

NATURAL RESOURCES SYSTEMS PROGRAMME
FINAL TECHNICAL REPORT¹

DFID Project Number

R7856

Project Title

Strengthening social capital for improving policies and decision-making in natural resources management

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NRSP Production System

Hillsides Production System

Date

31 January 2005

¹ This document is an output from a project funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

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Abbreviations and Acronyms

AFRENA – Agroforestry Research Network for East and Central Africa

AHI – Africa Highlands Ecoregional Programme.

ASARECA - Association for Strengthening Agricultural Research in Eastern and Central Africa.

CARE-FIP - CARE-Farmer Innovation Project.

CBNRM: Community-Based Natural Resources Management

CDF - Community Development Facilitator.

CIAT- International Centre for Tropical Agriculture.

DFID – Department for International Development.

ECAPAPA - East and Central Africa Programme on Agricultural Policy Analysis.

ICRAF – International Centre for Research in Agroforestry.

LC – Local Council.

NAADS – National Agricultural Advisory and Development Services.

NEMA - National Environmental Authority.

NRM – Natural Resources Management.

NRSP – Natural Resources Systems Programme (of DFID).

R&D – Research and Development.

SWC – Soil and water conservation.

VPTF – Village policy Task Force.

1 Executive Summary

Recent decentralisation reforms in Uganda have shown promising improvements for participatory policy formulation and decision-making at community level. However, there is still concern that decentralisation has not resulted in improvements in natural resources management (NRM), nor has it affected the capacities and decision-making processes of local communities. Effective decentralisation must be based on effective local institutions (or mature social capital) for engaging small-scale farmers and rural communities directly in the articulation of their NRM policy needs and innovations.

The purpose of this project was to strengthen social capital, improve local institutions and policies and to support the integration of participatory approaches to policy decision-making and formulation and implementation of byelaws and local policies for accelerating wider-scale adoption and dissemination of NRM technologies in the south-western highlands of Uganda. The project explicitly addressed four key aspects of sustainable livelihoods: social capital, human capital and local policies, institutions and processes to improve natural capital.

The project was implemented in Kabale district, from December 2000 to March 2004 using case study approaches for analysis of social capital and livelihood strategies; participatory assessment of land degradation, participatory policy process action research, and participatory NRM. Investigation into the different dimensions of social capital increased understanding of how social capital is activated in the pursuit of livelihoods, particularly how access to (or exclusion from) social capital can assist or impede access to other forms of capital, and hence influence livelihood choices and outcomes. Results showed that social capital mechanisms alone do not possess the resources needed to promote broad-based and sustainable NRM. Rather, complementarities and synergies between social capital and local policies are required to improve NRM.

The project initiated and supported village byelaw committees and policy taskforces at different levels, and strengthened their capacities to review, initiate, formulate and implement byelaws and other local policies. Several byelaws on soil conservation, tree planting, controlled animal grazing, drinking of alcohol, wetland management and bush burning have been implemented with different levels of success in the pilot communities. The participatory policy process action research framework concentrated on five key elements: facilitating community visioning and planning of desired future conditions; participatory policy analysis; linking bottom-up processes to higher level policy processes through policy dialogue and policy learning events, and supporting policy action at different levels. The study suggests a five “INs” model: strengthening local institutions; providing information; linking byelaws to NRM innovations; finding and promoting incentives and minimum inputs, and building a network of influence, as effective mechanisms that research and development organisations can use to influence policy action for sustainable NRM.

With the decentralisation process in Uganda, there are significant opportunities to translate research results into policies that can help to accelerate wider-scale adoption of NRM technologies. However, major challenges remain, regarding the sustainability of local institutions for NRM policy formulation and implementation and their effectiveness in bringing about changes in NRM practice which do not disadvantage the poor. Influencing policy in NRM is a long process that needs perseverance and a sustained programme of interventions and influence by different institutions. A proactive communication strategy is required for improving uptake promotion of research products to a variety of stakeholders.

2 Background

2.1 The research problem and rationale

The decline of agricultural productivity caused by the degradation of natural resources in highland systems is having a negative impact on livelihood systems and is a root cause of poverty (AHI, 1997). Agricultural research has provided technologies and extension services have given advice; however, these problems are persisting. The dearth of innovative participatory approaches to generate and disseminate technologies, poor links between research and development, policy, and local communities have been found to limit adoption and impact of NRM technologies. To address sustainability, productivity and equity concerns, new ways of conducting research are required. The Africa Highlands Ecoregional Programme (AHI) strategy emphasises: 1) integrating solutions to productivity and NRM issues by adopting participatory and systems approaches; 2) strengthening partnerships, enhancing collaboration and building the capacity of institutions and organisations involved in NRM and agriculture; 3) improving the integration of biophysical and social science research; and 4) linking local policy formulation to technology development (AHI, 1997; Wang'ati, 1994).

For more than two decades, participatory methodologies have proved effective in enabling people to take greater control of the development process. However, with few exceptions, efforts have not focused on increasing local participation in policy review and formulation (Scoones and Thompson, 2003). Most policy studies have focused on policy analysis, often at the macro, national level. In a review of agricultural policy analysis in Africa, Idachaba (2001) observed that policy analysis is the easier part, “the much more difficult and rather murkier part is to get the policy implemented and adopted by users; that is to get the results of policy analysis and policy recommendations into political decisions by governments” (Idachaba 2001: 46). The challenge facing policy analysts in Africa is how to get the intended beneficiaries, small-scale resource poor farmers, to influence policies in NRM. Many scholars have argued that participatory research approaches can make a significant contribution towards this critical, yet missing area of policy research (Scherr et al., 1996; Idachaba 2001; Keeley, 2001; Vincent, 2003; Scoones and Thompson 2003). Yet, as concluded by Vincent (2003), the critical gaps which participatory research still needs to address are the development of wider policy initiatives for transforming NRM and the building of new policies to support NRM.

Recent decentralisation efforts in Uganda have shown promising improvement in the participation of local people and other stakeholders in the policy decision-making process. These changes have brought some impressive results, creating a fundamentally different environment for open and participatory policy and decision-making at the lower local community level (James et al., 2001; Egulu and Ebanyat, 2000). However, despite such progress, there is concern that decentralisation has not resulted in improvements in the management and use of natural resources, nor has it affected the capacities and decision-making processes of local communities over the management of natural resources. Effective decentralisation therefore must be based on effective and sustainable local institutions (or mature social capital) for engaging local communities directly in the articulation of their policy needs, in the analysis, design and implementation of policies and innovations (Rasmussen and Meinzen-Dick, 1995). Omamo (2003) stressed that a search for options for sustainable community-based collective action in NRM, lies at the core of the agenda of policy research in NRM.

Recent research has shown the importance of social capital foundations for successful policy interventions, NRM and community development (Pretty, 2003). 'Social Capital' is defined as

the features of social organisations (social networks, social interactions, norms, social trust, reciprocity, cooperation) that facilitate coordination and cooperation, and that enable people to act collectively for mutual benefits (Woolcock and Narayan, 2000; Narayan and Pritchett, 1999). It encompasses the nature and strength of existing relationships between members, the ability of members to organise themselves for mutual beneficial collective action around areas of common need and managing the social structures required to implement such plans; the skills and abilities that community members can contribute to the development process (Uphoff and Mijayaratra, 2000).

The central hypothesis of the project was that presence of social capital is a necessary precondition for the participation of resource-poor farmers in policy formulation and implementation, and for the adoption of NRM innovations that require collective action and collaboration. Therefore initiatives and processes to strengthen the 'social capital' of local communities, facilitating policy dialogue and supporting policy action would improve the adoption of sustainable NRM practices and policies.

The main thrust of this action research was supporting and facilitating the integration of participatory approaches to policy decision-making by strengthening local-level processes and capacity for developing, implementing and enforcing byelaws and other local policies to improve natural resources management in Kabale, a mountainous district in the highlands of south-western Uganda. Thus the project addresses four key components of rural livelihoods: social capital, human capital, local policies and institutions, to improve natural capital.

2.2. The research context and setting

This report presents results of a pilot participatory policy learning and action research project aimed at strengthening local-level processes and capacity for developing, implementing and enforcing local policies and byelaws and other local policies to improve natural resource management in the south-western highlands of Kabale, Uganda. In Uganda, the highlands account for 27% of land area and close to 40% of the total population. They are mostly in the south-western and western part of the country as well as in the east. The action research was conducted in Kabale district in the south-western highlands. The district is characterised by high population density (exceeding 400 inhabitants/km² in some areas), steep cultivated slopes (1500 to 2700 masl), but with an adequate bi-modal rainfall (annual average 1000mm). Kabale is one of the eight AHI benchmark sites. AHI's guiding philosophy is a client-driven approach using participatory methods and an effective research-development continuum. This enables researchers working in collaborative, synergetic partnerships, to bring together their different contributions to foster farmers' innovation and collective action for design and dissemination of appropriate, integrated technologies and methods for improving NRM in diverse and complex situations.

Recognising that policy support is always needed for the adoption of NRM innovations, the African AHI established a policy-working group to increase the policy relevance of research at the local level, and to design alternative policy instruments to facilitate adoption of NRM technologies. The AHI local NRM policy research initiative focuses on assessing the effectiveness of local NRM policy processes and the relationships between policy change, technology adoption, and NRM (Place, 2001). The policy working group initiated a series of workshops with district level and national policy makers to: (i) forge dialogue amongst stakeholders involved in agricultural production and NRM; (ii) catalyse local political support for positive and sustainable NRM, and (iii) identify key NRM policy issues that require concerted action and collaboration. One of the priority areas identified in the first workshop in 1999 in Kabale was to improve NRM through strengthening of local-level processes and

capacity for developing, implementing and enforcing byelaws and other local policies. Further consultations with policy stakeholders led to the development and implementation of this project for linking NRM research and development to byelaw formulation and implementation. The project was implemented in four selected pilot communities in Rubaya sub-county, Kabale district in south-western Uganda.

3 Project Purpose

The purpose of the project was to strengthen social capital, improve local institutions and policies, and support the integration of participatory approaches to policy decision-making and implementation to improve natural resources management. It was expected that the methods and strategies developed would assist in accelerating wider-scale adoption and dissemination of NRM technologies and provide a model to improve structures and processes of NRM policy-making at higher levels.

4 Outputs

In general, the project has largely achieved most of the anticipated outputs as shown in the project logical framework and discussed in the sections below. The detailed results and methodologies of the project are discussed in **Annex A: Scientific report**, as well as other annexes. However, post project tracking of outcomes and impacts on natural resources management, and promoting the sustainability of local institutions is required. Similarly a more proactive communication strategy is required for improving uptake promotion of research products to a variety of stakeholders.

4.1 Output 1: Social capital of local communities strengthened to solve NRM issues

4.1.1 Diagnostic and Assessment of Social capital:

Social capital is one of the five capital assets (natural, financial, physical, human and social) that form the now popular asset pentagon of the sustainable livelihood framework (Carney, 1998). Efforts to examine the theoretical and methodological aspects of measuring social capital are still relatively recent (World Bank, 2000; Narayan and Pritchett, 1999; Grootaert 2001). Obtaining a single measure of social capital is difficult given the comprehensive, multidimensional and dynamic aspects of social capital. At the community level, Pretty (2003) distinguishes three types of social capital; bonding, bridging and linking social capital. ‘Bonding’ social capital describes the relationships between people of similar ethnicity, social status and location and refers to social cohesion within the group and community based on trust and shared moral values, reinforced by working together. ‘Bridging’ social capital refers to relationships and networks which cross social groupings, involving coordination or collaboration with other groups, external associations, mechanisms of social support or information sharing across communities and groups (Narayan and Pritchett, 1999). ‘Linking’ social capital describes the ability of groups or individuals to engage with external agencies and those in position of influence, either to draw on useful resources or to influence policies (Pretty, 2003).

At the individual and household levels, Uphoff and Mijayaratna (2000) distinguish between structural and cognitive forms of social capital. Structural social capital refers to the networks, linkages and practices within and between communities. In contrast, cognitive social capital refers to the attitudes, values, beliefs, social norms and behaviours that exist within a community (Grant, 2001). Both structural and cognitive social capital must be combined to create the potential for mutually beneficial collective action within a community.

The decision to conduct case studies in the pilot communities (see **Annex C: Case study**

methodology for social capital, gender and livelihood analysis) relates to the diverse nature of social capital, in particular the need to explore informal social capital and complement survey approaches. Through case study analysis, the existing patterns of social capital were identified and opportunities for building and extending its role in NRM management explored. The case studies have increased understanding of how social capital is activated in the pursuit of livelihoods, particularly how access to (or exclusion from) social capital can assist or impede access to other forms of capital and hence influence livelihood choices and outcomes. They have also provided important insights into the inter-relationship of gender, social capital and NRM/livelihood strategies. They allowed the examination of the hypothesis that men and women have different kinds of networks, experiences of collaboration and values associated with collaboration. Women were found to have a greater dependence than men on informal networks of everyday collaboration with neighbours and kinsfolk (bonding). Men had more formal networks across wider social groups (bridging) and more contacts outside the village (linking).

The household case studies have been analysed and interpreted in conjunction with complementary data from other surveys and participatory rural appraisal exercises. This has generated understanding of;

- Strength of social capital and potential for community joint action, and the different dimensions, levels and types of social capital.
- Differentiation in terms of resource access and livelihood patterns
- Forms of inter and intra household support, village level interactions and wider scale linkages.
- Gender roles, responsibilities and resource access
- Patterns of participation and interest in NRM initiatives and byelaw formulation by different stakeholder groups.
- Constraints to adoption/compliance with byelaws for different groups, particularly women, the elderly and the poor - limited access to land (small areas, limited rights of women and migrants) access to labour, time constraints etc.

Furthermore, the case studies of social capital and livelihood analysis contributed to:

- Finding creative approaches to byelaw formulation and implementation.
- Encouraging women's participation in policy domain.
- Reaching consensus around byelaws that have potential conflicts of interests
- Linking community groups with higher level policy institutions
- Developing sustainable institutional arrangements for NRM at different levels

The household survey attempted to unbundle social capital into its different dimensions to generate appropriate measures of bonding, bridging, cognitive and structural social capital (see **Annex B: The Role of Social Capital and local policies in managing NRM conflicts**). In addition to clan membership, which forms the basis of social networks, trust and social norms of reciprocity and cooperation that facilitate bonding social capital, we found that a considerable proportion of farmers belong to several groups. For example, in Habugarama village (about 55 households), there are about 10 local groups and organisations ranging from labour parties, credit and savings groups, pig rearing groups, farming groups and a swamp association, to "Determined women" a drumming and singing group.

A recent inventory of farmers' groups commissioned by the National Agricultural Advisory and Development services (NAADS) identified over 500 groups with over 10,000 members in Rubaya sub-county. This higher density of local organisations suggests a relatively high level of social capital and associational life.

The level of participation in collective activities was generally high. However, instances of collective action related to agricultural and NRM tended to be limited to members of active groups only. These include rotating exchange labour or group labour for a number of farm operations such as planting, weeding, harvesting, etc. Only one out of four farm households reported active participation in organising collective action to improve the management of natural resources in their communities for the benefit of others. Analysis showed that resources are generally shared with group members (66.1%), neighbours and friends (52%) as well as relatives (41%) and other community members (38.3%), with a combination of the above depending on the type of resources. Results also show that many villages are well endowed in bridging and linking social capital and have intensive links with external organisations, mostly NGOs.

The results, however, also showed that social capital is not evenly distributed within the community. While it has positive benefits to those who have access to and use it, there is also a downside to social capital. Some social capital mechanisms often have a high social cost for women and other vulnerable groups, who end up taking the burden of implementation of community activities, perhaps to the benefits of men and rich farmers (Cornwall, 2003; Molyneux, 2002). The narratives eloquently showed that bonding and structural social capital mechanisms did not always ensure fairness, especially to some farmers embedded with less social capital, who are excluded from development activities.

4.1.2 Social Capital and adoption of NRM technologies

The study examined the role of different dimensions of social capital and other factors in determining farmers' adoption and use status of soil conservation measures (see **Annex B: The role of social capital and local policies in managing NRM conflicts**). Factors that positively and significantly influenced the use and adoption of agroforestry technologies included gender (men had higher probability of practising agroforestry than women), income levels, extent of collective action, and boundary conflicts.

The effects of social capital variables show mixed results. While bonding social capital as measured by the extent of collective action was positively and significantly related to the adoption of agroforestry, mulching and terracing technologies, the effects of structural and cognitive dimensions of social capital were generally negative. The probability of adopting soil conservation measures decreased significantly with the number of plots. The more plots farmers have, the less likely they will use soil conservation measures.

The effects of conflicts were generally not significant, except for agroforestry technologies. Farmers who reported boundary conflicts were more likely to adopt agroforestry technologies to demarcate their land. However, there was a significant inverse relationship between tree conflicts and agroforestry technologies. Understandably, this type of conflict discouraged farmers from planting trees on their farm.

4.1.3 Role of Social Capital in Minimizing NRM Conflicts

With increasing population pressure, the quantity and quality of natural resources are diminishing and are now subject to increasing competition and conflict as people compete for the natural resources they need to ensure or enhance their livelihoods. NRM is in many ways a form of conflict management (Buckles and Rusnak, 1999; Castro and Nielsen, 2003; Hendrickson, 1997). These conflicts are contributing to further degradation of natural resources and erosion of social capital, and pose significant challenges to rural livelihoods and sustainable management of natural resources. The extent of conflicts and mechanisms for managing conflicts are an important dimension of social capital. Similarly, social capital

mechanisms are critical for managing conflicts in community-based natural resources management. Therefore, management of conflicts in community-based NRM is important as a public good and merits policy support (Tyler, 1999).

The hypothesis states that the presence of social capital is a necessary condition for conflict management in CBNRM. This hypothesis was examined with empirical data from conflict case studies, household interviews, key informant interviews and other participatory tools in four sub-counties in the highlands of Kabale, in south-western Uganda. Results showed that the types and dimensions of NRM conflicts are complex, ranging from intra- and supra-household gender relations, to antagonistic, distrustful relationships and violent clashes amongst farmers, and between farmers, local communities, government and external institutions. These include conflicts between multiple local resource users (agriculturalists, livestock owners, upstream and downstream users) for multiple purposes (cultivation, grazing, income, and domestic uses, etc.) and rules (national policies, byelaws and community regulations), as well as conflicts between the concerns of local communities for better livelihoods and national and international concerns for environmental conservation. The study also revealed that gender analysis is fundamental for understanding conflicts and finding alternative strategies for conflict management, as about a third of the conflicts involved women.

Social capital mechanisms are an important resource for managing conflicts and improving the management of natural resources. Farmers and communities use a plurality of strategies, processes and avenues to resolve conflicts, including avoidance, negotiation, mediation, arbitration and adjudication as well as coercion and violence. Clans form the basis of social networks that facilitate coordination, cooperation, reciprocity, trust and social norms that are required for CBNRM and conflict resolution. Clan elders and members formed the basis of traditional or customary conflict resolution mechanisms. Conflicts between clan members are often sorted out through negotiation and conciliation; a voluntary process in which parties reach mutually agreed decisions. Many gender-related conflicts do not come into public domain and are often resolved at the level of the clan. Because the clan is an exogamous patrilocal unit, conflicts are taken to men's clans. Women find themselves disadvantaged as they do not belong to the clan structures and networks that are involved in managing conflicts.

However, in a considerable number of cases, bonding social capital mechanisms (clan leaders, neighbours, relatives, village members) were perceived as having a lower capacity for resolving conflicts. Such cases often required intervention of local political structures (LC1) for arbitration. This perception was particularly significant among women compared to men, corroborating women's perceptions that local mechanisms are biased against women. A combination of social, economic and political factors have undermined the ability of local mechanisms, clan elders and community organisations to manage conflicts (Means et al. 2002). The decentralisation process has established local councils at village level, which concentrate both political and administrative power to manage community life, including arbitrating disputes and making byelaws and other local policies. Political interference was often cited as a key constraint to the effectiveness of local clan leaders to resolve conflicts.

Results show that other forms of social capital (bridging) as expressed in the density of farmers' groups, and particularly women's groups, have a relatively higher capacity to resolve conflicts as most cases are resolved through mediation and negotiation within these groups. In the case of supra-community conflicts, low levels of social capital (especially weak bridging and linking social capital) and dysfunctional policies can lead to serious conflict.

One important conclusion from these cases is that social capital mechanisms for managing conflicts are not effective for conflicts between local communities and external powerful

stakeholders. In these cases, formal administrative and political structures substituted for social capital mechanisms. Formal mechanisms and policies may work best when they strengthen the capabilities of stakeholders to enter into voluntary and mutually beneficial collective action and negotiation, sustainable over time. However, this synergy depends on high levels of social capital, social institutions and well-functioning local policies that are coherent and credible.

The results suggest that the capacities of different actors, resource users, local communities, and policy makers to address CPR conflicts can be enhanced. This would require developing and implementing effective approaches and building the necessary human and social capital as well as policy processes for minimising conflicts. Castro and Nielsen (2003), Means et al. (2002) and Hendrickson (1997) as well as several other scholars, conclude that effective prevention and management of conflicts require skills and tools which are often lacking in many organisations, institutions and communities. These findings were reinforced at the end-of-project policy stakeholder feedback workshop attended by over 80 participants representing farmers, technical personal, political leaders and policy makers from Kabale district, as well as invited political leaders and policy makers of the neighbouring districts of Kanungu, Rukungiri and Kisoro.

4.1.4 Strengthening social capital

One of the key objectives of this project was to strengthen social-capital: i.e. the self-organisational capacities within communities, and to create conditions in which local people are able to formulate, review, monitor and implement appropriate byelaws, and engage in mutually beneficial collective action. One mechanism used for strengthening social capital has been the establishment of farmers' forums and policy task forces at the different levels, from the villages, the sub-county to the district. Village byelaw committees and policy meetings have been established and are operational in the four pilot communities. At the sub-county level, there is a sub-county policy task force and work is done through the sub-county council and the NAADS farmer forum. Workshops for the policy task forces and policy stakeholders have also been operational. In each pilot community, community land-user groups and farmer research groups were established and are functioning to deal with specific NRM issues and to conduct experiments with different NRM innovations. The majority of these groups are active and are increasingly taking on new responsibilities and activities (see **Annex J, Farmer research group dynamics**). On average, women constitute over 67% of the membership of these groups and are increasingly taking on leadership positions in mixed groups and farmers' forums. Women represent between 34-50% of the membership in village byelaw committees and policy task forces.

Measures to strengthen the social capital of local communities have included support to the organisational capacity of groups, leadership and group development training, conflict management and gender awareness training, creating opportunities for horizontal linkages through exchange visits, facilitating exposure visits and linking local groups to other rural service providers (NAADS, CARE-FIP, AFRICARE). Based on the results of this action learning process, the project has drafted a technical guide for managing group dynamics and social processes (**Annex I Building Partnerships and Facilitating Group Development**).

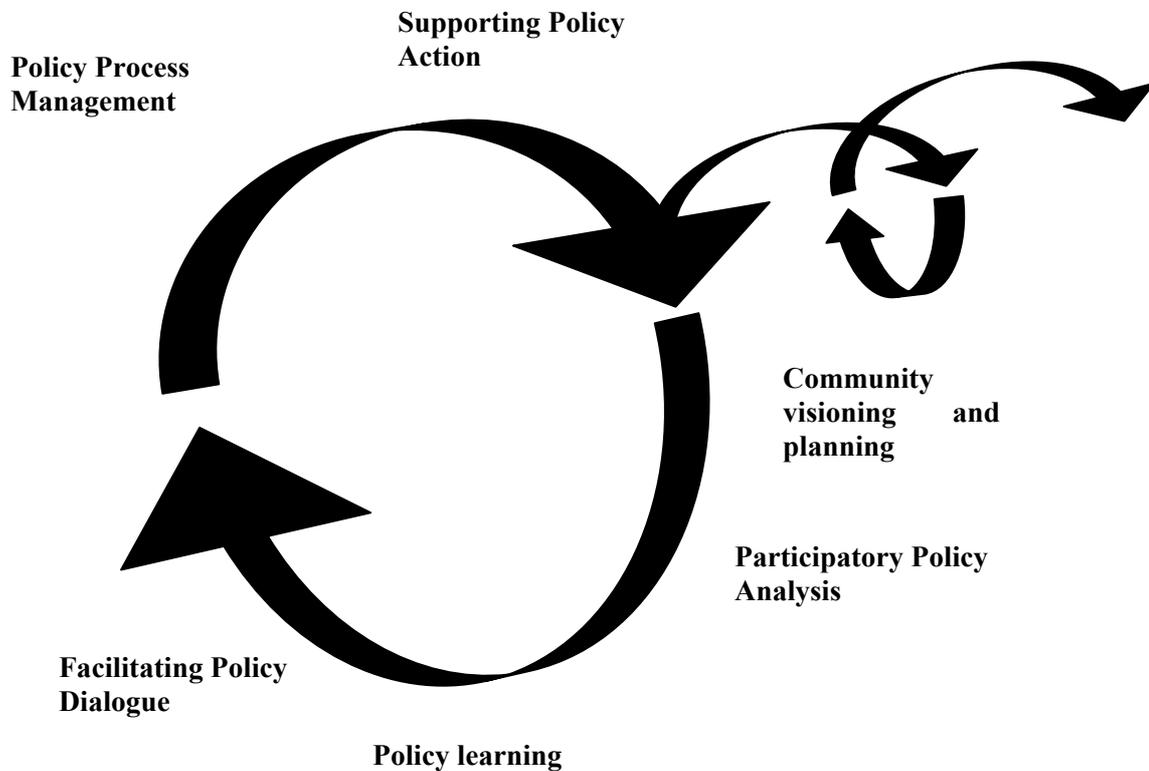
4.2 Output 2: Plans, strategies and local policies to promote adaptation and use of improved NRM practices.

4.2.1 The policy process framework

The project adapted and refined the policy process framework (Figure 1) with the following

key components: i) community visioning and planning; ii) participatory policy analysis, iii) participatory policy learning, iv) policy dialogue, v) supporting policy action, and vi) policy process management.

Figure 1. The policy process framework



4.2.2 Developing community visions of desired future conditions and NRM plans

Most participatory research projects routinely start with a participatory rural appraisal (PRA) exercise to identify problems and constraints in the farming system, and as an entry point into communities. Recently, PRA has come under criticism for being superficial, extractive, transitory, unable to initiate change and build local capacities and lacking adequate processes of follow up. In the first stage of initiating participatory policy analysis and developing community NRM action plans, there was an intensive and iterative process of participatory diagnosis and community visioning to stimulate collective learning and articulation of desired future conditions. Community visioning was a highly interactive process for establishing dialogue and engaging farmers and rural communities in collective analysis and thinking about the future; defining strategies for achieving better livelihood outcomes, and for empowering rural people to become agents of their own change (see **Annex H: Facilitating participatory diagnosis and community planning**).

The community visioning process was based on the SARAR technique (The World Bank, 2000), which stands for the five attributes: - **S**elf-esteem, **A**ssociative strength, **R**esourcefulness, **A**ction planning, **R**esponsibility. Combining SARAR with creative participatory tools such as community resources and social mapping is useful for fostering and strengthening community skills in systematic action planning, monitoring and evaluation. Through this process, all the four pilot communities have developed action plans with desired outcomes, explicit objectives, activities, roles and responsibilities of different stakeholders and

partners. These pilot communities are at different stages of operationalising their action plans.

One of the key components of the community action plans clearly specifies the need to strengthen communities' capacities to review existing byelaws, formulating new ones to facilitate collective action in the implementation of action plans for better management of watershed resources. It was therefore important to initiate participatory processes for analysing the different byelaws to identify the key problems in their implementation and identify opportunities and incentives for their effective enforcement.

4.2.3 Participatory byelaw analysis

During the community visioning and planning process, it was realised that poor implementation of byelaws is linked to degradation of natural resources and has hampered adoption of NRM technologies. Many of the existing byelaws were formulated without local participation and many farmers were not satisfied with their implementation mechanisms. Across communities, the process of community planning identified six general byelaws in agriculture and natural resource management (soil and water conservation, food security, tree planting, bush burning, controlled grazing, and swamp reclamation byelaws). Each of these byelaws has specific regulations and enforcement mechanisms (**Annex E: Review and synthesis of byelaws and local policies in NRM**). The task force committees and community meetings were encouraged to think creatively about potential arrangements to encourage compliance among those groups finding it difficult, by constantly asking questions such as: For whom is this a problem? Who benefits from the byelaw and how? Who loses out from the byelaw and how? Who will have difficulty in complying and why? What mitigating arrangements can be introduced for strengthening byelaw implementation?

The analysis revealed that some categories of farmers would have difficulty in complying with some of the byelaws. These included older men and women, widows and orphans with limited family labour, or lacking money to hire labour or to buy implements like spades and hoes needed to establish conservation structures. Farmers with alternative sources of income, which are more lucrative than farming, might not have the time to putting up conservation structures on the plots they are using for food security. It was also revealed that owners of small livestock, especially women, who have small farm sizes and do not own grazing land, will have problems with the controlled grazing byelaw. The byelaw may force the poor to sell their livestock and could increase poverty and conflicts among farmers. Through facilitated community meetings and individual interviews, local communities discussed mechanisms for promoting collective action to facilitate the implementation of NRM byelaws and technologies. Social capital mechanisms (local institutions, norms of cooperation and collective action) can be drawn upon to encourage commitments by all who become involved, and for supporting mutual beneficial collective action, charitable involvement and local community participation in NRM activities.

4.2.4 Facilitating Policy Learning

As observed by Norse and Tschirley (2000), in many cases policy makers don't know what kind of information they can reasonably expect or ask for from the R&D community. For example, we found that the majority of political leaders and policy-makers were not aware of the existing byelaws and NRM policies, their regulations and implementation mechanisms, or the process of formulating byelaws. A proactive role was therefore essential in assessing the information needs of policy makers and in developing effective communication strategies for guiding and informing debate and fostering public understanding of the policy process. The project initiated policy stakeholder workshops and other learning events (seminars, field visits, documentation) to increase the relevance of research to policy makers and to

communicate research findings to policy makers.

The first policy stakeholder workshop held in 1999, identified a number of areas for collaboration and information sharing between research and policy makers. In addition to regular subsequent workshops and policy meetings, one strategy has been to organise and facilitate field visits to examples of successful village level implementation. This has had a great effect in convincing policy makers, local leaders and farmers, by allowing them to see things with their own eyes, and to share experience with more innovative farmers. This exposed policy makers and farmers to innovative NRM technologies and also built their confidence and capacity to engage in policy dialogue with other stakeholders. Another important aspect of policy learning was to use policy narratives and developing NRM scenarios. These have the advantage of simplifying complex problems and making them amenable to better understanding and decision-making (Keeley, 2001). For example, the soil fertility and agroforestry narrative has been a powerful strategy for getting policy makers to learn about agroforestry and to support agroforestry policies and byelaws. These narratives, coupled with field visits to research stations and on farm demonstrations, have been useful for getting policy support for tree planting.

4.2.5 Promoting and facilitating policy dialogue:

Despite considerable progress in local government reforms, it is only to a limited extent that policy makers seek information from key stakeholders in designing and formulating policies. Participation of farmers and local communities is often limited to a single representative and the small-scale poor farmer is often forgotten. The project used three complementary mechanisms for promoting policy dialogue: bottom-up community inclusive processes; sub-county representative policy meetings and district level stakeholders' workshops.

At the local community level, byelaw committees and community-wide policy meetings were organised. Over the three years of the project, over 78 village byelaw committee meetings and 24 community wide meetings have been conducted to discuss byelaws and NRM issues in the four pilot communities. It is important to note that where the byelaw committees are integrated into other forms of social organisation, e.g. farmers' groups working on agriculture and NRM, there have been many more opportunities to discuss byelaw issues.

Despite progress made at the village level, it was recognised that the strengthening of community level processes cannot stand on its own. While the village is the ultimate level for byelaw formulation and implementation, the sub-county and the district constitute a critical aspect of the decentralisation system as they have important political and administrative powers to make bye-laws, prepare development plans, budgets and allocate resources. The sub-county is the basic political and administrative unit of local government that enacts byelaws and resolves disputes. This level has good potential for stimulating local organisations and democratic processes to deliberate on and influence policies from bottom up. The different byelaws initiated at the village level were presented and debated at the sub-county level for harmonisation and better co-ordination before they were enacted into byelaws. The District level dialogues were usually high profile events aimed at raising and refocusing the policy debate, building a network of actors who can influence the policy process with messages tailored and focused to gain attention and support. Five policy stakeholder workshops were held over the three years and brought together a large number of participants (80-100), district leaders and councillors, members of parliament, subcounty councillors, local government technical services, research and development organisations, and farmers representatives, and in the later years representatives of neighbouring districts and national institutions.

To make these dialogues more effective and participatory, some specific efforts were necessary to strengthen the weakest stakeholders - the farmers. A range of participatory techniques (role plays, mapping and diagramming, mentoring, and other adult learning methods) were used for engaging and empowering local communities directly in the articulation of their policy needs, and in the analysis, design and implementation of policies and innovations. This has involved coaching and mentoring farmers' representatives to better articulate their policy needs and NRM visions with confidence. It has been particularly insightful to sequence policy dialogues with farmers' exposure visits, and horizontal linkages between the different communities where they harmonise their demands, share experience and rehearse their presentations. As a result, the most interesting moments during the policy dialogues are when farmers make their presentations, and articulate their community visions and experience with the byelaws. These committees are supported by a skilled community development facilitator (CDF). The CDF's roles include strengthening the self-organisational capacities within communities, motivating and facilitating people to participate in the process of action learning, reflection and negotiation on byelaws and NRM issues (see **Annex G, Bridging research and policy in NRM**).

4.2.6 Supporting Policy Action and byelaw formulation

As a result of this process, the pilot communities have reviewed and formulated a number of byelaws for improving agricultural production and natural resources management. These include byelaws on soil conservation and erosion control; on tree planning, on controlled grazing, drinking and wetlands management (See **Annex D, Facilitating participatory processes for policy change in NRM**). These byelaws were debated at the sub-county and harmonised for their general application to other villages and parishes.

Some of these byelaws have been implemented with different levels of success in the four pilot communities. For example, in Muguli and Karambo, farmers have constructed more than 600 trenches for minimising soil runoff through erosion, while in Kagyera and Habugarama, the results have not been so impressive. An important aspect of the success in formulation and implementation of the soil erosion control byelaw in the four pilot communities was the linking of the byelaw to NRM technology innovations.

Each community group has established a monitoring and evaluation system to examine the effects of plans, regulations and byelaws on NRM issues. Monitoring committees have been established in all the four target villages and indicators have been defined by farmers. Data are being recorded and reported by the committee. Indicators for the performance of groups have also been identified.

4.3 Output 3. NRM participatory decision support tools and methodologies developed and used.

Some of the research products (see list of annexes) focused on methodology and empirical results of different aspects of the project. However, it has not been possible in the course of this project to develop these research products into communication materials for wider audience, in more accessible format. The next step will involve packaging the materials into field technical guides and briefs and manuals for different stakeholders, particularly for community development facilitators and policy makers. Materials and drafts of some of these products are in advanced stages, while some others need to be repackaged.

4.3.1 Methodology for social capital, gender and livelihood analysis:

The case study approach allows a broadening of the focus on social capital from formally constituted groups to the wider network of informal social relations. The case studies are designed to explore in detail how social capital and social relations operate within the livelihoods of richer and poorer households and how these relations affected access to assets (particularly natural resources) and influenced practices. This approach is intended to increase understanding of how social capital is activated in the pursuit of livelihoods, particularly how access to (or exclusion from) social capital can assist or impede access to other forms of capital and hence influence livelihood choices and outcomes. It can also help illuminate any negative dimensions of social capital, such as excessive burden of obligations to family, kin and friends within informal social capital networks or perceptions of corruption or exclusion.

The methodology is based on the sustainable livelihoods framework to develop check lists covering areas for exploration (human, physical, natural, financial and social capital from the assets pentagon) and for each type of asset, exploring the relevance of social capital. The checklist can be used as a flexible tool, applied over a number of visits. This allows for the build up of trust and for the cross checking of information which is difficult in one-off questionnaire surveys. It allows discussion of sensitive issues such as gender roles and responsibilities, group membership and credit arrangements, strategies for coping with poverty. It also facilitated comparison of attitudes to NRM expressed on an individual private basis with those voiced in public discussions.

The methodology can be used in different ways to produce the following outcomes:

- To identify what ‘social capital’ exists over what socially differentiated groups, and how it can be strengthened or built where necessary
- To indicate which strategies for improving NR management and productivity have relevance for which groups and what additional policy changes and capacity building are needed for their implementation?
- To illustrate how social capital, informal social networks and formal organizations influence access to resources and the outcomes of their utilisation; how some people can pursue a trajectory of increasing assets while others are unable
- To guide in the development of approaches that strengthen the capabilities of men and women to engage in new forms of association that can be a forum for their democratic participation and influence over wider policy processes in support of natural resources management.
- To inform researchers and decision makers about poverty and NR management constraints at village level.

4.3.2 *The Power of Visioning: Developing community visions of desired future conditions*

This handbook advocates for a different approach for participatory diagnostic and for engaging with rural communities. This approach termed Community Visioning (CV) is a highly interactive process for establishing dialogue and engaging with farmers to achieve a better understanding of the local situation, identify opportunities and facilitate community action planning for change to achieve better livelihood outcomes. It is a different way of thinking about the use of participatory rural appraisal (PRA) which traditionally focused on extracting information from people to identify their problems and constraints, to better plan

research and development interventions. Visioning is a capacity building process that identifies and builds collective capacity and competence of local communities through dialogue that creates positive images and leads to commitment to action. An important principle of this approach is that it starts with an analysis of strengths and opportunities, rather than problems and constraints, and build on these opportunities to develop community action plans. Community Visioning is a capacity building process that identifies and builds on the strengths and assets, rather than focusing on problems and constraints. It develops collaborative and collective competence through dialogues, and creates positive images or visions that leads to commitment to action.

The purpose of this Handbook is to improve the practice of CV in agricultural research for development organizations by engaging with the stakeholders, especially farmers and development partners, in defining and deciding on desired changes, learning together and tracking change both for impact assessment, accountability and organizational learning.

4.3.3 Managing social processes and group dynamics

In recent years, there has been increasing interest in community-based approaches to catalyse farmer participation in research and development, and to widen the impact of participatory research. However, many research and development partners may not have the skills to effectively manage social processes and group dynamics. Strengthening the group development process requires skills for building more effective ways of organising and working with farmers' groups, building their organizational capacity and strengthening their social capital, and improving links with high level institutions. The guide is intended to help research and development workers to:

- better understand group dynamics and process of creating, facilitating and strengthening group dynamics and group development process,
- establish successful partnership for community-based NRM. It will describe the elements of successful partnership, and provide some practical considerations for selecting, forming and managing partnerships
- describe the essential characteristics of groups and the group development process, and discuss an analytical methodological framework that can be used when identifying, selecting groups, and strengthening their development process.
- describe tips, tools and skills for facilitating group development and managing group dynamics
- identify and manage conflict situations that facilitators may be faced with when working with groups and communities

4.3.4 Facilitating participatory processes for policy change in NRM

Based on the experience with this participatory policy learning and action research project aimed at strengthening local-level processes and capacity for developing, implementing and enforcing local policies and byelaws and other local policies to improve the use and management of natural resources in the southwestern highlands of Uganda. The Guide describes a process of facilitating the integration of participatory approaches to policy

decision-making, and for building and strengthening local community capacity to initiate, formulate, review and implement policies and byelaws that promote the adoption and wider impact of improved NRM technologies. The paper describes the key components of the participatory byelaw analysis and formulation framework: i) community visioning and planning; ii) participatory policy analysis, iii) participatory policy learning, iv) policy dialogue, v) supporting policy action, and vi) policy process management. It also describes the five “INs” approach (i) strengthening local institutions; (ii) providing information; (iii) linking byelaws to NRM innovations; (iv) finding and promoting incentives, and (v) building a network of influence as effective mechanisms that research and development organisations can use to influence policy action for sustainable NRM.

The guide will also provide a synthesis of the different byelaws, the process of formulation of byelaws and their implementation mechanisms.

4.3.5 Extent of use of decision support tools

Some of these tools have been used to provide inputs in to the development of community NRM action plans and byelaw formulation. The visioning guide has been used in training community development facilitators and research assistants from Tanzania, Malawi, Uganda and Kenya on conducting participatory diagnostics in more innovative ways, focusing on opportunities and assets, rather than problems and constraints; looking at desired future conditions rather than the immediacy of solving current problems. The results of this project have been broadly shared and disseminated to potential users using different fora and communication/dissemination strategies for better uptake promotion of the research results and products. Our dissemination and scaling up strategies focused mainly on local stakeholders and local target institutions at different levels (micro level with the pilot communities; meso-level with the selected districts and NGOs operating in the districts, and macro-level with national institutions such as NAADS; regional networks such as AHI and ECAPAPA; and international institutions such as CIAT, ICRAF and DFID). At the level of the pilot communities, the study used participatory research approaches whereby knowledge was generated, shared and owned by all the stakeholders involved through regular meetings, training events and feedback to farmers’ communities, policy task force and policy stakeholder meetings. Policy stakeholder meetings at different levels and scales were held to share results. The results of the project have also been broadly shared at several scientific events, workshops and seminars in Uganda and elsewhere in Africa through scientific presentations and discussions.

4.4 Output 4: Dissemination and upscaling initiated through the development of appropriate strategies based upon the outputs of the project.

There has been genuine interest and willingness of the sub-county to upscale the process beyond the pilot communities to the whole sub-county. Other parishes have expressed interest in forming village policy task forces (VPTFs) to initiate and review byelaws to improve the management of natural resources. Initially this will need facilitation and technical support from research and development partners. Discussions were initiated with CARE-Farmer Innovation Project and NAADS to provide technical support to selected communities, and identify and train other service providers to facilitate VPTFs in other communities. Several village sensitisation meetings on byelaws and NRM practices have been held in the pilot communities. A number of farmers’ groups and other development organisations visited the pilot communities to learn about the participatory process of formulating and implementing community byelaws, and NRM practices. The policy task forces are operational and

sustainable institutional arrangements are in place to embed the social process developed by the project with guidelines on how to formulate appropriate policies and byelaws. Partnerships have been established with AFRICARE in Karambo and Muguli, with NARO in Kagyera, and with CARE-FIP in Habugarama. NAADS, facilitated by AHI in Rubaya, is also operating in all the target communities and many farmers are members of the sub-county farmer forum. Linkages with AFRENA on agroforestry technologies have been strengthened through training, exchange visits and provision of seedlings.

In order for the byelaw committees to become part of the policy-making process, there is a need to work towards mechanisms to institutionalise such participatory processes for policy formulation and implementation. Many national level institutions and programmes such as the National Environmental Authority (NEMA), the National Agricultural Advisory and Development Services (NAADS) and nation-wide and international NGOs and civil society organisations within and outside Uganda, could provide a fertile ground for scaling up such participatory policy action research processes for sustainable natural resources management.

The project has produced a number of research products (methodologies, conceptual models, process research, scientific understanding, technical information, and field guides). These products need to be packaged and disseminated to other communities, districts in Uganda and to other regions and organisations, through the uptake promotion call. A proactive communication strategy is under development for uptake promotion and communication of research results and products, and for tracking changes or policy action by stakeholders, that will ensue from this promotion. Once the products are developed, AHI will ensure the dissemination of results in its benchmark sites in Tanzania, Ethiopia, and Kenya. The East and Central Africa Programme on Agricultural Policy Analysis (ECAPAPA) of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) would also facilitate wider dissemination of the findings to its constituents, partners and other stakeholders as well as to other NRM networks and countries. CIAT, ICRAF and DFID-NRSP would help in putting the results and products of this research into the international public arena.

The effectiveness of the project to date has undoubtedly been enhanced by synergies in the work of other CIAT, AHI and ECAPAPA projects. Results of this action research suggest that with current decentralisation in Uganda, there are significant opportunities that research and development can utilise to influence policies, and to translate research results into policy and decision-making of wider communities to accelerate wider-scale adoption and dissemination of NRM technologies. The study developed a five INs model (strengthening local institutions; providing information; linking byelaws to NRM innovations; finding and promoting incentives and minimum inputs, and building a network of influence).as effective mechanisms that research and development organisations can use to influence policy action for sustainable NRM (see **Annex D, Facilitating policy change in NRM**).

5 Research Activities

The action research was conducted in Kabale district in the south-western highlands. The project's approach was grounded in the tradition of action research, a process that pursues action (policy change) and research (understanding of policy process), at the same time learning by doing (participatory natural resources management). The research activities are detailed in the project logical framework (see section 10).

As a starting point a baseline situation analysis was conducted in the pilot communities including diagnostic and assessment of social capital, gender and stakeholder analysis and NRM practices.

Action research focused on strategies and processes for catalyzing and facilitating the organizational capacity of local communities, and supporting women's participation and leadership at the community level. Considerable efforts were devoted to forging and facilitating horizontal and vertical links between the pilot communities and local government institutions and other service providers.

As part of situation analysis, a more systematic participatory field assessment of land degradation was undertaken to generate and strengthen knowledge about NRM and to facilitate the development of community action plans for improved NRM and reversing land degradation. This participatory land degradation assessment was complemented by detailed household surveys on natural resources management practices by farmers (, and in-depth case studies of selected households. The case studies also included a monitoring of agricultural and natural resources management practices using plot record sheets. This assessment also identified constraints and opportunities for adoption of improved soil management technologies and other land act policies for Kabale.

The second set of activities focused on developing community based NRM plans and byelaws for improved NRM practices. This requires a participatory NRM community visioning and planning aimed at stimulating collective analysis of NRM issues through visualisation, diagramming and other relevant participatory tools to facilitate communities to develop plans and strategies for improving NRM. As background to *participatory byelaw analysis*, a survey was conducted to identify the existing formal byelaws (soil and water conservation, food security, tree planting, bush burning, controlled grazing, and swamp reclamation bye-law) and to assess farmers knowledge and perceptions of the effectiveness of existing byelaws. The project facilitated regular stakeholders workshops, meetings and consultations and policy task forces at the various levels (District, Sub-county, parish, villages, pilot communities) to support the process of byelaw formulation and to monitor its effectiveness.

The third set of activities concerned the development of research products and communication strategies for uptake promotion and scaling up of research results. This was accomplished through regular stakeholders' workshops, meetings and consultations and policy task forces at the various levels (District, Sub-county, parish, villages, pilot communities). The project facilitated the formation and functioning of local policy committees or taskforces at three different levels of decentralisation (village, sub-county and district), and provided direct support to the process of formulation and implementation of byelaws and regulations. Specific activities were geared towards improving the capacity of local authorities to review and formulate byelaws and to manage conflicts. A communication and uptake promotion strategy is being developed and will form the main focus of a follow up study.

6 Environmental assessment

6.1 What significant environmental impacts resulted from the research activities (both positive and negative)?

The project is an environmental project in the broad sense. It deals with the issues of overcoming land degradation in the intensified cultivated and densely populated highlands of Kabale where major environmental degradation (soil erosion, deforestation, wetlands reclamation, bush fire etc.) is occurring in the midst of rural poverty. In this project, natural resources management refers to the sustainable use of the agricultural resource base for meeting the production goals of farmers and rural communities. It encompasses the replenishment of soil fertility, soil conservation, erosion control, agroforestry, tree planting, crop-livestock integration and wetland management. Farmers in the pilot communities have

developed and are implementing improved byelaws for NRM, such as combating soil erosion and land degradation, regulating bush fire and animal grazing, promoting tree planting and wetland management. Community agroforestry nurseries have been put in place in some communities. As a result of village policy task forces formulating and implementing byelaws, a total of 480 farmers in the pilot communities have established trenches and associated soil and water conservation measures according to the byelaws. There has been a more widespread awareness of NRM issues and technologies to solve SWC problems. However, more efficient technologies for stabilising trenches and controlling soil and water run off need to be promoted.

6.2 What will be the potentially significant environmental impacts (both positive and negative) of widespread dissemination and application of research findings?

By linking policy to NRM R&D, complex issues of NRM can be tackled and adoption of NRM technologies enhanced. Through improving social capital, particularly aimed at increasing women's involvement, and increasing dialogue between researchers, policy makers and local communities, local stakeholders will be better able to understand NRM issues and actively improve local policies. Better designed technologies and policies will result in considerable environment protection and increase agricultural production in the target communities. Communities would be able to initiate and implement positive policies and byelaws to solve NRM problems and to make informed decisions about NRM. Use of community-based participatory research processes will increase technology options and will enhance adaptation of technologies to heterogeneous environments and specific resource endowment circumstances. The project will accelerate the adoption and dissemination of policies and innovations that increase food production, while preserving the natural resource base.

6.3 Has there been evidence during the project's life of what is described in Section 6.2 and how were these impacts detected and monitored?

The pilot communities have constructed more than 600 trenches for controlling soil erosion and water run off; and have initiated community agroforestry nurseries. It was reported that setting bush fires in the pilot communities significantly reduced during the last dry season, compared to previous years and to incidence in other villages. This was attributed to the VPTFs role in catalysing community participation in the formulation and enforcement of byelaws on bush burning, and sensitisation through meetings in the pilot communities. Villages where the policy work is taking place have acted as centres for learning for people from nearby villages and other visitors who come to study the policy, how they began and the achievements and challenges so far. The policy task force comprises monitoring committees to sensitise members to the byelaws and assess progress in implementation. These committees use simple criteria for monitoring progress and in evaluating the impact of their activities. These include:

- The number of technologies adopted by communities to reduce and control soil erosion; e.g. the number of trees planted, how they are maturing, whether they are being grazed, whether the soils are still being heavily eroded; the number of trenches made in the community; the number and types of grasses planted for soil and water conservation and along trenches, community responses to prohibition of free grazing.
- The number of community meetings held; number and gender composition of community members who turn up for meetings.
- Records of what is taking place are kept, who is implementing byelaws, who is not and the reasons why.

- Communities are beginning to work together and to assist each other
- Numbers of people from other villages who have visited to learn from the process and how many have begun to implement.

6.4 What follow up action, if any, is recommended?

An important consideration for the project has been the effect, and ultimate impacts of these measures, both on natural resources and on poorer households. However, this requires a long term and post-project tracking. Both the medium-term review report and the pre-final technical report meeting recommended a one year extension for tracking changes and outcomes of the project on improving NRM and rural livelihoods, and for assessing the sustainability of local processes for initiating and implementing byelaws. The purpose of the one year extension would be to understand the outcomes, uptake and potential impacts and conditions for sustainability of such approaches; in particular, to assess the sustainability of local institutions for NRM policy formulation and implementation and their effectiveness in bringing about changes in NRM practice which do not disadvantage the poor. It would seek to promote continuity of the approaches and dissemination of the lessons learnt, by developing wider institutional partnerships.

7 Contribution of Outputs

The project contributes to NRSP-Hillsides output 1 on developing and promoting improved hillside farming strategies relevant to the needs of marginal farmers. The project purpose, ***“Social capital and local institutions are strengthened to improve the adoption of NRM innovations and policies”***, addresses four components of livelihoods: social capital, human capital and policies and institutions to improve natural capital. Specifically the project addresses the challenge of linking field level findings with policy making, and developing ways of accelerating and scaling up the adoption of NRM innovations.

Despite the relatively short time during which the development of community generated NRM policy formulation and byelaw implementation has been facilitated, the work has resulted in a number of achievements. These provide early evidence of the relationship between building social capital through establishing and linking village, sub-county and district level institutions, and the practical implementation of byelaws for improved natural resource management. The project has increased understanding of ways to help strengthen social capital, improve local-level institutions and policies, support the integration of scientific and participatory approaches to policy development and implementation, and accelerate the adaptation of sustainable NRM technologies and practices.

The first indicator of achievement of the project purpose identified in the log frame is *“by 2003, the organisational capacity of local communities for collective action, formulation and implementation of bylaws and NRM innovations improved”*. The project has developed a methodology and a framework of steps towards analysing, strengthening and utilising social capital and for linking field level findings with policy and decision-making through participatory policy action research processes. Results include the establishment and effective functioning of policy task force committees in the four pilot villages and at sub-county and district level, together with increased levels of community participation and consultation on NRM issues. Regular village policy task force meetings have been held, attended by an average of 10 members, both men and women. 12 community meetings have each attracted up to 30 men, women and young people. Around 40 farmers attended the four sub-county

policy task force meetings. As indicated in section 4.1.3, there is active female membership of farmers groups and in the policy task forces. Women have taken on active roles in decision making and on the policy task forces (chairing meetings in the absence of the chairman, attending regional workshops, exchange visits etc.). Participation in community meetings is over 50% women. Local leaders also attend meetings and are part of the Policy task force committees. Prior to the project, farmers groups had been active in some of the pilot communities, mainly focusing on the testing of agricultural technologies. However, the organisational strengthening and development of a broad based participation to discuss and develop byelaws and their implementation has been created through the project. The project has strengthened local capacity to review, initiate, formulate and implement byelaws and other local policies. The farmers in the pilot communities have also considered how these byelaws might affect different categories of people and have suggested ways of avoiding negative impacts. They have participated in exchange visits and field visits to learn from one another and share experience.

The initial research hypothesis that social capital is a necessary precondition for adoption of NRM innovations that require collective action and collaboration and for participation of resource poor farmers in policy formulation and implementation is supported by the findings. The study has generated a deeper understanding of social capital and the inter-relationship of gender, social capital and NRM/livelihood strategies, through analysis of existing farmer groups and current organisational capacity, household case studies of livelihoods and social capital, linking with complementary data from other surveys and participatory rural appraisal exercises.

A second indicator of project impact concerns the successful building of linking social capital – “*by 2003 communities have improved linkages with policy makers and service providers and horizontal linkages with other communities*”. It was recognised early in the project that communication and action was needed at different levels involving a wide range of stakeholders. In addition to the focused work at village level (78 village policy task force meetings), stakeholder interaction at sub-county and district level was necessary to ensure coherence between policies at district, sub-county and village level and to reach stakeholder consensus on the formulation of the byelaws. Uniform byelaws were passed as recommended by the village policy task forces and have been presented to the local council for approval.

The participatory policy process action research framework concentrated on five key elements: facilitating community visioning and planning of desired future conditions; participatory policy analysis; linking bottom-up processes to higher level policy processes through policy dialogue and policy learning events, and supporting policy action at different levels. The study suggests a five “INs” model: strengthening local institutions; providing information; linking byelaw to NRM innovations; finding and promoting incentives and minimum inputs, and building a network of influence, as effective mechanisms that research and development organisations can use to influence policy action for sustainable NRM.

Further achievements relating to improved linkages were the exchange visits between villages and the linking of local groups to other development NGOs with NRM interests and service providers. Villages where the policy work is taking place have acted as centres for learning for people from nearby villages and other visitors. Through workshops, seminars and meetings, other communities, farmers, villages and districts have requested the start up of similar work in their areas.

Beyond the achievement of institutional development and linkages and the passing of byelaws, there is the critical issue of actual implementation of the NRM practices enshrined in the byelaws. The third indicator was “*at least 25% of male and female farmers in the target*

communities will start to implement reviewed bylaws and adopt technologies to combat land degradation and increase agricultural productivity". The bylaws on soil conservation, tree planting, controlled animal grazing, drinking of alcohol, wetland management and bush burning have been implemented with different levels of success in the pilot communities. The first step has been the development of community action plans in the pilot villages. Trenches have been constructed, together with associated soil and water conservation measures by around 480 farmers in the pilot communities.

The project has generated a clear understanding of social differentiation among rural households and the practical implications this has for NRM decisions. Building on this analysis, the task force committees were encouraged to address the challenge of ensuring participation and compliance with the outcomes, by farmers with fewer resources, particularly women and the elderly. Compliance by the rich was also identified as problematic, especially when allied to political power. Mechanisms to encourage uptake and compliance were discussed. These included use of communal labour for construction of soil conservation works, exchange mechanisms for land and labour, facilitation of access to tools and loans, greater involvement of political leaders, community sensitisation, exchange visits and training. There is increasing demand for training and demonstration of alternative, more cost effective soil conservation techniques, particularly those with lower labour demand.

During the policy task force discussions, farmers expressed clear expectations of benefits from application of the NRM bylaws and demonstrated a good understanding of the NRM issues, in particular the interactions between soil conservation measures, fertility enhancement, sustainable production and enhanced incomes. Farmers have begun to realise the relationship between poverty and problems of natural resource management and the potential of community action to tackle these issues. The task forces are developing criteria for monitoring and assessment of implementation of the NRM plans which can be measured against the baseline study of land degradation carried out in 2003. (Mbabazi et al 2003).

The fourth criteria of impact relates to the scale of dissemination "*By 2003 decision support guides and tools are developed for dissemination to community organisations, local leaders and policy-makers, R&D organisations and other stakeholders to make informed decisions, policies and bylaws related to NRM*". A scaling-up plan has been initiated; however, influencing policy in NRM is a long term process that requires a sustained programme of interventions and influence by different institutions. At the start of project there was very limited knowledge of bylaws or NRM policies among policy makers and political leaders. This was stimulated and developed by the project, through district level stakeholder workshops and interaction with sub-county and village policy task force members. Five stakeholder policy workshops were held with a wide range of participants including district leaders, councillors, MPs, representatives of neighbouring districts and national institutions.

Interest has been expressed within the sub-county to upscale the process beyond pilot communities to other parishes and AHI is developing linkages and partnerships with NGOs to take the work forward. A proactive communication strategy is required for improving uptake promotion of research products to a variety of stakeholders.

The project has highlighted mechanisms that research and development organisations can use to influence policy action and facilitate the participation of local communities in policy processes for natural resources management. It is important to recognise that the decentralisation process and other recent policy initiatives and programmes in Uganda offer tremendous potential for sustaining such participatory processes for policy formulation and implementation. Results of this action research suggest that within context of decentralisation in Uganda, there are significant opportunities that research and development can utilise to

influence policies, and to translate research results into policy and decision-making of wider communities to accelerate wider-scale adoption and dissemination of NRM technologies.

Although it is difficult to estimate, about 5 million poor rural people in Uganda live in similar physical environments (taken as the nearby districts of Kabale, Kisoro, Bushenyi, Mbarara, Rukungiri, Ntungamo, and eastern districts of Kapchorwa, and Mbale where AHI is also working), at high population densities, relying on rainfed arable cultivation on steep slopes and valley-bottom wetlands. If the other highlands areas of Tanzania, Ethiopia, Rwanda, Madagascar are included, then the project is representing the conditions of at least 50 million people who live in the highlands areas, where social capital has been eroded.

However, major challenges remain, particularly regarding the sustainability of local institutions for NRM policy formulation and implementation and their effectiveness in bringing about changes in NRM practice which do not disadvantage the poor. A further challenge is for diverse stakeholders, including councillors and politicians and the judiciary to co-operate in supporting byelaw enforcement and managing conflict resolution. Thirdly, there is a need to establish cost effective ways of scaling up the approach, for example, through wider institutional partnerships. Understanding the effects of these initiatives on the status of natural resources, local livelihoods and local empowerment requires a longer-term perspective, however, the work described constitutes a promising beginning.

8 Publications and other communication materials

8.1 Books and book chapters

Opondo, C., Sanginga, P. and Stroud, A. 2003. Monitoring the outcomes of participatory research in natural resource management: experiences of the African Highlands Initiative. In: Wettasinha C, van Veldhuizen L & Waters-Bayer A (eds), *Advancing Participatory Technology Development: case studies on integration into agricultural research, extension and education*. Silang, Cavite, Philippines: IIRR /ETC Ecoculture / CTA 22 pages.

Sanginga, P., Martin, A., Place, F., Kakuru, A., Kamugisha, R. and Stroud, A. (Pending publication in 2004) Bridging Research and Policy for Improving Natural Resource Management: Lessons and Challenges in the Highlands of Southwestern Uganda. In Stocking, M and White, R (Eds). *Natural Resources Management for Mountain Communities*. ICIMOD-NRSP/DFID, Kathmandu, Nepal

8.2. Journal articles

8.2.3 Drafted

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10 Project logical Framework

Narrative summary	Objectively verifiable indicators	Means of verification	Important assumptions
<p>Goal</p> <p>Improved hillside farming strategies relevant to the needs of marginal farmers developed and promoted</p>	<p>By 2003, natural resources management and agricultural productivity will be improved through strengthening social capital, decision-making and policy processes of local communities.</p>	<p>Reviews by programme manager.</p> <p>Reports of research team and collaborating/target institutions.</p>	<p>Target beneficiaries adopt and promote systems and approaches.</p> <p>Political environment (decentralisation system) in Uganda does not change to allow local-level decision making process.</p> <p>Budgets and programmes of target institutions are sufficient and well managed.</p>
<p>Purpose</p> <p>Social capital and local institutions are strengthened to improve the adoption of NRM innovations and policies.</p>	<p>By 2003, the organisational capacity of local communities for collective action, formulation and implementation of bylaws and NRM innovations improved.</p> <p>By 2003 communities have improve linkages with policy makers and service providers, and horizontal linkages with other communities.</p> <p>At least 25% of male and female farmers in the target communities will start to implement reviewed bylaws and adopt technologies to combat land degradation and increase agricultural productivity</p> <p>By 2003, decision support guides and tools are developed for dissemination to community organisations, local leaders and policy-makers, R&D organisations and other stakeholders to make informed decisions, policies and byelaws related to NRM</p>	<p>Final Technical Reports and evaluation/ reviews by NRSP management</p> <p>Reviews by ASARECA MEAPU and AHI Regional Research Management Team</p> <p>Reports of project research team and collaborating/target institutions.</p> <p>Survey on adoption of NRM technologies and bylaw implementation</p>	<p>All stakeholders are committed and involved in the research project.</p> <p>Local conflicts and community dynamics are conducive to collective action an cooperation</p> <p>Social structures are conducive to gender equity and community participation</p> <p>Other services providers willing to participate, contribute resources, and are accountable</p>
<p>Outputs</p>			
<p>1. Social capital of local communities strengthened to solve NRM issues in a number of key areas (forums; NRM groups; women's participation; training; partnerships).</p>	<p>1.1 By 2001, six forums (one per community; one sub-county; one at district level) established and functioning in the facilitation of community decision-making and bylaw and policy formulation</p> <p>1.2 By mid-2002, at least two community land-user groups (one community-wide; one specialist) per community established and functioning (norms, rules, trust, cooperation, networks) to deal with specific NRM issues</p>	<p>Process monitoring and evaluation documentation by AHI research fellows with policy task force</p> <p>Proceedings of workshops, meetings and other policy task force reports</p> <p>Field journal diaries</p>	<p>All the stakeholders are committed and willing to contribute to the process</p> <p>Local institutions and local circumstances provide incentives for collective decision making and collective action</p> <p>Policy-makers remain open to dialogue with local communities and willing to use information from</p>

	<p>specific NRM issues.</p> <p>1.3 By mid-2002, at least 50% of the membership of groups are women, and women are actively participating in policy discussion on NRM issues.</p> <p>1.4 By early 2003, diagnostic and assessment of social capital and its relation to NRM and other livelihood assets and strategies completed in the pilot communities</p> <p>1.5 By end of project, sustainable institutional arrangements are in place to embed the social process developed by the project.</p>	<p>Minutes and reports of local councils', community groups', policy task force and district meetings</p> <p>Project quarterly and annual reports</p> <p>District, Sub-county and lower local councils have established task forces and multi-stakeholder committees</p>	<p>research and development agencies.</p>
<p>2. Community plans and local policies that promote adaptation and use of improved NRM practices are formulated and being used.</p>	<p>2.1 By mid-2002, all local target communities, relevant policy makers, researchers and development agents are linked, and by end of project are communicating actively.</p> <p>2.2 By the end of the project, at least 12 stakeholder workshops, community meetings and consultations at various levels (District, sub-county, parish, pilot communities) are held</p> <p>2.3 By end of 2002, all target communities have plans for improved NRM, and by end of project will be implementing the plans.</p> <p>2.4 By mid-2002, a review of byelaws and local policies completed, and by end of project, at least one bye-law and/or regulation has been developed or revised on each major topic of concern of local communities (e.g. food security, land degradation, access to grazing lands, tree planting).</p> <p>2.5 By end of project, each community has established a participatory monitoring and evaluation system (e.g. committee, established indicators) to monitor plans, regulations and bylaws on NRM issues</p> <p>[New OVI] 2.5 By end of project, each community has at least one partnership with service providers (e.g. NGOs, research institutions – NAADS).</p>	<p>Community action plans, byelaws and policies that promote adaptation and use of improved NRM practices.</p> <p>Minutes and reports of local councils', community groups' and district meetings</p> <p>Community participatory monitoring and evaluation documentation</p> <p>Reports of research team and collaborating/target institutions.</p> <p>Policy task force reports</p>	<p>Local government institutions have the capacity to review, formulate and implement bylaws</p> <p>Budget allocation to local councils and local governments are adequate.</p> <p>Policy makers and other stakeholders recognize the importance of NRM research and development</p>

<p>3. NRM participatory decision support tools and methodologies developed and used by policy makers and communities to formulate appropriate policies and bylaws to improve management of their natural resource base.</p>	<p>3.1 By 2001, an inventory and synthesis of NRM information and technology options prepared and available in electronic format at the Kabale Telecentre, and by end of project (provided co-funding available through IDRC) at least one new version (forms of which are yet to be specified) available to community groups, policy makers and development agents.</p> <p>3.2 By end of 2002, a situation analysis of land degradation has been completed and provided as an input to community planning and policy making..</p> <p>3.3 By end of project, methodology guides on bylaw formulation, conflict resolution mechanisms, social capital assessment and group dynamics, and participatory land degradation assessment developed for use by community organisations, policymakers, local government institutions and other service providers</p>	<p>Manuals and decision support tool documents and pamphlets (NRM technology inventory, land degradation information, by law and social capital assessments)</p> <p>Technical Reports, documents and publications produced and distributed by the project</p>	<p>Functional interdisciplinary project team and positive collaboration between different institutions</p> <p>NRM technologies and policies are appropriate to farmer's including women's needs and circumstances</p> <p>Additional funding available to cover costs of communication products</p>
<p>4. Scaling-up plan initiated through the development and communication of project products from Outputs 2 and 3.</p>	<p>4.1 By end of project, the methodology guides (see Output 3) and other project products are provided to the district local government Institutions, Community-based organisations, NARO-AHI Telecentre in Kabale, to development and research partners in other districts of Uganda via NAADS and NARO's Outreach Programme, and to AHI benchmark sites.</p> <p>4.2 By end of project, engagement with at least four stakeholder groups (e.g., CBOs, NGO, NARS, local government, donors) developed through scientific products, internet information, training and other district-level outputs.</p> <p>4.3 By the end of project, process initiated in at least 2 other sub-counties in Kabale District</p> <p>4.4 Existing bylaws are widely disseminated in the pilot communities and to 3 other selected sub-counties and to the District Council and Local Government institutions.</p>	<p>Synthesis and strategy / recommendation reports</p> <p>Distribution / mailing lists</p> <p>NARO-AHI Telecentre and AHI benchmark site reports</p> <p>Policy stakeholders workshop proceedings</p> <p>Attendance to workshops and field visits</p> <p>Plans developed in 2 sub-counties by local government / NGOs</p>	<p>Research and development organisations in the region are willing to commit resources to strengthening local communities and linking with policy makers.</p>

<i>Activities</i>	<i>Milestones</i>	<i>Pre-conditions</i>
<p>1.1 Conduct baseline situation analysis in the pilot communities including diagnostic and assessment of social capital, gender and stakeholder analysis and NRM practices</p> <p>1.2 Catalyse and facilitate organizational capacity of local communities (progressive over year 1 & 3)</p> <p>1.3 Support women's participation and leadership at the community level</p> <p>1.4 Facilitate horizontal and vertical links between the pilot communities and local government institutions and other service providers.</p>	<p>1.1.1 Diagnosis and assessment of the level and dimensions of social capital in the pilot communities completed (year 1).</p> <p>1.1.2 Mapping and characterisation of local organizations and institutions and their relationships with NRM completed (year 1)</p> <p>1.1.3 Links between social capital, gender, NRM and livelihood strategies are assessed.</p> <p>1.1.4 Situation analysis on land degradation quantification completed in the target community areas (year 1)</p> <p>1.2.1 Land user groups established</p> <p>1.2.2. Facilitate community workshops, meetings and training on various aspects of group dynamics, negotiation, organisational development, leadership, cooperation, collective action, participation, gender and equity</p> <p>1.2.3. Organise exchange and exposure visits to other communities with stronger organizations and sustainable NRM practices</p> <p>1.3.1. Gender analysis completed to identify constraints and opportunities that enable women to participate in policy decision-making and adopt NRM technologies</p> <p>1.3.2. Conduct gender awareness sensitisation in the pilot communities</p> <p>1.3.3. Encourage women to build confidence and participate in community organisations</p> <p>1.3.4. Support women's participation and recognition in community organisations</p> <p>1.3.5. Identify strategies and approaches for strengthening women's organisations and empowering women at the community level</p> <p>1.4.1. Exchange visits between land user groups and other communities conducted</p> <p>1.4.2 Forums for linking communities and other stakeholders, and with policy makers established (continuous)</p> <p>1.4.3 Active partnerships established between communities and service</p>	<p>Funds released on time</p> <p>Time allocated by implementers</p>

<p>1.5 Facilitators document learning experience</p>	<p>providers. 1.5.1. Regular sharing of reflective and analytical reports by facilitators</p>	
<p>2.1 Facilitate communities to develop plans and strategies</p> <p>2.2 Facilitate community analysis and formulation of by laws and regulations.</p> <p>2.3 Catalyze links between communities and local government, researchers and development agents.</p> <p>2.4 Improve capacity of local authorities to review and formulate bylaws and to manage conflicts</p> <p>2.5 Facilitate communities and local councils to set up monitoring groups and modalities</p> <p>2.6 Identify effective mechanisms to establish links between local government institutions and higher level policy institutions and stakeholders.</p> <p>2.7 Study and identify constraints and opportunities for land consolidation and other land act policies for Kabale</p> <p>2.8 Facilitate regular stakeholders workshops meetings and</p>	<p>2.1.1 Land degradation situation analysis used in formulating community NRM action planning</p> <p>2.1.2 Community meetings and discussions held that have resulted in plans and strategies to improve NRM</p> <p>2.2.1 Participatory analysis of by laws completed by pilot communities</p> <p>2.2.2 Revised formulations and enforcement mechanisms completed</p> <p>2.3.1 Regular stakeholder workshops and consultations held (year 1-3)</p> <p>2.3.2 Regular meetings of policy task force and target community groups (year 1-3)</p> <p>2.4.1 Revised formulations and enforcement mechanisms completed</p> <p>2.4.2. Opportunities for policy and incentive change identified by stakeholders and strategies and action plans generated</p> <p>2.4.3. Capacity building on leadership skills, negotiation, facilitation skills, conflict resolution skills ; planning and monitoring, policy formulation and implementation conducted for local leaders and community</p> <p>2.5.1 M&E framework developed</p> <p>2.6.1 Recommendations for improving links between local and national policy institutions</p> <p>2.7.1 Report available and shared with policy task force and relevant policy makers</p> <p>2.8.1. Conduct at least two district stakeholder workshops , 4 subcounty</p>	<p>Funds released on time</p> <p>Time allocated by implementers</p>

<p>workshops, meetings and consultations and policy task forces at the various levels (District, Sub-county, parish, villages, pilot communities)</p>	<p>policy task forces and several community meetings</p> <p>2.8.2. Facilitate regular meetings of the District Task force and sub-county stakeholder forums</p>	
<p>3.1 Provide inventory of technologies & practices related NRM options</p> <p>3.2 Develop, evaluate and document tools and methodologies for assessing and strengthening social capital including gender and conflict resolution</p> <p>3.3 Develop and document tools and methods for participatory policy analysis and bylaw formulation</p> <p>3.4 Document methods for assessing land degradation assessment and developing community action plans</p>	<p>3.1.1 Inventory of technologies and practices provided by AHI (year 1)</p> <p>3.2.1 Tools and methodology for managing group dynamics and strengthening social capital including gender available</p> <p>3.2.2 Strengths and weaknesses of methods to assess social capital documented and used in guides</p> <p>3.3.1 Tools and methodology for participatory policy analysis and by law formulation including conflict resolution mechanisms available</p> <p>3.4.1 Tools and methods related to NRM practices and innovations are available and in use by communities and policy makers</p>	<p>Funds released on time</p> <p>Time allocated by implementers</p>
<p>4.1 Develop strategies for dissemination and scaling up project results and products</p> <p>4.2 Disseminate the review and synthesis of existing bylaws and policies to District and Local government institutions</p> <p>4.3 Selectively provide information to four diverse stakeholder groups</p> <p>4.4. Initiate by-law policy analysis and formulation process in two other sub-counties in Kabale District</p> <p>4.5. Establish effective links with higher-level policy institutions and other research and development organizations within the country and the region for dissemination purposes.</p>	<p>4.1.1 Framework and strategies available to be tested (year 2)</p> <p>4.2.1 Workshops held in two sub-counties and at district level and documents distributed</p> <p>4.3.2 Various guides are provided to wide set of stakeholders (year 3)</p> <p>4.3.1 Presentations and briefs provided to selected fora and interested practitioners, particularly in AHI, Uganda policy makers, NGOs and donors. 4.4.1 Sub-county policy task forces established</p> <p>4.4.1 Local government and/or NGO support to the process is established.</p> <p>4.5.1 Mechanisms for linking with national level policy makers and institutions established</p> <p>4.5.2. Link up with NAADs, NEMA and Parliamentarians and other national institutions of interest to the</p>	<p>Funds released on time</p> <p>Time allocated by implementers</p>

4.6 Track the interest and potential uptake of the project approach and methodology in AHI and in Kabale	<p>project, and disseminate project outputs to them.</p> <p>4.6.1. Tracking of interest is documented in project quarterly reports</p>	
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11 Keywords

Adoption, byelaws, decentralisation, gender, livelihoods, NRM, participatory action research, policy process, scaling up, social capital, Uganda