors plays an important role in influencing levels of mutual trust as well as expectations of what may be gained through cooperation (Blau, 1964; Burns et al., 1985).

Though we now understand that shared rules and norms on NRM and access are critical elements to effective collective action arrangements (Ostrom, 1990; Wittapayak and Dearden, 1999) and are beginning to understand elements of effective institutions and policies (Birner and Gunaweera, 2001; Ngaido et al., 2002), greater understanding is needed on the role of broader policies and participatory policy formulation and enforcement processes (Omamo 2003; Vincent 2003; Scoones and Thompson 2003). More research is needed to understand the conditions that enable equity in the development of local NRM policies, and how to best facilitate related capacity and outcomes (Carney 1998; Scoones and Thompson 2003).

PROGRAM CONTEXT

This research was conducted under the rubric of the African Highlands Initiative (AHI), an ecoregional program of the CGIAR and ASARECA² convened by the World Agroforestry Centre. The program's aim is to improve livelihoods and arrest natural resource degradation in the intensively cultivated highlands of eastern and central Africa. AHI works in a collaborative mode with interdisciplinary teams of scientists from National Agricultural Research and Extension Systems (NARES) and development partners in benchmark sites, where new approaches are field-tested and experiences synthesized regionally.

Since 2002, AHI has worked to develop a participatory, integrated approach to NRM at landscape/watershed scale. Different from many other watershed management programs focusing primarily on soil and water conservation, AHI is fostering an approach to integrate all components of the production system (crop, livestock, tree, soil) and landscape (encompassing common property resources such as water, communal grazing lands and forests). This requires that trade-offs and synergies between diverse goals be made explicit and managed, including income generation with conservation; production of crops, trees and livestock; and biomass increases with nutrient and water conservation. It also must acknowledge that natural resource management is inherently political, with decisions about which management goals to foster leading to unequal benefits and often favoring some groups at the expense of others. The concept of participation must move beyond numbers of participants in community events to acknowledge these dynamics, and foster greater equity in voices, choices and benefits. This paper reports on findings from the institutional research associated with integrated social, biophysical and institutional interventions.

Objectives

The primary objective of this project was to develop and document successful approaches for facilitating *equitable* collective action processes and *negotiated* natural resource management solutions, including:

- Increased dialogue between researchers, policy makers, service providers and local communities in improving the livelihoods of vulnerable groups (voices),
- Increased involvement of vulnerable groups (the poor, women, others) and relevant local stakeholders in natural resource decision-making and policy formulation (choices), and
- Monitoring of outcomes to diverse social groups (benefits).

Research Questions and Hypotheses

RESEARCH QUESTIONS

Empirical Research

1. What is the role of existing institutions (groups, rules and norms, property rights, decentralization systems) in leveraging or constraining decision-making and resource access by diverse groups?
2. What contextual factors (institutional, policy, historical, contested knowledge) hinder collective action and exacerbate poverty through inequitable decision-making and access to natural resources in the each site?
3. What are the impacts of action research interventions on participation in decision-making processes, identified watershed problems, policies and resulting livelihoods/assets of diverse groups?

Action Research

1. What conditions (social, technological, policy, economic) and facilitation processes are required to enhance socially-optimal voices (decision-making), choices (technological, social and income options) and benefits (poverty alleviation, improved management and access to natural resources)?

² CGIAR stands for the Consultative Group for International Agricultural Research; ASARECA is the acronym for the Association for Strengthening Agricultural Research in East and Central Africa.

2. What policies, by-laws and support from local government are required to bolster community actions and collective action toward more effective and equitable NRM and income generation? What are the most effective approaches for engaging communities with local government and service providers to achieve these policy reforms?

HYPOTHESES

1. Strategies to improve natural resource management at farm and landscape levels will be more effective if decision-making on technologies and natural resource governance is equitable, given the broad social support required to sustain collective action.
2. Increased capacity to develop better designed and more equitable by-laws will improve livelihoods by enabling technology adoption, enhancing collective action in natural resource management, and reducing the need for by-law enforcement.

Methodology

SITE SELECTION

Four sites were chosen for this research—two in Ethiopia and two in Uganda. All sites are highland micro-watersheds characterized by smallholder farming systems, high population density and evidence of natural resource degradation. These sites are not new to the CAPRI project. They have each served for 5 to 10 years as benchmark sites for the African Highlands Initiative, where new approaches to integrated natural resource management are first developed and tested and from which regional lessons are drawn from comparative research. Despite some similarities, each site has unique characteristics that merit attention in the context of collective action and NRM.

Areka Site

The Areka site is located in Wolaita, south-central Ethiopia. The area is a mixed crop-livestock system with a high diversity of staple and cash crops (enset, wheat, maize, barley, sorghum, sweet potato, Irish potato, faba bean, field pea and horticultural crops). Livestock are grazed in a large communal grazing area or in semi-communal fenced plots. Despite the diversity of enterprises characterizing the system, landholdings are extremely small (.74 and .26 hectares on average for high and low wealth categories, respectively) and the area is subject to chronic food deficits. Unique to this site are a large number of landless families who earn a living as sharecroppers or through petty trade.

A participatory watershed diagnosis identified the following NRM problems in the system:

1. Declining water quantity and quality, affecting both humans and livestock
2. Loss of indigenous crop and forage varieties due to drought and extension service
3. Poor soil fertility due to intensive use and erosion
4. Increase in pests and disease for crops and livestock
5. Poor access to and dissemination of new technologies
6. Negative effects of Eucalyptus on water and cropland
7. Limited livestock feed
8. Poor natural resource governance, including poor negotiation capacity and weak by-laws
9. Loss of assets through early harvest, capture of benefits by intermediaries and seed consumption
10. Limited diversity and income generation of enterprises (crops, livestock, other)

Key NRM challenges in this site include: a) enhancing the productivity and returns from crop, livestock and tree components without further exacerbating system nutrient decline; b) arresting water resource degradation and resource conflicts through more optimal land management practices and improved governance; and c) increasing the viability of agriculture (through intensification and value addition) as a pathway to food security.

Ginchi Site

The Ginchi Benchmark Site is located in Western Shewa Zone, Ethiopia. It is a mixed crop-livestock system that is more extensively managed than other sites. The system is very limited in biomass. Indiscriminate cutting of remnant trees and contiguous forest stemming largely from regime change and the resulting ambiguity in tenure systems (Bekele, 2003), and failure to invest in NRM practices with delayed returns due to perceived tenure insecurity, have contributed to large areas of landscape devoid of vegetation and with very low nutrient stocks. This has placed increased burden on women and children who must walk long distances to gather fire wood, and negative impacts on soil nutrients due to the sharp increase in the use of dung for fuel in recent decades (Omiti et al., 1999). Loss of tree cover and cultivation of Eucalyptus around springs have led to the degradation of springs, the sole source of water for both humans and livestock. Yet the tendency for humans and livestock to share common watering points has made water quality more of a concern than water quantity in the minds of local residents.

High-value crops like Irish potato and garlic are grown on fenced homestead plots, while extensive outfield areas are used almost exclusively for barley production. Valley bottoms are used exclusively for livestock grazing. While all land is officially owned by the government, individuals have de facto ownership over all land in the watershed. Yet management is collective in certain spatial and temporal niches. Households own outfield areas on both sides of the catchment, cultivating one side of the catchment and leaving the other side for grazing during the rainy season. The side of the catchment that is left for grazing is done so by all households with contiguous plots, enabling free movement of livestock by those households owning land in the area. Valley bottoms are grazed year-round, with access during the cropping season restricted to those households owning plots of land in these areas. During the dry season, outfields and valley bottoms are open access resources. This scenario makes systems innovation very challenging, requiring collective action not only among households living within the watershed but involving others who graze their livestock in the area.

The following problems were prioritized by farmers during the watershed diagnosis:

1. Declining water quality and quantity, affecting both humans and livestock
2. Loss of indigenous tree species
3. Loss of soil, seed and fertilizer from excess runoff
4. Low soil fertility
5. Shortage of oxen
6. Lack of improved seed
7. Feed shortage
8. Fuel shortage

The key challenges for integrated NRM include: a) intensifying production (of crops, livestock and trees) while ensuring sustainable nutrient management in the system; and b) reversing water resource degradation by fostering positive synergies between trees, soil conservation structures and water in micro-catchments. Furthermore, seasonal open access grazing makes investments in afforestation and soil conservation structures in the outfields challenging, as cattle can easily destroy such investments. Site teams and local leaders have highlighted this as a key challenge for this site, and targeted local negotiations and integrated policy and technological innovations as avenues for innovation.

Kabale Site

The Kabale benchmark site is located in Kigezi highlands of southwestern Uganda. The area is characterized by high population densities, steep cultivated slopes, fragmented landholdings, land shortages and adequate rainfall. This site is also a mixed crop-livestock system with a relatively small livestock component. Communal grazing areas are negligible, making zero grazing a necessity and free grazing—where it does occur—a source of conflict due to damages incurred to crops. In addition to limited numbers of livestock, enterprises include Irish potatoes and vegetable crops in the valley bottoms and cereals (sorghum, maize, wheat, finger millet), pulses and bananas on the hillsides. Trees are few and declining in number, a trend

which has been exacerbated in recent years as a result of a high demands from a nearby Waragi distillery. The following problems were prioritized by farmers during PRAs in Phases I and II:

1. Low and declining soil fertility
2. Negative affects of boundary trees on cropland
3. Limited / insecure land tenure by women
4. Loss of crops from free grazing
5. High incidence of pests and diseases
6. NRM conflict
7. High levels of pre- and post-harvest losses
8. Limited access to manure and other agricultural inputs
9. Fuel shortage

Key NRM challenges in this site include: a) integrating technological innovation with improved natural resource governance to minimize the incidence of conflict emanating from small landholdings, limited economic opportunities and gender inequalities; b) improving incomes from small and fragmented landholdings through soil fertility management, diversification and value addition; and c) managing the dependency syndrome, acute in this site due to a high density of NGOs and CBOs with short-sighted support strategies.

Kapchorwa Site

Kapchorwa District is located on the slopes of Mt Elgon in eastern Uganda. The district has a total population of 193,510 as per the 2002 population and housing census. The district population growth rate is at 4.33%, which is high compared to the national average of 3.3%. The district has three ecological zones: lowlands (33%), which are almost deserted due to insecurity caused by cattle rustling; highlands (34%), which are heavily settled and cultivated; and forest (33%), which is a protected area. Agriculture is the main economic activity, engaging over 82.1% of the working population. The primary crops are maize, bananas, coffee, beans, wheat, barley, sunflower and vegetable crops, with 82.1% of households living from farming.

The district is also home to the Mount Elgon National Park, established as a Crown Forest in 1930. Management of the area within and surrounding the park has been subject to the whims of shifting government policies on forest management, changes which have affected most severely the native Benet who have occupied the moorlands inside the park for the last 200 years. These changes have also negatively affected conservation in the area, as park officials and local residents alike have exploited the loosely guarded protected area under the current land tenure arrangement and ambiguity of rights to adjacent communities.

Key challenges for NRM in the Kapchorwa site include:

1. Declining soil productivity resulting from soil erosion and general degradation of natural resources
2. Displacement resulting from the creation of the protected area and the cattle rustling phenomenon from neighbouring ethnic communities
3. Conflicts between communities and protected area management authorities stemming from sharp declines in access and use of resources in the buffer zone
4. Inadequate information access by, and sharing among, stakeholders
5. Duplication and contradiction of development efforts due to limited collaboration of district R&D actors
6. Inadequate capacities among individual stakeholders to critically analyze NRM situations and design appropriate interventions and assessment mechanisms
7. Lack of pro-poor policies, exemplified by processes used to expel communities from the Mt. Elgon National Park
8. Inadequate participation of the poor and civil society organizations in the formulation, implementation and evaluation of District policies and programs
9. Inadequate financial resources and capacity to support community-based organizations
10. Poor extension services, taking into consideration the thin coverage of local government personnel

RESEARCH INSTRUMENTS

The methodology consisted of four primary steps:

Situation Analysis

The situation analysis used an empirical research approach to understand: (i) how resources are distributed within communities; and (ii) the role of internal and external institutions in enhancing or constraining resource access and decision-making by diverse groups. The situation analysis consisted of two primary methods. Focus group discussions were first utilized to identify local and external institutions and the participants, beneficiaries and nature of benefits derived from each. The second step consisted in household interviews to quantify levels and variation in household assets (the 5 “capitals”) by gender and wealth, and participation or involvement with local and external institutions (assessed as one component of social capital). In each site, at least sixty household interviews were conducted. Households were purposively sampled by gender (men, women from female-headed households, and women from male-headed households) and wealth (based on local indicators and thresholds).

Stakeholder Workshops

Following the situation analysis, site and national stakeholder workshops were conducted to share findings and agree on action research priorities. Site-level workshops consisted of: (i) feedback of findings; (ii) identification of NRM issues requiring collective action, changes in institutional practice and / or by-law reforms; (iii) prioritization of these issues, based on a set of “minimal criteria”; and (iv) development of preliminary action plans for prioritized topics. The screening criteria for action research themes included the following:

1. Involves change at multiple levels (local, outside institutions, policies)
2. Involves current inequities or requires close attention to diverse local priorities
3. Can bring some change within 1 1/2 years

Action Research

Following stakeholder prioritization of action research themes, site teams developed action research protocols to clarify the research questions and facilitation strategies to be tested in facilitating local stakeholders to address identified problems. Each theme involved two levels of action research:

1. Local-level action research on how to foster collective action in natural resource management through explicit consideration of diverse views when negotiating access to benefits, natural resource management strategies, and policy proposals; and
2. Higher-level (sub-county / PA or district / woreda) action research on how to support equitable collective action processes at the local level through changes in institutional practice, policies that reflect local priorities, and negotiation support.

Two to four action research protocols were developed by each team, to articulate the Theme of Title of research; the Background / Rationale; action research Objectives; the Methodology, emphasizing the process for facilitating equitable, negotiated solutions to identified problems; Data to be collected; and an Action Plan with a timetable and responsibilities.

In several sites, most notably Areka and Ginchi, a common strategy was tested to foster negotiated solutions to identified NRM problems. This consisted of the following steps for *each* action research theme:

1. Identification of stakeholders, with an emphasis on local interest groups;
2. Meet with the individual stakeholder groups (individuals who share a common position in relation to the issue) to raise awareness, elicit their views on the problem and solutions, and their preferred approach to engagement;

3. Multi-stakeholder negotiations, including:
 - (i) Feedback on the identified natural resource management issue and meetings with individual stakeholder groups;
 - (ii) Open dialogue (for validation and clarification of issues and interests);
 - (iii) Negotiation of socially-optimal solutions that do not bring harm to any given group and emphasizing concessions on both sides; and
 - (iv) Action planning.
4. Periodic participatory monitoring and evaluation to evaluate progress, troubleshoot and re-strategize.

Many of the solutions proposed in Step 3 included both technical and governance solutions in the form of: (i) rules or formal by-laws governing acceptable behaviour; and (ii) technologies or management practices that provide alternative land use practices or income from activities that were curtailed through proposed restrictions on land use.

Impact Assessment

The final step of the research was to evaluate outcomes and impacts from the action research intervention, as a means to improve the strategy as well as to draw general conclusions about the approach used. Each team was asked to select one action research theme to develop a full-blown impact pathway and gather data at output, outcome and impact levels. For the remaining themes, teams were asked to conduct focus group discussions with each stakeholder group at different times, to facilitate open sharing of perceptions. They were asked to use a common checklist, and to be sure to record participant responses in detail, noting what was said, who said it (where possible, by name, gender and “stake”) and to use exact wording in the local language where possible. For a brief overview of the focus group discussion methodology, please see Box 1.

Box 1. Steps in the Focus Group Discussion Methodology

- (i) Remind everyone of the problem or theme that was identified by them early on and that you have been working on during the action research phase of CAPRI;
- (ii) Ask them if they have noticed any changes since the intervention.

After recording their answers, probe further. Let them know you are interested in knowing about things that have stayed the same, things that have improved and even things that have gotten worse. Then ask them whether they have seen any other changes other than those mentioned above.

- (iii) Identify indicators. For *each change* that was observed (in question ii), ask them, “How do you know? What things have you seen to suggest that x has improved or gotten worse?”

Where possible, quantify the indicators. If they say, “yields near farm boundaries have improved since the Eucalyptus was removed,” ask them, “By how much?”

Findings

SITUATION ANALYSIS

Household Assets and Investment Potential

Household surveys measured current levels of assets using the “5 capitals”: human capital (age and education level of household members), social capital (access to social networks, participation in local forms of collective action), natural capital (water, forest, land, etc.), financial capital (off-farm income, savings) and physical capital (roads, structures, transport, communications). The idea behind this was to determine: (i) whether current assets determine ability to acquire new assets; and (ii) to understand the role of both local forms of collective action and outside institutions in assets accumulation.

Table 1 shows how a two- to six-fold increase in land and livestock holdings from lower to higher income households. To determine the extent to which “wealth begets wealth,” we analyzed annual levels of investment in productive activities by wealth category (Tables 2 and 3). This was used as an indicator of the extent to which wealth determines the ability to acquire additional wealth through investment. Data suggest a strong correlation between current wealth status and ability to invest in productive activities.

Table 1. Land and Livestock Assets by Wealth Category

Type of Asset	Areka (Ha)		Ginchi (Ha)		Kabale (Acres)		Kapchorwa (Acres)	
	High	Low	High	Low	High	Low	High	Low
Landholdings	0.74	0.26	3.4	1.2	7.2	2.0	5.2	0.1
Heads of Cattle	3.7	0.6	6.4	3.2	0.31	0.15	20.3	1.2

Table 2. Agricultural Investments by Wealth Category in Ethiopian Sites

Annual Investment	Ginchi (Birr)			Areka (Birr)		
	Low	Med	High	Low	Med	High
Seed	336.1	510.9	273.9	72.1	106.8	165.7
Pesticide	28.3	69.0	48.3	0.6	0.4	0.9
Fertilizer	133.2	210.7	407.6	46.5	84.9	173.2
Feed	65.8	170.9	232.5	10.8	20.6	55.0
Veterinary	23.3	55.1	72.9	9.8	10.5	15.0
Total	586.7	1,016.6	1,035.2	139.8	223.2	409.8

Table 3. Agricultural Investments by Wealth Category in Ugandan Sites

Annual Investment	Kabale (Ugandan Shillings)			Kapchorwa (Ugandan Shillings)		
	Low	Med	High	Low	Med	High
Seed	23,640	31,844	72,129	19,980	29,464	42,388
Pesticide	3,269	7,074	35,059	13,000	20,000	80,714
Fertilizer	119	279	19,823	1,035	10,963	18,000
Feed	2,144	11,820	20,882	2,000	76,683	100,000
Veterinary	226	3,270	7,177	4,666	20,000	86,000
Total	29,398	54,287	155,070	40,681	157,110	327,102

Influence of Local and External Institutions on Assets and Livelihoods

Local collective action institutions were abundant in all research sites. They include local savings and loan groups, merry-go-rounds (rotational savings), religious associations, funeral associations and stretcher groups, labor sharing arrangements for private and communal works, traditional conflict resolution mechanisms, saving or pooling resources for celebrations, commercial labor groups (Kabale), and land and livestock sharing arrangements (Ethiopian sites). Benefits of these institutions are both social and economic. Social benefits include strengthened social ties and networks and support during periods of hardship, while economic benefits include access to resources for agricultural and domestic functions (labor, utensils, food, seed, cash) and “safety net” functions. Local institutions were seen almost unanimously to benefit all participants. One exception was found in Ethiopia, where contracting out land to others is seen as enriching some households (landowners) at the expense of others. Yet households continue to practice this activity when they have no alternative, generally due to the shortage of inputs (primarily labor).

While all participants are seen to benefit in most forms of collective action, certain participants benefit more than others for some forms of collective action. For example, land and livestock sharing arrangements in Ethiopia confer unequal benefits to participants. Landowners benefit most in sharecropping because they receive the benefits of their land with limited investment, but benefit least in contracting because they are paid poorly for the use of their land. Livestock sharing arrangements are similarly imbalanced. In Areka, Hara is seen to benefit the cattle owner most because they acquire offspring with limited investment, while the

individuals rearing cattle receive only livestock products. In Ginchi, on the other hand, Ribi is seen to benefit the poor most, who acquire offspring as well as livestock products from cattle owned by others. While local forms of collective action are seen to benefit all participants, some social groups cannot gain access to certain forms of collective action. Resource-poor households, for example, generally cannot participate in savings and loan groups, while commercial labor groups are male-dominated. The sick, elderly and disabled seldom participate in local forms of collective action, but often receive some form of assistance from others. In Kabale, women are more active in local forms of collective action, particularly those involving agricultural production.

Despite the caveats, communities generally agree that local forms of collective action play a strong positive role in livelihoods. This function is achieved by enabling households to access resources and acquire assets that would have otherwise been unachievable, buffering households during shocks and crises, and expanding social networks for intra-household sharing and support.

Collective Action in NRM

With the exception of labor sharing arrangements, there was a notorious absence of collective action for addressing shared natural resource management concerns. Many NRM problems requiring collective action therefore remain unsolved. Two predominant scenarios were identified that help to explain why NRM problems requiring local collective action institutions persist in the eastern African highlands despite their negative affect on livelihoods:

- (i) Scenario 1: Natural resource management problems affecting agricultural productivity and requiring collective solutions are treated as individual problems by the community and by external organizations.

One example is soil and water conservation. Extension organizations continue to work with individual households when promoting soil and water conservation technologies, despite the need to foster common drainage ways. No household wishes to have common drainage ways pass through their farms because they take up agricultural land and excess water can damage crops. The costs and benefits of soil and water conservation for farmers residing in upper and lower parts of the landscape also differ. Those residing on lower parts of the landscape may benefit from the deposition of fertile soil from the upper slopes, or be negatively affected by excess run-off or deposition of infertile soil. Those residing on upper slopes have less of an incentive to invest since their farms less affected by upslope cultivation activities. Soil and water conservation activities clearly require negotiated solutions to such problems, to facilitate solutions that are not overly harmful to any given land user and to enable the investments of any given household to align with the perceived benefits.

Another example is the control of pests, disease, weeds and wild animals. While traditional forms of collective action for pest and disease control were found in Tanzania, most contemporary approaches to pest and disease control emphasize control by individual households. Yet the efforts that one household must expend to control these problems grossly exceeds the benefits of such efforts, given the tendency of farm plots and livestock to be contaminated by adjacent farms and local livestock populations. Collective action can go a long way in enhancing the returns from efforts to control crop and livestock pathogens.

- (ii) Scenario 2: Land users emphasize individual economic returns over collective goods or collective impacts.

One example is the cultivation of fast-growing tree species on farm boundaries. This a practice benefits the land owner economically, but adversely affects the livelihoods of adjacent households given the competition of these trees with crops for light, nutrients and water – as well as allelopathic affects associated with some tree species. Boundary management practices clearly require *negotiated* solutions that balance the needs of the landowner (income and wood from trees) with the concerns of affected households (ability to use their agricultural land to its potential).

A second example involves land management practices that compromise the long-term water supply. Problems include heavy siltation of waterways; pollution of springs and waterways with detergents, human waste and pesticides; the negative effect of certain land use practices on the water supply (for which “thirsty” trees are perceived as a major culprit); and levels of consumption of irrigation water. Under these scenarios, livelihood improvements of some land users are achieved at the expense of other households. Such scenarios clearly require a governance solution, in which harmful land use practices are regulated according to collective choice arrangements.

Institutional Practice

Contrary to local institutions, which were generally seen as equitable and supportive to most households, the activities of a number of external institutions were seen as highly biased in the groups benefiting. Institutional practice unknowingly favors some groups at the expense of others, while local institutions have not stepped in to fill the gap and to govern development interventions and resources more equitably. This has led to increased social differentiation, and loss of cohesion as local leaders and participating households are blamed for excluding others. Some government agencies are also seen to be corrupt, undermining policies that they themselves are supposed to enforce—and commitment by stakeholders at all levels to these policies. Table 4 summarizes local institutions seen to confer unequal benefits to local residents in Ginchi and Areka sites. Clearly, institutional biases—mostly unintentional—are widespread, and urgent action is needed to avoid the elite capture of benefits from their interventions.

Table 4. Formal Institutions with Perceived *Unequal* Benefits to Local Residents

Type of CA	Ginchi	Areka	Kapchorwa	Kabale
Agricultural Research	Favor farmers with previous exposure to technologies and information, living near roads and with some education.	Benefits few farmers who have enough land and labor.	On-farm experiments conducted with few farmers, and results / varieties not shared with community. Little follow-through on experiments or technical follow-up.	Only those who can afford or access inputs value the research initiatives.
Agricultural Extension	Educated farmers benefit most; Galessa has poor coverage.	Farmers with a lot of land and labor; male farmers.	<i>NAADS</i> : continuity affected by fund availability; only support registered farmer groups who pay the annual 10,000 fee; support more the elite farmers who easily adopt technologies.	<i>NAADS</i> allegedly favours the relatively well off who can co-fund, kinsfolk of leaders and prominent members of society.
Local Administration	Those working in KA benefit(ed) most; some perceive a bias toward their friends and relatives.	<i>Not mentioned by farmers.</i>	Biased towards the “politically correct.”	Those related to, or favoured by, LA staff given special attention.
Cooperatives	All members benefit equally from inputs; those who cannot make down-payment do not benefit.	Poorest farmers benefit least.	Involved in barley coffee and maize marketing to World Food Programme and mainly serves large-scale farmers (Kapchorwa Commercial Farmers’ Association).	<i>Savings and loan mechanisms</i> : By nature this is an exclusionary association which mainly serves the more resource endowed farmers who are able to save.
National Conservation Authority	<i>Not mentioned by farmers.</i>	<i>Not mentioned by farmers.</i>	Local employees of UWA (park rangers) favor community members who engage in illegal extraction that is condoned by and benefits these officials.	NEMA tends to pamper some communities (Kabisha and Kyabagara), paying farmers to ferry planting materials and dig water trenches on their own land.

STAKEHOLDER WORKSHOPS

Site-level stakeholder workshops were the most instrumental for generating concrete strategies for addressing identified problems, and will be the focus of this section. Following feedback of findings from the situation analysis findings, participants were asked to identify NRM issues requiring collective action in their respective sites. These are summarized in Table 5. Following prioritization, the priority 2 to 4 issues were selected for intervention and joint learning through action research. These are denoted by the cut-off line in each column of Table 5. The discussion of priorities generated so much enthusiasm that the group task to select the top 2 issues was sidelined in some sites, with participants refusing to eliminate some themes from intervention. This caused some sites to select 3 or 4 topics for intervention rather than the specified 2.

Collective action can be fostered through both negotiation support of local stakeholders (to reach local agreements) and by-law reforms (to enforce local agreements), while changes in institutional practice can be fostered through facilitated learning-in-practice. Participants were therefore asked to highlight specific types of interventions required for each of the prioritized action research themes, namely: (i) negotiation support; (ii) by-law reforms; and (iii) changes in institutional practice. Proposals made by participants, summarized in Table 6, formed the basis for action research interventions.

Given the verification of problems stemming from limited stakeholder collaboration at the local level (horizontal stakeholder engagement) as well as from poorly structured linkages with external organizations (vertical stakeholder engagement), each of these was prioritized in action research. Table 7 summarizes how the case studies presented in the next section relate to these two levels of intervention. While a few case studies may be clearly defined around horizontal *or* vertical stakeholder engagement, a few others clearly combine both strategies in the identification of solutions.

Table 7. Forms of Stakeholder Engagement Promoted Through Different Action Research Themes and Sites

Form of Stakeholder Engagement	Case Studies
Horizontal	1. Porcupine control in Areka, Ethiopia 2. Enabling outfield conservation investments in the Galessa highlands (Ginchi site), Ethiopia
Horizontal and vertical	1. Participatory governance of natural resources in Kabale District, Uganda 2. Facilitation of equitable technology dissemination in Areka, Ethiopia
Vertical	1. Facilitation of co-management of the Mt. Elgon National Park in Kapchorwa District, Uganda

Table 5. NRM Issues Identified by Stakeholders As Requiring Collective Action in Each Benchmark Site

Areka	Ginchi	Kabale	Kapchorwa
<ol style="list-style-type: none"> 1. Spring development (appropriate tree species and spring maintenance) 2. Equitable approaches to technology dissemination 3. Boundary tree management 4. Collective action for the control of pests, diseases and wild animals <p>-----¹</p> <ol style="list-style-type: none"> 5. Soil conservation (common drainage ways, collective action for labor-intensive activities) 6. Management of communal grazing land 7. Loss of income at harvest (seed consumption, early harvest / sale) 8. Policy issues required to address all watershed themes 	<ol style="list-style-type: none"> 1. Spring management (appropriate trees, ensuring long-term water supply, maintenance of structures) 2. Soil and water conservation (gully stabilization, common drainage, collective action for labor-intensive activities) <p>-----</p> <ol style="list-style-type: none"> 3. Niche-compatible agroforestry (farm boundaries) 4. Savings and credit associations 5. Controlling livestock movement for protection of outfield investments 6. Crop diversification 7. Equitable approaches to technology dissemination 8. Dung collection from outfields (collective action to regulate access to dung, alternative fuel source) 	<ol style="list-style-type: none"> 1. Enhanced cooperation in natural resource management among watershed residents 2. Harmonizing by-laws between conservation zones and adjacent areas (with and emphasis on free grazing) 3. Soil erosion control, emphasizing steep slopes and impacts on valley bottom plots 4. Minimizing harmful agroforestry practices, especially on land boundaries <p>-----</p> <ol style="list-style-type: none"> 5. Strengthening women's decision-making and tenure rights over land 6. Land boundary conflicts 7. Controlling bush burning 8. Constructing / maintaining water sources 9. Equitable inheritance practices 	<ol style="list-style-type: none"> 1. Collective action in enterprise development and making land investments 2. Co-management of resources of protected area buffer zone and benefits sharing 3. Collective action to mitigate conflicts in NRM accruing from diverse or unclear property regimes (land, tree, water, grazing rights) and sharing of benefit streams <p>-----</p> <ol style="list-style-type: none"> 4. Collective action in eco-friendly practices for landscape-level conservation 5. Conflicts from poor farming practices and wild fires 6. Collective action to enable investments in labor-demanding NRM activities, especially for sick women. 7. Access to information on technologies and financing

¹ Broken line represents the cut-off for activities chosen for implementation (above the line).

Table 6. Interventions Proposed During National Stakeholder Meeting to Enhance Collective Action in NRM

Intervention	Areka	Ginchi	Kabale	Kapchorwa
Negotiation support	<ol style="list-style-type: none"> 1. Negotiating access to technologies by groups facing barriers (women, poor) 2. Widespread mobilization for porcupine control with involvement of elders and <i>mengistaw budin</i>, and research different “treatments” in different villages 3. Involve Peasant Association and religious leaders to facilitate negotiations for farm boundary management by gender, wealth and divergent interests (cultivating and affected farmers) to identify appropriate niches for Eucalyptus and appropriate substitute species 4. Foster negotiations on spring management by gender, wealth and divergent interests (land owners and spring users), involving government and religious leaders, to minimize the effect of Eucalyptus on water and ensure equitable contributions to spring maintenance 5. Negotiating soil conservation activities among adjacent farms and administrative units, adapting technologies to land size and farming system 	<ol style="list-style-type: none"> 1. Negotiating regulations on livestock movement in outfields to facilitate soil conservation and agroforestry investments 2. Negotiating trees compatible with springs (among spring owners and users) and farm boundaries (among farm owners and affected farmers) 3. Negotiating equitable contributions to spring maintenance 4. Negotiating soil and water conservation structures (common drainage channels, and balanced investments by upslope and downslope farmers) 5. Negotiate benefits sharing of introduced technologies 	<ol style="list-style-type: none"> 1. Support local negotiations for increased cooperation within and among villages. 2. Lobbying and advocacy of the political and technical leadership at sub-county level to support ongoing project initiatives which have been lacking. 	<ol style="list-style-type: none"> 1. Negotiating access to water points for all community members (in particular for livestock) 2. Negotiate access to and control of communal grazing lands 3. Negotiating access to / custodianship of natural resources in Mt. Elgon NP by indigenous people 4. Negotiating compatible technologies 5. Mobilization for adoption of eco-friendly practices for landscape conservation 6. Negotiating equitable benefits from eco-enterprises

Table 6. Interventions Proposed During National Stakeholder Meeting to Enhance Collective Action in NRM (Continued)

<p>By-law reforms</p>	<p>1. <i>Boundary trees</i>: By-law to replace Eucalyptus with profitable tree species that does not have negative impacts on cropland (i.e. Gravelia) 2. <i>Springs and waterways</i>: By-law to replace Eucalyptus with profitable tree species that does not have negative impacts on springs (i.e. Gravelia) 3. <i>Soil and Water Conservation</i>: By-law to ensure 100% participation (1 non-conserving farmer jeopardizes all) 4. <i>Porcupine Control</i>: Consider the need for by-laws to ensure widespread collective action in porcupine control 5. <i>Technology Dissemination</i>: By-laws to regulate how technologies should be governed at PA level (through which social units, rules for access)</p>	<p>1. <i>Springs</i>: By-law specifying which trees may be planted within a specific distance of springs (100m upslope, 25m downslope). 2. <i>Farm boundaries</i>: (i) Minimum 10m barrier between Eucalyptus and cultivated land; (ii) Payment of reparations if policy is ignored; (iii) By-law specifying acceptable locations for Eucalyptus. 3. <i>Outfield management</i>: To be determined following further negotiations. 4. <i>Soil Conservation</i>: (i) Non-conserving farmers will compensate for losses to downslope farmers; (ii) By-laws governing drainage and gully management. 5. <i>Spring Maintenance</i>: By-laws to balance benefits with contributions to maintenance.</p>	<p>1. Several communities have either reviewed existing NRM by-laws or come up with new by-laws on limiting free range grazing, establishing soil erosion control structures (individually and collectively), controlling bush burning, and land boundary tree/grass planting. 2. The community by-laws have been merged/harmonized, and later upscaled to sub county level. 3. Ongoing work focuses on wider sensitization of community and the wider sub county members on the harmonized by-laws; and lobbying for support from the sub county leaderships to endorse and support implementation/enforcement of NRM by-laws.</p>	<p>1. Agreements between UWA and the Benet on use rights and responsibilities of the Benet with regard to co-management. 2. [Develop by-laws for] resolving conflicts in watershed areas</p>
<p>Changes in Institutional Practice</p>	<p>1. Agricultural research and MoA to work together to research institutional practices, negotiations and by-law reforms required to enhance equitable access 2. Foster negotiations among different support organizations at Wereda level (research, extension, development) to manage “dependency syndrome”</p>	<p>1. Counter “road bias” in agricultural research 2. Mobilize for improved extension coverage 3. Foster linkages between the Peasant Association and traditional law enforcement mechanisms</p>	<p>1. Local government and Sub county technical staff to work with project staff to sensitise and fostering implementation of NRM by-laws 2. Enhanced support to the negotiation process, especially at community and watershed levels</p>	<p>1. Multi-stakeholder buy-in on the prioritisation of issues 2. Community visioning and priority setting involving CBOs 3. Uganda Wildlife Authority to give equal attention to the Benet on co-management</p>

LESSONS FROM IMPLEMENTATION

While many of the interventions are at early stages of implementation, early successes suggest the promise of building upon negotiation support in enhancing collective action in natural resource management at the local level, and improving institutional practice to enhance equitable benefits capture from development interventions. Results will be presented in the form of case studies by action research theme. The first three case studies emphasize horizontal stakeholder engagement processes, while the last two emphasize vertical forms of engagement with outside institutions.

Case #1: Porcupine Control in Areka

(i) Background

Crested porcupine is the most important vertebrate pest in Gununo Watershed, as identified by farmers during the diagnostic phase of AHI watershed work in this southern Ethiopian site. Furthermore, farmers selected porcupine as a major problem along with three other CAPRI activities during a stakeholder workshop held in Soddo in 2004 given the extent of crop loss to Porcupine. While a number of traditional control mechanisms were known, some were coveted by local experts earning a living for their specialized knowledge. Furthermore, application of known control methods on an individual basis was ineffective in controlling the pest, given the high rates of infestation from neighboring farms and villages. Collective action was therefore seen as essential for controlling this problem.

Objectives of the activity included the following:

- To assess and determine effective traditional porcupine control methods, assess their impact on crop loss to porcupine, food security and livelihoods in the study area;
- To evaluate effective approaches to mobilize collective action for porcupine control; and
- To develop decision support tools from the challenges and lessons learnt for use by other research and development organizations.

(ii) Strategy Used to Foster Collective Action in Porcupine Control

The approach used to foster collective action in porcupine control consisted of the following main steps:

1. Identify indigenous and chemical pest control methods and porcupine niches requiring different treatments, and design “treatments” to test different control methods;
2. Facilitate discussion on the most appropriate forms of collective action for coordinating the porcupine control campaign and enforce by-laws;
3. Facilitate negotiations among different interest groups to generate solutions acceptable to all;
4. Formulate by-laws on porcupine control with full participation of each village;
5. Train farmers on application of methods previously unknown to them by farmers with specialized knowledge (namely, the wire trap method) and DU leaders on the collection of data on numbers of porcupines killed/caught, methods used, etc. using prepared data collection forms;
6. Mass mobilization in the application of identified “treatments”;
7. Data collection, monitoring and evaluation through DU leaders and Unit farmers.

(iii) Findings

Farmers presented many traditional control methods for porcupine. However, through critical reflection on these methods, farmers prioritized three methods considered to be most effective: deeply dug pits at the outlet of a porcupine cave, circular ditches around graveyards, and a wire trap system. A fourth chemical treatment, Zinc phosphide, was also used in combination with the first two methods as two additional treatments. Farmers modified the first methods i.e. deep digging at the outlet of porcupine cave (3–4m deep) in to less deeper (1–1.5m deep) whenever they use Zinc phosphide (RATOL™) in combination. Methods were selected based on their suitability to different niches within each DU. These would be applied during the season when

porcupines are most harmful to crops. Since porcupine travel more than 14 km in one night, carrying out porcupine management at Gununo watershed required establishment of a buffer zone. Hence, three additional adjacent PAs (Demba zamine, Doge Hanchicho and Chew 'Kere) were included as buffer zones, with Gununo watershed as the trial site (Figure 1).

The research involved collective action across all sub-PAs under each “Developmental Unit.” Farmers selected DUs units of collective action because they have the ability to enforce local by-laws in support of collective action, and—with only 25 to 30 households—may easily manage collective action and monitor activities during implementation. During the campaign, each developmental group assigned 1–2 “developmental days” per week assigned for collective action against porcupine control alone in the watershed. It was further decided that the PA Magistrate Court and local leaders will follow up in by-laws enforcement during the collective action period.

Social negotiations were then supported among farmers whose crops are frequently affected and the least affected households, as well as farmers participating and not participating in the Safety Net Program.³ By-laws were then formulated through full participation of farmers and distributed to all PA and sub-PA leaders.

Once control methods, administrative units and by-laws for operationalizing collective action were established, and the relevant individuals trained on control methods and data collection procedures, the campaign was launched. Farmers passed on foot and vehicles with mega-phones and local music were used to publicize the campaign across all “development units” (DUs), villages and Peasant Associations (PAs). Following the campaign, records were taken by DU leaders on the number of porcupines caught/killed by different farmers, villages, niches and control methods.

Final numbers indicated that close to 1000 porcupine were killed or caught through collective action in the watershed. Among Gununo watershed, Offa village ranked first in the control of porcupine (Table 8). This is due to the high levels of collective action sustained by all households. This high level of collective action was in turn due to higher levels of porcupine infestation in this village relative to other villages in watershed, as evidence by the high number of porcupine niches known in the village (more than 100). The use of rodenticide in combination with the modified deep digging (1.5m depth) at the outlet of the porcupine hole proved to be the most effective control methods compared to other methods.

A number of important outcomes and impacts were observed from the collective approach to porcupine control, namely:

- Increased motivation for working together toward common problems among watershed farmers;
- Decreased time and energy spent keeping watch of crops at night, leading to substantial improvements in quality of life;
- Decrease human disease resulting from staying outside all night long, and decreased frequency of visiting health centers, clinics and hospitals; and
- Household incomes and food security increased from reduced crop losses by porcupine.

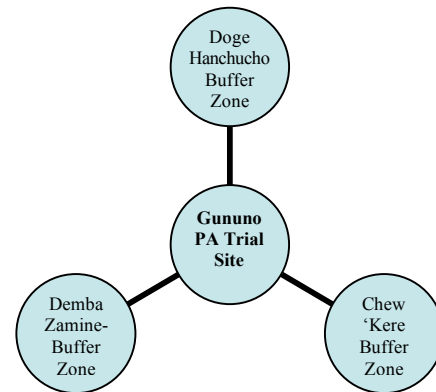


Figure 1. Schematic Diagram Representing a Trial Site and Buffer Zone of Porcupine Control

³ The Safety-Net Program is a government program designed to help low income farmers by paying them to carry out developmental activities (construction of schools, offices, health centers, road maintenance, etc.) for the PA. Some non-participating farmers are uncooperative in collective activities, arguing that Safety-Net farmers must collaborate since they are paid to do so by the government. However, negotiations led to the joint conclusion that porcupines are a problem for both parties and affect each group equally, requiring joint efforts by both groups.

(iv) Lessons

The following lessons can be distilled from this case study:

- Efforts spent in pest control will be disproportionate to the rewards; collective approaches can substantially increase returns from investments of individual farmers.
- Combining local knowledge, introduced technologies and collective action into a single strategy can produce synergies otherwise unattainable by individual strategies in isolation.
- By-laws can help to substantially advance collective action by minimizing “free riders” who can easily undermine collective action initiatives.

Case #2: Enabling Outfield Conservation Investments through Local Negotiations in Highland Ethiopia

(i) Background

Throughout highland Ethiopia, outfield areas continue to be mined of nutrients and to experience a loss of productive potential due to a host of proximate and ultimate causes. Proximate causes include collection of dung from outfields for fuel (removing a potential soil amendment); failure to invest in conservation investments such as soil conservation structures and trees; and free movement of livestock during certain seasons—which limits choices available to farmers as grazing and trampling make many technological innovations unviable. Ultimate causes include prior land reforms and policies that undermine perceived tenure security as well as incentives for investing in outfields; customary tenure systems that encourage free movement of livestock (limited access grazing in the rainy season and free grazing in the dry season); and deforestation and its effect on household fuel availability (placing added pressure on the use of dung for fuel).

While national policies seek to ban free grazing entirely, this is not an option for many smallholder farmers until viable feed alternatives exist. Intermediate solutions are therefore needed that enable farmers to invest in outfield improvements without an absolute ban on livestock movement. These might include temporary bans on livestock movement in small areas of the watershed for a period of 2 to 3 years until trees and conservation structures can be established, and then moving to new areas as these areas are opened up to grazing. While this might be difficult to do given the reluctance of farmers outside of these areas to receive livestock of those farms falling within the restricted area, it may be made possible through negotiations between these two groups to ensure all watershed residents that they were eventually benefit from these innovations (by reinforcing agreements through local by-law development). Another strategy toward such “intermediate” solutions would be to enhance farmers’ interest in outfield innovations and investments through the integration of conservation activities (soil conservation structures, trees) with high-value enterprises such as fruit trees or high-value crops suitable to the outfields. This serves as a “pull”—an incentive for farmers to begin innovating to take better advantage of their outfields. The current solution, where individuals plant trees along soil bunds and must expend a lot of material (fencing material) or labor (for “policing” their trees against livestock), were only detract others from implementing soil conservation activities in the future.

This case study theme therefore seeks to develop such an intermediate management scheme through local negotiations, by-law reforms and income generation. Local negotiations enabled diverse local interests to be negotiated toward more optimal solutions, for example enabling conserving and non-conserving farmers to negotiate soil and water conservation practices acceptable to both parties—and negotiating temporary restrictions on livestock movement in certain areas until trees and conservation structures can be established. Participatory by-law reforms, on the other hand, ensured that resolutions encompass diverse local interests and give local resolutions the force of law. Market opportunities for the outfields, on the other hand, enhanced farmers’ interest in investing in these areas.

Table 8. Number of Porcupine Killed/Caught Using Different Control Methods in Gununo

Village	Niches	Control Method	No. of Porcupine Killed/ Caught	Total No. Porcupine Controlled
Gegecho	Grassland	Wire trap	2	15
	Under Eucalyptus trees Grassland	1.5m deep digging at the outlet of porcupine hole + RATOL	13	
Lay Busha	Under Eucalyptus trees River basin Grassland	1.5m deep digging at the outlet of porcupine hole + RATOL	25	25
Tach Busha	Graveyards Under Eucalyptus trees	RATOL	18	39
	Grasslands	1.5m deep digging at the outlet of porcupine hole + RATOL	21	
Chere	Under Eucalyptus trees Graveyards	1.5m deep digging at the outlet of porcupine hole + RATOL	23	42
	Graveyards	Circular ditch digging + RATOL	19	
Offa	Under eucalyptus Trees Under forest Under bamboo trees Near riverside	1.5m deep digging at the outlet of porcupine hole + RATOL	373	831
	Graveyards	Circular ditch digging + RATOL	107	
	Grassland Under Eucalyptus trees	Deep digging at the outlet of porcupine hole	88	
	Graveyards Under Eucalyptus trees Under forest Under bamboo trees	Wire trap	90	
	Graveyards	RATOL	173	
Dembezamine	Graveyards Under Eucalyptus trees Under forest Grassland	1.5m deep digging at the outlet of porcupine hole + RATOL Deep digging at the outlet of porcupine hole Circular ditch digging + RATOL RATOL	26	26
Other buffer zone	Graveyards Under Eucalyptus trees Under forest Grassland	RATOL	6	6
Total porcupine controlled trough campaign				984

Objectives of this action research theme included the following:

1. To provide negotiation support to watershed residents to enable outfield investments;
2. To enable participatory by-law reforms in support of local resolutions, so that local residents can trust that agreements were implemented;
3. To integrate these resolutions with income-generating technological activities of the AHI site team; and
4. To understand the factors enabling collective investments in outfields so that others throughout the Ethiopian highlands may learn from our experience.

(ii) Approach to Fostering Outfield Investments through Collective Action

The following steps were planned to foster collective action in outfield management:

1. Identify local interest groups with different “stakes” in outfield management;
2. Meet with individual stakeholders to identify their positions on the issue, and encourage them to come to meetings with other interest groups;
3. Facilitate multi-stakeholder negotiations among the most important local interest groups to develop action plans that foster collective action in soil conservation while ensuring that the interests of each group is considered. After resolutions are reached, determine the need for local by-laws to strengthen these resolutions.
4. Periodic participatory M&E with each stakeholder or local interest group, beginning with the identification of indicators (biophysical, economic or social) and continuing with periodic monitoring of the performance of identified indicators and of progress toward identified goals (i.e. reduced loss of soil, seed and fertilizer from established structures).
5. Impact assessment, including biophysical (water quantity/quality) and social (equity, conflict, etc.) indicators.

(iii) Findings

Stakeholders validated under this sub theme included: (i) upslope and downslope farmers, (ii) conserving and non-conserving farmers irrespective of their landscape location, (iii) landless farmers, farmers having land in the watershed but living outside the village and farmers having land in the watershed but living outside the watershed; and (iv) farmers with neighboring landholdings where common waterways need to be constructed. Out of the above interest groups, the most important were identified using key informant interviews prior to the negotiation event. Formal and informal discussions with individuals from different backgrounds facilitated the understanding of attitudes of the above stakeholders towards soil and water conservation, confirming that divergences exist and facilitating the negotiation process.

The issue of farmers having land in the village but living outside the village is thoroughly discussed on the community meetings. The community agreed that the village community is responsible to construct soil bunds anywhere in the watershed where the lands of their village members are found. With regard to people who have land in the watershed but living somewhere outside the watershed, the community agreed to contact the owners of the land through the village committee of the respective village in order to involve them in future soil and water conservation activities. However, further negotiations are required to devise solutions for gathering individuals who live outside the watershed but have land in the watershed. Generally the challenge of gathering those individuals was very difficult since they are dwelling in distant locations like Ginchi town and distant neighboring *kebeles*.

During the facilitation of multi-stakeholders negotiations among the most important interest groups, conflicting interests have emerged. Some of the interest groups made explicit their previous assessed position, facilitating the identification of issues requiring further intervention.

After the above activities were finalized, by-laws were developed in a participatory manner. The by-law had 10 articles covering different issues. The developed by-laws were implemented by the community, and participatory monitoring and evaluation conducted with all relevant stakeholders to assess the effectiveness of the negotiated by laws.

In the process of implementation of the by-law good results have been achieved. The by-law development has created positive results in some villages, resulting in acceptance of soil and water conservation practices among individuals previously resisting. The number of participants in some villages increased after observing the implementation process of other farmers. The amazing active involvement of the community in participatory by-law development suggests overall buy-in to the approach among farmers. Early success with by-law implementation according to agreements helped catalyze farmer investment in planting trees and grasses to stabilize bunds in three selected micro-catchments since July, 2006. Until now, the performance of trees is

good and the developed by-laws are respected accordingly; however, the real challenge remains to be seen in the dry season when open access grazing resumes.

Despite these early successes, other factors still hinder implementation. In the process of enforcing the by-law, the number of participants in some villages decreased—suggesting limited buy-in. This is due to the negotiation's failure to establish sanctions for those who disobey established by-laws. At the same time, the poor attention given by some of the committee members to deliver messages for construction, arranging convenient working days and times was observed. In some villages instead of conducting maintenance for the constructed bunds, one farmer has damaged the bunds as a form of protest. Historical factors also played a role in hindering implementation, including the threat of further land reforms and its effect on land tenure security. Others indicated their intention to move away from agriculture toward other livelihood endeavors. Finally, while there was initial agreement among both landholding and landless farmers to construct soil bunds, some landless farmers later became reluctant to invest in the land of other farmers. In the future greater attention must be given to balancing the costs and benefits of soil and water conservation among different interest groups in such negotiations, ensuring the investments to the activity are similar to the rewards.

Another set of barriers relates to the practice of free grazing. Lack of grazing land outside the watershed or an alternative feed source represents a major challenge in controlling free movement of cattle for outfield investments. While preliminary stakeholder meetings led to the consideration of fencing off portions of the watershed to facilitate establishment of outfield investments (high-value trees and crops, soil and water conservation measures, etc.), subsequent negotiations were unable to produce a resolution in this regard. The main issue is one of where to graze livestock for those households with landholdings within the protected zone. It was initially thought that by-laws could facilitate the grazing of these livestock on land of other farmers, in exchange for similar future benefits to other households. Yet the perceived risk of this arrangement undermined any resolutions on the issue. People who have land from the selected catchments, people who have no alternative grazing land outside the selected catchments, and people who can not likely get short-term return from the selected catchments and outside the watershed are the other major stakes in controlling free movement of cattle. Several issues were raised by these different in regard to these envisioned stakeholder groups. The issue of property rights for trees planted inside the selected catchments was raised, given the sacrifices to be made by farmers residing outside the protected zone. People living adjacent to the catchments selected for this purpose are also potential stakeholders for the control of the free movement of cattle. However, bringing all these groups together to reach an agreement proved to be difficult in practice.

With all the above challenges and problems to get a singled out and best solution the community have showed their great interest for the issue of negotiation and participatory by law development. The increase in increasing afforestation in the area received serious concern and commitment by community members. On some catchments areas, free grazing decreased and restriction of free movement of livestock increased as a practice. Many numbers of bunds are constructed and stabilized in the area. The number of farmers participating in bund construction increased due to the initiation and negotiation approach developed with the support of CAPRI. The active attendance of farmers at community meetings and their encouraging participation in problem identification, planning and implementation is very promising. The community has been empowered in dealing with its own issues and problems. The courage and commitment of the community to search for alternative solutions (with all the above challenges) is a good lesson for further intervention, both in Galessa and other similar areas.

(iv) Lessons and Recommendations

Lessons from this case study include the following:

- During negotiation processes, agreements should not be reached through coercion or peer pressure, as this will undermine the implementation of agreements. Rather, an effective balance of investments and rewards must be reached for every local interest group to ensure the appropriate incentives are built into solutions—thereby minimizing the need for enforcement.

- An effective system for sanctioning non-compliance with established by-laws is nevertheless a necessary pre-condition for facilitating collective action among divergent interest groups, so that “free riders” do not undermine incentives for other farmers to comply.
- By-laws must be discussed in great detail to ensure mechanisms to deal with different scenarios are clearly spelled out (including whether and how to compensate farmers for damage caused to their fields from the behavior of others, the location of structures on the landscape, etc.).
- Commitment, follow-through and capacity of local leaders is essential in fostering widespread collective action.
- Some factors hindering collective solutions such as land tenure are “structural” in nature, requiring decisions by policy makers rather than local negotiation.

Several recommendations can be made in this regard, to improve future similar interventions:

- Investments made by different stakeholder groups must be equivalent to the rewards. Groups with little to gain from soil and water conservation, such as landless farmers, should not be forced to comply with collective choice rules.
- Mechanisms to sanction those who disobey the by-laws need to be established with the assistance of the Peasant Association Court when the case cannot be resolved by local committees.
- Committee members must first be sensitized and supported in developing the knowledge, attitude and skills on leading participatory governance processes in future interventions. Formal training and follow-up support to these leaders should be given to build up their capacity for implementing by-laws to meet the negotiated targets.
- Ownership of trees within protected catchment areas should be explored as an opportunity for jump-starting negotiation on free grazing. While this was a point of disagreement in former negotiations, it can also be an opportunity for balancing the costs and benefits of the new arrangement to different interest groups (those residing inside and outside the protected zone) are balanced in the short-term.

Case #3: Participatory Governance of Natural Resources in Kabale District, Uganda

In Rubaya Sub-County, like in many other areas in the Kigezi highlands of south western Uganda, land management has taken on huge dimensions as one of the leading human and environmental challenges. These problems can be attributed to several factors, including the following:

1. Very steep terrain, which renders the area naturally prone to soil erosion;
2. High birth rates and population density, exacerbated by the practice of polygamy and sub-division of land among all wives and their children, causing over-exploitation of available land, natural resource conflict among adjacent landowners, and difficult choices on land use allocation;
3. Indiscriminate deforestation, brought about by emphasis on individual profit (i.e. income from *waragi*⁴ distillation and charcoal) and negative perceptions on soil conservation practices emanating from the Colonial era when such practices were enforced; and
4. Absence of or laxity in the enforcement of land conservation by-laws, and absence of participatory processes to enhance community ownership of by-laws⁵.

Natural resource management (NRM) has mainly taken the form of scattered individual farmers each independently carrying out land conservation measures on their small land plots. A number of broader NRM problems have remained unresolved due to very little or no collective action by the community and government leadership. Moreover, most NGOs working in NRM in the region tend to emphasise technological dimensions of NRM in isolation from social or policy dimensions, with most technological recommendations highly prescriptive – often neglecting community perceptions and interests. The National Environmental Management Authority (NEMA) had, for example, also promoted NRM interventions where community members were paid—in cash or kind—to implement land management technologies, such as digging water

⁴ Local potent liquor made out of sugar molasses; widely consumed locally and exported to neighbouring Rwanda.

⁵ Recent efforts to make NRM by-law formulation more participatory have been isolated to few pilot areas, and their effects therefore not widespread.

trenches on their own land. This undermines sustainability by fostering dependency and emphasizing NRM problems of interest to outsiders rather than the community. Furthermore, development agencies supporting NRM work with farmer groups initially, but end up supporting few households and supporting individualized decisions on land management. This has left many problems that are collective in nature unaddressed. Examples include land conflicts, incompatible trees on farm boundaries, destruction of crops from free grazing and bush burning, and acute land degradation (i.e. gulleys, landslides) requiring collective solutions. Finally, poor leadership and non-enforcement of NRM by-laws has led to a situation where rules, where present, are nevertheless left un-enforced.

Local NRM structures also exist in Kabale. The most widespread are the Local Environmental Committees (LECs) established by local government to coordinate and oversee environmental concerns at Parish and Sub-County level. These Committees are perceived by farmers as dysfunctional due to financial and capacity constraints and lack of downward accountability. Other local institutional structures for NRM have also been established through research and development interventions. In Rubaya Sub-County, the location of this study, AHI/CIAT has established Policy Task Forces (PTFs) in 4 pilot villages to address NRM conflicts. While collective action in NRM is much stronger in these villages as a result, the effectiveness of by-laws under their jurisdiction is still undermined by inadequate enforcement, lack of political will and inadequate support to technological options meant to operationalize the by-laws.

(i) Multi-Stakeholder Processes for Enhancing Collective Action in NRM

AHI-CAPRi facilitated multi-stakeholder efforts for improved NRM in 3 sub-counties of Kabale District. Right from the outset, AHI-CAPRi set out to build on existing institutional foundations—namely, LECs and PTFs. The foundations set by earlier work on by-laws provided a strong foundation for early successes in Rubaya Sub-County. Results are therefore presented for Rubaya, including both the initial 4 pilot villages located in 3 parishes as well as 2 additional villages located in 2 additional parishes. These additional villages were included to cover areas worst affected by land degradation, and to scale up NRM interventions from original pilot villages.

The approach followed by AHI-CAPRi in Kabale District differs from the approaches generally used by NGOs and other development actors in a number of ways. First, it went beyond the biophysical or technological aspects to also incorporate socio-cultural dimensions of NRM such as natural resource governance and social processes. Second, we elicited community views for any decisions taken in a participatory manner, from the analysis of NRM problems to the development of institutional structures for NRM, technology selection and by-law reforms. Third, AHI-CAPRi provided a very inclusive process involving multiple institutions working on NRM rather than working in isolation. Fourth, activities were mainly facilitated by local leadership and stakeholders, such as community-based NRM facilitators and Protection Committees, not by the external project, facilitating a greater sense of ownership and building local capacity through implementation.

Specifically, AHI-CAPRi followed a series of 8 steps to engage stakeholders to develop collective solutions to shared NRM problems. These steps included:

1. Community fora to sensitize the community through their own analysis of the role of collective action in NRM and livelihoods. This was done with assistance from the sub county and village leadership representatives, and identified volunteer community based NRM facilitators;
2. Held meetings at sub-county level with representatives from pilot villages and local leaders (elected officials and opinion leaders) to identify or develop organizational structures for spearheading NRM at Sub-County and village levels;
3. Capacity building of existing or new structures on their roles and responsibilities in NRM;
4. Assist local NRM structures to lead a participatory review of existing by-laws in the 4 villages with longstanding involvement in AHI and formulation of new by-laws in the 2 new villages to strengthen natural resource governance;
5. Cross-site visits were conducted with members of villages new to participatory by-law reforms and Sub-County leadership to communities that had successfully implemented model NRM by-laws and technologies for experiential sharing;

6. Facilitate the harmonization of by-laws from the 6 villages at Sub-County level with representatives of NRM structures at sub-county and village level, each village (LC1s, male and female farmer representatives), local government (Sub-County Chief, LC3 Chairperson and Secretary for Production) and the NAADS Coordinator;
7. Support to sub-county NRM structures to plan and facilitate parish and village meetings for the purpose of sensitizing community members and eliciting their feedback on newly revised or formulated by-laws at sub-county, parish and village levels;
8. Lobby sub-county leadership to endorse by-laws which will apply uniformly at Sub-County level.

Some spin-off activities emanating from these meetings were also conducted, such as the testing of technological solutions to identified NRM problems through demonstration sites implemented by village NRM structures.

(ii) Outcomes

Outcomes of preliminary meetings to sensitize the community on the role of collective action and encourage formation of local organizational structures to advance improved NRM in the area led to the decision to formulate new structures rather than utilize the existing PTFs and LECs. Reasons mentioned by farmers and other stakeholders included the fact that some Policy Task Forces were not fully functional, and new pilot communities lacked these structures. LECs, on the other hand, were said to exist only in name. They were constituted via appointments by the Sub-County leadership, but rather dysfunctional owing to lack of adequate financial resources and ambiguity in their roles and responsibilities. The sub-county leadership and community representatives had therefore resolved (in consultation with AHI-CAPRi) that new neutral & functional structures be established to supersede both PTFs and LECs and incorporate their functions. Thus, NRMPCs were constituted at sub-county and village levels to spearhead NRM initiatives; mainly comprising the sub county and village leadership (ex-officio members); and elected committee members. NRMPCs fundamentally differed from the other structures, that is, LECs and PTFs, in terms of their broader representation. While the PTFs were generally strong at parish and sub-county levels; the NRMPCs penetrate to the village through LC1 membership, farmer representatives and community-based NRM facilitators. Furthermore, at sub-county level, they were composed of all representatives of LCs from pilot villages, village NRMPC members, community-based facilitators and ex-officio members at the Sub-County level. On the other hand, PTFs included only 2 members at Parish level drawn from the pilot villages.

In villages where by-law reforms were ongoing under AHI, participatory review of by-laws was carried out to address deficiencies of existing by-laws. In the first instance, some of the existing bye laws lacked punitive measures, such as fines, to render them enforceable. For example, the responsibility for defining the fines in the by-laws on soil and water conservation had been left to the PTF members and the Sub-County Council to determine (Box 1). Moreover, other by-laws did not comprehensively define how they would be operationalised, being too general in nature. In villages new to participatory governance, new by-laws were established. Most of these were derived from experiences shared from other communities that had formulated NRM by-laws in the past, considering the unique circumstances and land management challenges in a particular community or landscape or felt NRM needs.

Following the formulation of by-laws on free grazing and soil and water conservation, technologies were seen as necessary for by-law implementation. For example, prohibitions on free grazing require alternative sources of fodder. Furthermore, soil and water conservation would require planting of trees and grasses to stabilize conservation structures. Collective action emerged around communal tree nurseries for this purpose.

Cross-site visits proved instrumental in motivating additional interest in improved natural resource governance in villages new to the approach due to concrete benefits observed. Community members were motivated by both the social cohesiveness for collective action, effectiveness of technologies (check dams, water trenches), by-laws and the outcomes of these innovations when applied collectively. Believing soil erosion was a necessary evil farmers must live with, they were surprised to see it was actually controlled.

Cross-site visits catalyzed farmer interest to immediately return to their villages and implement observed methods of controlling soil erosion. Tools were provided as an incentive to farmers given that pick-axes, spades and forked hoes were unavailable in the community but required for digging in rocky areas. This included collective action in the construction of check dams across upper slopes to reduce run-off to farms below, and individual digging of water trenches to capture any excess water that is not captured by the check dam. Since the by-laws under discussion had specified that all households must contribute to soil and water conservation measures, this activity mobilized a massive collective effort involving members of all households. Following construction of soil erosion control structures, seedlings from previously established nurseries were ready to be transplanted to protect the conservation structures.

The meeting at Sub-County level to harmonize by-laws led to the development of one final set of by-laws for adoption at the wider sub-county level (Box 2). Several different types of criteria were used in this harmonization process. The Sub-County Chief assumed a veto power for the sake of adherence to national laws on maximum fines⁶. Second, by-laws had to be feasible under existing financial and land use scenarios. In other cases, where fines were conflicting but not considered too high by the Chief, participants were given the task of selecting a single figure through consensus. Levels of fines selected by participants depended on their determination of the balance between feasibility and fairness—not too harsh to be unfair, but at the same time high enough to ensure that by-laws are followed. Farmers also strongly felt that local leaders should be exemplary in NRM. If they do not follow the by-laws, then everyone else feels they also have no reason to respect the law. Community members had often argued that elected leaders were reluctant to support enforcement of NRM by-laws for fear of alienating the electorate, in effect jeopardising their source of votes. As stated by the LC3 (sub-county) Chairperson, “LC (elected) leaders should not only think of getting peoples’ votes; they should rather consider improving the electorate’s livelihoods. How can a leader be glad when his people are starving or poor; deprived of their livelihoods via indiscriminate and irresponsible land degradation? The need for votes should never compromise development work!”⁷). Accordingly, one of the key roles promoted by NRMPCs was to lobby the leadership structures to buy into the concept of supporting the establishment and enforcement of NRM by-laws.

Following this harmonization process, the NRMPC assumed responsibility for calling the “NRM By-law Sensitization/Stakeholder Meetings” at parish and village level to raise awareness on the harmonized by-laws and elicit feedback from farmers. Each by-law was discussed one by one in plenary, giving the participants the opportunity to critique the by-laws. After finishing this process, amendments were made to the harmonized by-laws. The by-law on bush burning, for example, was amended to include damage to property caused by wildfires over and above the fine of 10,000 shillings for those starting the fire. Farmers similarly requested an additional by-law amendment on free grazing, requiring the culprits to compensate households for the value of crops lost, soil conservation structures damaged and other damages incurred. Farmers also proposed an additional by-law on alcohol consumption, in recognition that it was a major hindrance to agricultural work and domestic welfare. Participants also formulated some by-laws to safeguard the social norms prevailing in communities. For example, a by-law was passed prohibiting agricultural work in the vicinity of a household where a funeral was taking place at the same time or date. This was partially to ensure solidarity with the bereaved community members or households. Finally, most communities formulated by-laws banning gambling and consumption of Marijuana amongst their community members.

Lobbying to sub-county leadership for by-law endorsement was done by the NRMPCs from village and sub-county levels from September, 2006, following the harmonization of by-laws at sub-county level. As a result of persistent lobbying, by-laws were finally endorsed by the Rubaya sub-county Local Council on January 17, 2007.

⁶ Local Government Act of Uganda forbids by-laws established at Sub-County level to fine in excess of two currency units (40,000 Ugandan shillings, or approximately USD 25).

⁷ Comments from Mr. Kazooba Enock Sub County (LC3) Chairperson during a parish By-laws’ sensitization meeting.

Box 2. Re-Formulated and Harmonized By-Laws in Rubaya Sub-County¹

Soil and Water Conservation:

- Everyone shall dig water trenches (soil erosion structures) especially on hillsides in their own land prior to any cultivation. Anyone who violates the above by-law will be liable to a fine, which will be decided by the Sub-county (LC3) council, in collaboration with representatives of Policy Task Forces (PTFs).
- Napier/Elephant grass and other grasses (and/or trees) shall be planted in landscapes where water trenches are not feasible; such as in very rocky or rugged terrain.
- Every farmer should consult neighbouring land owners prior to breaking down the terrace or contour bund along the common land demarcations or borders.
- *No one shall cultivate their land without digging water trenches, planting trees and grasses; to conserve soil and water in their own land.*
- *Prior to cultivating, everyone should excavate trenches, steps and A frames.*

Those who violate these by-laws shall be fined Sh. 5,000 and do the needful; or else they will be forwarded to the LC 3 council authorities for punishment.

Grazing:

- *No one shall graze in the valley; whether or not the land in the valley is one's own.*
- *Everyone shall graze in their own land; and if not, seek permission to graze in others' land. Any abandoned land - including hill top land - should be utilized for growing agro-forestry species.*
- *No one is allowed to come from one country and graze in Uganda. [Ref: Rwanda].*

Those who violate these by-laws will be fined Sh. 10,000.

Water:

- Everyone who draws water from a communal water source or well shall cooperate with others in its cleaning or maintenance
- Anyone utilizing land near a communal well, road, foot path or water trench; should reserve a stretch of 1-2 meters of uncultivated land between their land and the said communal structures
- *No one is allowed to graze, cultivate and wash clothes from the well.*

Those who violate this by-law will be fined Sh. 5,000.

Other:

- *Burning of grasses, hillsides, weeds and trees is strictly prohibited (Those who violate this by-law will be fined Sh. 10,000).*
- *When cultivating, leave some reserve narrow strips of land along boundaries, the road side, livestock tracks, etc. (Those who violate this by-law will be fined Sh. 5,000).*
- *Whoever cuts down trees should plant more (Those who violate this by-law will be fined Sh. 5,000).*
- *Every household should cultivate fruits, such as Avocados (Those who violate this by-law will be fined Sh. 5,000).*
- *Anyone who owns or rents land in another village should abide by the NRM by-laws obtaining in that village.*

Note: Village Policy Task Forces (PTF) should have representatives at LC 3 (sub-county) level.

¹By-laws in italicized font are those which are newly proposed by communities.

(iii) Future Actions and Recommendations

To further the cause of entrenching the practice of improving livelihoods and NRM through collective action for good governance, the following follow-up activities are either planned or envisaged:

- Distribution of copies of endorsed by-laws to local leaders in each village and to the Village Information Centres recently established by another AHI project on demand-driven information provision (ACACIA-II);
- Support to the strengthening of political buy-in to by-law enforcement by local leaders through a publicity campaign at village, parish and sub-county levels (to tour what has been done and to launch the by-laws and hand over the tools) and monitoring of enforcement;
- District endorsement of by-laws to foster broader political support to community resolutions; and
- Continuing to ensure that technologies are available when and where needed to operationalize the by-laws.

(iv) Lessons

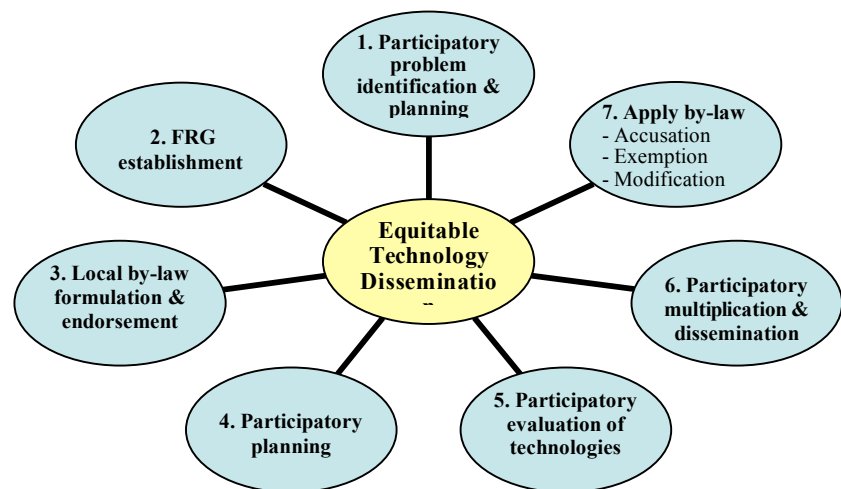
This case study illustrates the following principles for collective action in NRM:

- In initial stages of intervention, there is strong need to take time to sensitize and train local resource users on the benefits of improved NRM and natural resource governance;
- In the past the implementation and enforcement of the NRM by-laws was often hampered by lack of, or inadequate, commitment by the political and technical leaderships; especially at sub-county and village levels. Political commitment therefore plays vital role in NRM, especially in mobilisation, sensitisation, policy formulation and implementation (enforcement) of NRM by-laws.
- Changing peoples' attitudes to embrace land management/NRM practices is a long-term process that may not be realised during the short project lifespan, as illustrated by the greater responsiveness of farmers in the sub-county where by-law reforms had a longer history.
- Sustainable land management, often treated as the responsibility of individual households by farmers and development agencies alike, requires collective effort in the form of collective rules and regulations and implementation of agreements.
- Promoting by-law implementation without putting in place the requisite technological options to facilitate their implementation is futile, as farmers will have no choice but to ignore by-laws as no livelihood alternatives exist to meet their basic needs.

Case #4: Equitable Technology Dissemination in Areka

Gununo Watershed is located in the high lands of southern Ethiopia where land is scarce due to intense population pressure. Productivity of crops is very low due to several factors of which poor genetic potential is one. Thus, food shortage is common for at least three months, even in years of good rainfall. The government has tried to disseminate improved seeds to farmers through credit. However, repayment rates were very low and the government is currently disseminating

improved seeds to farmers for cash payment. As most farmers in the watershed are resource poor, especially women, it has become difficult for them to access improved seeds through this system. During preliminary focus group discussions, women complained of an extreme gender bias in agricultural extension. Hence, a



participatory action research was conducted on how to enhance improved seed access in the watershed since 2005 through the support of African Highlands Initiative (AHI).

(i) Intervention Strategy

Community meetings were held in five villages in Gununo Watershed to identify and prioritize local problems. Innovative farmers were selected by the watershed community and five farmer research groups (FRGs) were formed (one per village) in two Peasant Associations (PAs). Written by-laws of technology multiplication and dissemination processes were established by the community and authenticated by local PA leaders. Crop varieties were evaluated by FRGs and varieties that had acceptance by farmers were identified. Among these were Boloso-I for taro and Simba for wheat. Seeds of these crop varieties and some other wheat varieties were given to selected farmers through credit in 2005 following trainings on management practices. These farmers were let to transfer the same amount of seed they were given to other selected farmers according to agreed by-laws. Those who disobeyed the by-law were accused at the PA court. Data were collected on the repayment process and farmers' reactions.

(ii) Findings

FRGs Established. To implement the proposed community plan of participatory seed technology evaluation, multiplication and dissemination, FRGs were established as an effective means of enabling a greater number of farmers to participate in research and extension activities in the watershed. FRG members were selected by the community. Care was given to include farmers from different social categories (women, poor, poorer and wealthier farmers). A total of five FRGs were established in the five zones of the watershed. FRGs were established in an area (village) rather than around a particular crop, as had been done in the past. This was done to reduce the difficulty in management and facilitation of greater numbers of FRGs than if they were crop-based.

By-law formulated. To enhance crop production and address challenges of technology access, farmers felt it necessary to identify local seed multiplication and dissemination channels that would give equal consideration to different categories of farmers, independent of gender or wealth. Thus, the local by-law was established to establish equitable and sustainable technology multiplication and dissemination. A number of meetings were held with key informants and with the community to develop the draft by-law. Finally, agreement was reached to have one by-law which was believed to benefit all social categories equally throughout the watershed. The by-law was authorized by two PA leaders and social court judges.

Box 3. Articles in the By-law

According to the by-law, one third of the beneficiaries must be women while selecting beneficiary farmers. A farmer has to manage the new starter seed given to him/her better than or equivalent to his/her own private seed. He/she has to transfer equal amounts of improved seed he/she was given initially to another farmer selected by FRG leaders immediately after harvest. If he/she needs to sale the surplus product, he/she has to sell it to farmers within the watershed at a free market price until all the watershed community gets access to the improved seed. If there is not anyone who wants to buy the seed within the watershed, the seed owner can sell his/her product out of the watershed after informing the situation to FRG leaders. If a farmer disobeys the by-law, he/she will be accused by FRG leaders to the PA court. The PA court will make the judgment and the PA leaders take action based on the results of the judge. If a farmer partially loses his/her seed through natural disaster, he/she will transfer less amount based on the FRG leaders' judgment.

Seed Multiplication and Dissemination. Selected varieties of seed from taro and wheat and taro corms were distributed to farmers as starter seed through FRG leaders. These crop varieties were evaluated by farmers before wider dissemination. Farmers were given starter seeds in credit (credit in kind without interest) so that they would pay back equal amount of seed to be transferred to other selected farmers until the entire watershed community gains access. One hundred sixty farmers from five villages were each given five kilograms of improved wheat seed (varieties Wabe and Abola). This amount of starter seed was assumed to cover an area of

400m² land. Similarly, corms of an improved taro variety called Boloso-I was distributed as planting material to over 120 farmers. The FRG leaders monitored seed multiplication and dissemination from sowing to harvest. The yield of the new variety of taro was by far higher than the local cultivars and was preferred by all farmers also for its other characteristics. The high yield was attributed to the high number of tillers (up to 40) and corms per hill, coupled with relative tolerance to low moisture stress.

Currently, the new taro variety is disseminating very fast mainly through selling. Farmers themselves forecasted that the local taro cultivar in the watershed will be replaced by the new variety within three years. They also said “thanks to the new taro variety we do not need food aid from the government hereafter.” Performance of new wheat varieties was similar to the local variety and variable from one farm and village to another due to differences in fertilizer application and weeding. Therefore, an additional variety was included in the system and it has outsmarted both the local cultivar and the improved seed under the extension program of the Ministry of Agriculture.

Credit Repayment and By-law Implementation. Based on the by-law, all farmers successfully repaid taro, while rates of repayment of wheat seed varied by village, with about 25% of farmers in Gegecho and Ofa repaying only paying following follow-up negotiations and farmers in the remaining villages paying voluntarily. The repayment rate in wheat ranged from 43.3 and 97%. In this case, the lowest repayment rates were again from Gegecho—followed by Ofa. The repayment rate of these villages nevertheless improved relative to previous credit systems, indicating improved effectiveness of credit systems under current by-laws.

Those farmers who have not paid their credit were accused at local courts through FRG leaders of their respective villages. These farmers gave different reasons to the court as to why they did not repay their in-kind loans. Most of them said that although they had been oriented and knew the by-law, they still expected exemption of repayment as previously experienced. Most of them admitted their fault and regretted by saying, “because of our fault, we are now prohibited in acquiring additional important crops in the credit service; thus, we will not commit such a mistake again and will repay the current credit soon.” A few said that their wheat yield was poor and because of that they were unable to repay.

(iii) Outcomes

Some of the benefits of the approach may be attributed to the technologies disseminated. The matching of introduced technologies to farmers’ stated needs has gone a long way in increasing farmers’ incomes and satisfaction and household food security. In a participatory monitoring and evaluation exercise, all of the interviewed farmers said that the new taro variety had greatly contributed to increasing food security in the watershed due to its high productivity, early harvest and resistance to decay when stored in the field for long periods. This has extended the season in which food is readily available in farmers’ fields from 4–5 months to 7–8 months a year. The high productivity of the new taro variety also plays a vital role in alleviating the problem of land scarcity in the watershed. Yet in addition to increasing food security, the variety is also becoming a cash crop. Some farmers said that they had never received such income from any other crop, including coffee—which is the primary cash crop of the country. Some farmers declared a 225% increase in income relative to the local variety in the same area of land. One farmer received more than 2000 Birr (USD 230) from taro in 2006, and several households are expanding the area under taro cultivation. It has also an indirect benefit of saving fuel wood when cooked as compared to the local variety. The amount of fuel wood to cook a pot of the new variety of taro is 1 bundle, whereas that of the local variety is 3 bundles. The office of Agriculture at district level is now trying to put this variety in its regular food security program after visiting Gununo watershed.

Yet additional benefits may be clearly linked to the approach used to disseminate technologies. According to farmers’ views, the approach used by AHI / AARC has been much more effective in terms of equitable benefits to women and poor farmers (Table 9) relative to the formal extension service. Farmers in some villages stated that no female-headed households in their villages had ever accessed improved seed through the formal extension system. The approach was also favored for other reasons. In-kind credit was seen as much more favourable to farmers than financial loans, as was the ability of farmers to learn about new technologies prior to adoption through prior testing of technologies within FRGs. Unlike the previous credit system in

which farmers consume or sell all of their produce to escape repayment, most farmers have maintained improved seed for the next planting season. Farmers even prefer the approach to the current Safety Net Program, which gives seed to resource poor farmers at no cost. However, this seems to be due to the varieties dispatched rather than to the dissemination and credit approach per se.

Table 9. Farmers' Perceptions of the Equitability and Benefits of the AHI/HARC Approach As an Alternative to the Approach of the Formal Extension Service by Village in Gununo Watershed (%¹)

Indicator	Formal Extension service						AHI / AARC ²					
	V1 ³	V2	V3	V4	V5	Ave.	V1	V2	V3	V4	V5	Ave.
Equitable access by women farmers	15	20	15	0	17	13.4	85	80	85	100	83	86.6
Equitable access by poor farmers	20	26	25	40	22	26.6	80	74	75	60	78	73.4
Form of credit	0	26	34	20	8	17.6	100	74	66	80	92	82.4
Awareness of technology prior to wider dissemination	20	0	0	20	32	14.4	80	100	100	80	68	85.6
Quality & frequency of technical support	10	26	25	20	37	23.6	90	74	75	80	63	76.4

¹ Results were derived from group-based matrix ranking of the two approaches, with fifty seeds divided among the two approaches for each indicator (with more seeds representing better performance).

² AARC stands for the Areka Agricultural Research Centre; the AHI / AARC approach included negotiation support to agree on mechanisms and rules for equitable access; participatory by-law reforms to support local agreements; and in-kind credit.

³ Villages (V1=Chare, V2=Ofa, V3= Laybusha, V4=Gegecho, V4= Tachbusha).

Given their previous experience, farmers were reluctant to work with researchers in the beginning, assuming nothing new would come to them. The relationship between researchers and farmers has improved due to the active participation of farmers and greater consideration of their interests by researchers. Farmers outside of the research area admired the current study and started claiming their administrators to have credit to be repaid by seed rather than cash.

(iv) Challenges

In addition to these initial successes, several challenges were noted that hindered the effectiveness of the approach:

- A few FRG leaders were unable to carry out agreed roles and responsibilities effectively. This had negative implication on the by-law implementation process, as reflected in incorrect selection (bias) of farmers and limited follow-up to crop management.
- It was uncommon to accuse relatives or neighbors in such group work, causing FRG leaders in one of the villages (Tach Busha) to hesitate in accusing individuals who were relatives of most farmers.
- The by-law lacks an article to strengthen the accountability of the FRG leaders and local administrative leaders. This deficiency may have influenced by-law implementation—most notably the repayment rate.
- Although one third of the beneficiary farmers had to be women, it was challenging to maintain this proportion for each technology due to inadequate land tenure and use rights.
- Farmers following poor cultural practices (weeding, fertilization) caused crop yield to be reduced, with negative implications for repayment.
- Some farmers were reluctant to repay, giving different reasons such as crop damage and seed impurity. A few farmers also took seeds while they did not have enough land left to plant/sow. Favoring newly introduced varieties, others tried to return non-true seed purchased from market rather than the new varieties.
- While access to seed among different social categories improved within the watershed, the approach did not adequately address seed demand from farmers residing outside of the watershed in the same administrative zones.

These challenges nevertheless provide lessons on how to improve upon the approach in the future.

(v) Lessons

The following lessons may be distilled from this case study:

- Farmers tend to respect their social by-laws more than government rules in credit repayment for improved seed, suggesting that locally negotiated by-laws have great promise in strengthening equitable development processes.
- Negotiation of repayment is more effective than accusation with the PA court. More farmers who did not pay their credit in time repaid following informal negotiation than formal accusation.
- The behaviour of individual FRG leaders played a big role in repayment of in-kind loans, suggesting that FRG leadership selection process needs to be researched in greater detail.
- Credit repayment rates improve when high yielding and preferred crop varieties are provided. On the other hand, deficiencies of the technologies may cause erroneous assumptions about the effectiveness of by laws.
- The varieties under dissemination have become familiar within a short period and the dissemination process hastened beyond expectation. This was particularly true for taro. It was introduced targeting increased food availability, however, it has become also a good source of cash crop.
- Most farmers who failed to repay in-kind loans regretted their actions after being prohibited to take new seeds. While this is harsh punishment for the offenders, it will go a long way in strengthening technology access in the future through high rates of repayment and farmer-to-farmer spread of technologies.

(vi) Conclusion and Recommendations

The government has been trying for decades to bring change in the livelihoods of farmers by providing credit for different sectors of agriculture, mainly crops. However, the impact from these efforts was much less than expected due to various factors. Most farmers were reluctant to repay loans and adopted a culture of dependency due to free hand-outs of seed during both times of drought and good harvest. This has been a great challenge to the government and currently the government is trying to provide improved seeds to farmers through direct sale alone. Yet it is only a few farmers who can afford to access seed through direct cash payment in most places. As a consequence, most farmers are turning back to their local seeds. Since traditional landraces of cross-pollinated crops have been replaced with hybrids due to interventions by the extension service, most farmers utilize the previous harvest of hybrid seeds (mainly maize varieties), undermining production. This has further aggravated the low productivity of crops in most places.

The current study reveals improvement in farmers' credit repayment rates and seed quality. To improve equitable seed access by farmers, it will be essential to involve farmers in the process of variety development and possible ways of dissemination using local by-laws. Awareness and demand should be created for improved varieties through Farmer Research Groups before wider dissemination. Credit repayment in kind (seed) supported by locally formulated by-laws can be used as a credit strategy for resource poor farmers. This approach can be applied mainly by NGOs and extension organizations for open pollinated improved varieties. Strategies to ensure extension agencies conform to local bylaws should also be developed, to ensure that biases in formal extension services are overcome. Field visits by higher officials and extension managers can raise awareness on the need to pay attention to equity in organizational practice, while support to in-field implementation by extension partners can assist them to apply this approach in their organizations.

Case #5: Co-Management of Mount Elgon National Park

(i) Conservation Policy in Uganda

From the colonial era up through the 1980s, conservation in Africa and many other regions of the world was done through a model of conservation through exclusion. Local people were marginalized from lands they traditionally relied upon for their livelihoods. Poor enforcement of exclusionary policies and unregulated land

access undermined even conservation goals. This led to a global trend in decentralized forest management that is being tested today.

These same dynamics played out in the Mount Elgon National Park of Uganda. In the 1930s, the British colonial government declared the Mount Elgon area a Crown forest. This is when the area was officially gazetted as a forest reserve. This was done without community participation. From this point in time up to 1983, the forest reserve was managed through these exclusionary policies, from the Colonial period under the British Protectorate ending in 1962 to the post-colonial era.

During 1983, the government changed the official designation to Mt. Elgon Forest Park, forcing all people still residing within the Park boundaries to leave the protected area. A portion of the area was de-gazetted to resettle these people. This applied largely to a small indigenous group called the Benets (Ndorobo), subjecting them to government policies on taxation but not delivering the social services that should have accompanied this increased participation in State affairs.

In 1993, the Government of Uganda again changed the designation of the protected area to Mt. Elgon National Park, shifting management from the Forest Department to the Uganda Wildlife Authority. This led to tighter restrictions on protected area access by local people, souring the relations between communities and Park staff.

From 1995 a new co-management policy was implemented for all protected areas in Uganda. This policy was designed to improve relations with local people through a move toward shared responsibility for park management and conservation, as well as shared benefits.

(ii) Consequences for Livelihoods, Conservation and People-Park Relations

Up until the 1970s, there was no legal permission to cultivate in the forest and the forest was left intact. However, the indigenous Sabiny or Benet were given special consideration outside the law (through an informal understanding), as their land use practices posed no threat to the health of the forest reserve. Cultivation was only practiced in the Moorlands and forest use was limited to hunting and gathering. The status of the forest during this period was overseen jointly by Forest Department and community leaders.

In the 1980s, resettlement of the communities outside the park marginalized the Benet from their traditional resource base and livelihood system. After tough and prolonged pressure from the Benet community (a group of elders) and District leaders, an area of the Forest Reserve was de-gazetted for use by the Benet. In the process of resettlement, not all the Benets were resettled. These groups remain landless to date, and remain illegally inside the National Park. Following this period, the Benet community no longer had legal rights to own and utilize the land they had inhabited for the previous 200 years. There was no effective consultation process for the future use of the protected area or what alternatives the community had to sustain their livelihood.

As a result of their exclusion from their traditional resource base, Benet livelihood system had to change to subsistence and commercial farming. As the human and livestock population increased, Benet demand for social services also increased. During this period the resettled community cleared all tree cover for cultivation, causing rampant soil degradation, reduced crop yields and increased poverty. Pressure on park resources grew, leading to a situation in which both Benet livelihood and conservation objectives were compromised.

When management of the Forest Reserve shifted to UWA in 1993, the relations between the Benet and the government deteriorated quickly as a result of harsh enforcement of exclusionary policies. Livestock grazing and cultivation of Irish potatoes in the Moorlands was prohibited and any remaining Benet homes inside the protected area were burned. The informal community of elders, with the support of Action Aid and Land Alliance, formed a legal entity called the Benet Lobby Group. This group formed to represent the community and to act as a voice for advocating for rights to land in the forest, and access to social services. The Benet Lobby Group and Benet Settlers Association (BESA) worked at local and national levels to raise awareness of immediate risks to their livelihoods, and sustained a court case against the Government of Uganda until its resolution in favour of the Benet in 2005. Exclusionary policies had a number of other negative spin-offs,

including increased corruption by protected area officials as they encouraged bribes from local elites (mostly non-Benet) for access to forest resources. The pressure was borne largely by women and children, who were physically abused.

More recent co-management policies have brought no benefits to the Benet due to government favouritism toward other ethnic groups who had more harmonious relations with UWA. Ethnic groups in other parts of the park boundary who have few historical ties to these resources are now benefiting most from co-management.

(iii) Empowering the Benet to Benefit from Co-Management Policies

The Kapchorwa District Landcare Chapter (KADLACC), with the technical and financial support from AHI-CAPRI, is working to bring an intervention that will end this impasse between the Benet and UWA. When this idea began, we were much criticized due to the assumption that the ongoing court case would hinder any progress toward collaborative management of Park resources. However, lessons learnt to date suggest that collaborative relations in even the most tense of conflicts may be restored through simple dialogue.

The intervention strategy included the following steps:

1. Stakeholder mapping involving district stakeholders to identify institutions that should be involved in forging collective solutions to co-management and equitable access to resources of the Mount Elgon National Park.
2. Stakeholder meeting facilitated by district champions to initiate dialogue on co-management among various government departments (Agriculture, Environment, Forest), CBOs, farmer groups and NGOs. A consensus was reached on the conceptualization of the issues of the protected areas from community point of view. Further, community members presented requested for technologies that could address their livelihood and conservation objectives.
3. Visit by KADLACC to the UWA Sector Warden's office to communicate the Benet's expressed interest in acquiring technologies found in the UWA field office. UWA obliged by providing tree and fodder planting materials.
4. A District level meeting was held involving community representatives, sub-county Council members, the UWA Sector Head, district leaders, and local government departments. The discussion entailed the following:
 - Exploration of livelihood and conservation issues surrounding the Park and areas of mutual interest among the various stakeholders;
 - Exploration of possibilities for co-management of the park given the highly polarized views from the different parties and the ongoing court case between the Benet and UWA, reaching a general consensus that this would not unduly deter the consensus-building process; and
 - Development of an action plan around agreements reached, including specified days when the Benet can collect honey and bamboo shoots in exchange for community contributions to controlling illegal activities within Park boundaries.
5. Stakeholder mapping to identify interest groups to be involved in co-management and equitable benefits sharing in the protected area, followed by focus group discussions with each of the identified stakeholder groups: 4 Benet villages located in the de-gazetted zone, UWA (Community Rangers with their Sector Head), and the Benet living outside the resettlement zone.
6. Multi-stakeholder meeting at Parish level with community representatives, an UWA official and representatives of sub-county government to elicit community views on protected area management.
7. Informal discussions among community members on the types of activities that could be negotiated to further build the relationship with UWA while posing no significant threat to conservation objectives of the protected area.

(iv) Outcomes

The reconciliation process was jump-started through UWA efforts to share technologies with the Benet, and by initiating collaboration around issues mutually agreed upon. From within each stakeholder group, allies closer to reconciliation were identified and a trust-building process initiated at different levels of governance.

Through informal lobbying, the parties were enabled to understand each other's points of view, facilitating agreements to be reached on the process to be used in developing understanding among the stakeholders. At a later stage in the negotiation process, UWA representatives and the Benet were both encouraged to focus on the interests of the other party, with the conservation of biodiversity forming an agreed "bottom line" objective. This enabled them to move beyond the former positioning around particular outcomes (i.e. total exclusion vs. restoration of historical tenure and use rights) to dialogue around resource use options that would not compromise the bottom line. This led to the Benet to expand their expectations beyond land rights to include access to resources within Park boundaries. The two parties were then able to reach a mutual agreement on shared custodianship of the Park, working collaboratively toward environmental objectives and creating optimism for a lasting solution.

(v) Lessons and Insights

Though still in its early stages, a number of lessons have emerged that will help to shape further interventions and which may be of use to other co-management processes within and outside of Uganda. These include the following:

- The forum created by KADLACC provided an opportunity for both parties to engage positively despite the history of conflict. Identification of and support to local champions to facilitate multi-stakeholder natural resource management processes (in this case, co-management of the Mount Elgon National Park) has proven instrumental in managing conflict.
- There is need for a proactive facilitator to provide the necessary environment for negotiation support between conflicting parties, in particular in very tense situations such as the one posed by the ongoing court case.
- Perceptions are as influential as reality in undermining collaboration in situations of conflict. The negative history and lack of dialogue over many years continued to widen the gap between the Benet and UWA staff, despite opportunities that presented themselves for collaboration.
- Despite warnings that dialogue could not be advanced during the situation of intensified conflict represented by the ongoing court case, the re-opening of dialogue on protected area co-management has created opportunities for rapprochement and greater mutual understanding despite the situation of tense conflict.
- Collective action among diverse stakeholders to address NRM issues within and outside protected areas promotes dialogue and is likely to foster greater access by communities to the natural resources in contention.
- Parallel multi-stakeholder processes at diverse levels help to bridge the gap between policy intent (i.e., collaborative management of protected area resources between government and communities) and realities on the ground by creating dialogue among diverse interest groups at each level.

Even in very tense situations such as that represented by histories of physical abuse between UWA and local communities and the ongoing court case, the foundations set by KADLACC through AHI-CAPRi support are now able to serve as a starting point for advancing concrete actions toward co-management.

Discussion and Conclusions

IMPLICATIONS FOR RESEARCH

The following implications for research may be derived from this research:

- While empirical research on the institutional aspects of development has advanced our understanding of the pitfalls of development practice and the characteristics of local institutions, two fundamental gaps remain. The first is in ensuring widespread access to lessons learnt among development practitioners to improve their practice. The second is the need to move beyond the identification of problems to the identification of viable solutions ("good practice") through the coupling of empirical and action-oriented research. While empirical research is fundamental for generating well-informed interventions strategies, action research is the only research tradition that can generate actual solutions.

- Contrary to common assumptions, institutional practice is often biased by wealth, gender, levels of political influence and other factors, exacerbating inequities over time. Action research on methodological innovations to overcome these biases is sorely needed to understand how they can be minimized.
- Local forms of collective action emphasizing common solutions to felt NRM problems are sparse on the ground. Action research has illustrated the potential for improving livelihoods and fostering more sustainable use of natural resources by catalyzing collective action on NRM where it is absent. More research is needed on methodological innovations that work in catalyzing collective solutions to common NRM problems.

IMPLICATIONS FOR PRACTITIONERS

The following implications for development organizations and practitioners may be derived from this research:

- Local forms of collective action serve critical development and social support functions in local communities. External institutions should seek ways to build upon local institutions that are highly valued or contribute most to livelihood goals, in particular for women and poorer households. Part of this effort should be oriented toward finding ways to minimize the effect of wealth on the potential for wealth accumulation by linking technology dissemination with low-risk forms of credit, and diversification of assets of the poor.
- External development institutions often *unintentionally* increase existing inequities (based on gender, wealth, age, or ethnicity) by working only with active community members and failing to establish mechanisms for equitable access to project benefits. Methodological innovations to overcome these biases and socially-disaggregated monitoring of interventions (by gender and “stake,” and including non-participants of any activity) are sorely needed to capture such biases early on and identify ways in which they can be overcome. This is particularly true for agricultural research and extension and law enforcement.
- Local forms of collective action emphasize enhancing buying power and “safety net” functions, leaving many common natural resource management problems unaddressed. External support for “horizontal” negotiations among local resource users is needed to support collective solutions to NRM problems that remain unaddressed despite their negative livelihood consequences.
- There is an urgent need by extension and development organizations to consider the *political* dimensions of natural resource management in terms of winner and losers from any given development intervention and the existence of diverse interests and “stakes” on any given issue. They must then learn to work explicitly with these political dynamics to foster more equitable solutions to development and NRM challenges through stakeholder identification, negotiation support (to identify socially-optimal NRM solutions and mechanisms for equitable benefits capture), and socially-disaggregated monitoring of interventions.
- There is also an urgent need for NGOs, local government and other development actors to get involved in natural resource policy formulation and implementation processes. This is due to the intimate association between negotiation support, technological innovation and rules and regulations on NRM, and the urgent need to engage their facilitation skills in fostering more equitable and participatory natural resource governance processes.

POLICY IMPLICATIONS

The following implications for policy may be derived from this research:

- Policy makers shaping institutional practice on agriculture and natural resource management must seek ways to build upon the strengths of local institutions and the crucial social support functions they provide, in particular for women, the poor and other marginalized groups. They must also seek ways to minimize the effect of wealth on the potential for wealth creation to facilitate the participation of poorer households in development. This might include strategies and policies for linking technology dissemination with low-risk forms of credit, and diversification of assets for the poor rather than the current policies of enterprise specialization.

- While many national natural resource policies exist, many are not followed—leaving a “governance gap” in many highland communities. Yet participatory by-law reforms suggest an interest in improved natural resource governance among local residents. Increased attention is needed to the policy needs of local communities, and to enforcement mechanisms that are effective but not overly detrimental to livelihoods (i.e. ensuring alternatives are in place before enforcing policies that restrict options).
- There are strong complementarities between natural resource management practices, informal negotiation among different interest groups, and policy support. However, the partitioning of mandates between research, extension and law enforcement agencies—and failure by most organizations to consider the role of negotiation support in fostering socially-optimal development outcomes and policies—causes these issues to be treated separately and important synergies to be lost. Mechanisms and incentives for institutional cooperation toward more *equitable* and *negotiated* solutions to NRM are sorely needed.

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