NATURAL RESOURCES SYSTEMS PROGRAMME

R8494 ANNEX A: SCIENTIFIC REPORT

Tracking Social Capital Outcomes and Sustainability of Local Policies in Natural Resources Management[1]

Pascal C. Sanginga[1]*, Rick Kamugisha[2], Annet Abenakyo[1] and Robert Muzira[3]

[1]International Centre for Tropical Agriculture; CIAT-Kampala;
[2]Africa Highlands Initiative, Kabale, [3]CIAT-Kabale

*Corresponding author
International Centre for Tropical Agriculture (CIAT)
Kawanda Agricultural Research Institute
P.O. Box 6247 Kampala, Uganda
Tel: +256 41 567670; Fax +256 41 567635
Email: P.Sanginga@cgiar.org

[1] This document is an output from a project (**R** 8494) funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

TABLE OF CONTENT

0. EXECUTIVE SUMMARY

This "tracking" study was intended to provide the evidence-base of the outcomes, impacts, performance and sustainability of strengthened social capital in natural resources management (NRM) and to assess the uptake and dissemination of the processes and approaches for strengthening social capital as a follow-on to an earlier project that aimed at strengthening social capital for improving policies and decision making in NRM. This study is essentially a process monitoring and documentation research that used a combination of household surveys in five communities with participatory tools such as the After Action Review (AAR)" techniques to facilitate a critical reflection and collective analysis. A major finding of this study is that the main outcome of increased social capital is generally the production of more social capital. Results show evidence that the community byelaw initiative has strengthened the four key dimensions of social capital: bonding, structural, bridging, and linking. Household interviews and analysis of group records showed that more than 75% of farmers attended community meetings and events related to byelaws on tree planting, erosion control, and controlled grazing. Both women and men participated equally, but men tended to participate more where important decisions were to be made. The level of awareness of the byelaws has improved considerably, along with participation of farmers in mutually beneficial collective actions related to the implementation of these byelaws. For collective action to take place, the village Policy Task Force (PTF) played a significant role in initiating, facilitating and monitoring the effective implementation of community byelaws. Embeddedness in community social networks and groups, and connecting groups and communities, as well as linking them to service providers and decentralized local government structures have been critical in ensuring positive outcomes of the PTF and byelaws. There is evidence that the VPTS have been instrumental in linking farmers and communities to decentralized local government structures and development organizations, thereby increasing access to technologies and external technical support. The physical outcomes of the two byelaws, and the performance of the PTF were measured in terms of the extent of land degradation, number of trees planted, number of trenches constructed and farmers' perceptions of NRM improvement. However, results revealed that social capital mechanisms did not always ensure fairness, especially to women and other categories of farmers endowed with less social, human and financial capital. Byelaw implementation and other forms of collective action processes have a high cost for women and the poor who end up taking the burden of implementation with limited resources. There is a downside to social capital as well as limits for coping with vulnerability and as an important strategy for improving livelihoods. This study contributes to make the construct of social capital operational and to the development of a more robust framework for monitoring and evaluating outcomes and potential impacts of strengthening social capital. The report addresses issues related to uptake promotion and scaling up-potential of research results, and highlights issues for further research on social capital.

Key words: *byelaws, collective action, gender, participation, policy, social capital, sustainability, visioning, Uganda*

List of Abbreviations and Acronyms

AAR:	After Action Review
AHI:	Africa Highlands Initiative
ASARECA:	Association for Strengthening Agricultural Research in Eastern and Central Africa
CIAT:	International Centre for Tropical Agriculture
ERI:	Enabling Rural Innovation in Africa
IDRC:	International Development Research Centre
ISAR:	Institut des Sciences Agronomiques du Rwanda
LC:	Local Council
MBCA :	Mutually Beneficial Collective Action
NAADS:	National Agricultural Advisory Services
NGO:	Non Governmental Organisations
NRM:	Natural Resources Management
NRSP:	Natural Resources Systems Programme
PTF:	Policy Task Force
S/C:	Sub-county
SSA-CP:	Sub-Saharan Africa Challenge Programme
TSBF:	Tropical Soil Biology and Fertility Institute
VPTF:	Village Policy Task Force

1. INTRODUCTION

1. 1. Background to the study

From 2000 to 2004, we facilitated a participatory learning and action research project titled *R7856: Strengthening social capital for improved policies and decision-making in natural resources management*" in the southwestern highlands of Uganda (Sanginga et al., 2005a). This project was premised on the ground that social capital is an important asset upon which people who largerly depend on the natural resource base draw in pursuit of their livelihood objectives for improving natural resources management (NRM), increasing economic opportunities, technology adoption, successful policy interventions, community development and poverty reduction (Pretty, 2003a,b; Uphoff and Mijayaratna, 2000; Woolock and Narayan 2000). The main thrust of the project was that social capital can be created and strengthened by stimulating an interactive process of identification of alternatives and improving the decision-making and policy (Rudd, 2000) of communities. The project's strategy was to build on existing social capital and to strengthen it through facilitating participatory social learning processes and increasing the skills and capacities of communities to act and create conditions for the formulation and implementation of local policies for improved NRM.

The project produced a number of research results and products, including:

a) A methodology for diagnostic and assessment of social capital, gender and livelihoods based on case methodology (Martin et al., 2005). Findings of this research has increased our understanding of the various dimensions and types of social capital together with their strengths and limitations for different categories of farmers (Martin et al., 2005a).
b) A key finding was that social capital is not evenly distributed, and that there are differences in quantity, types and dimensions of social capital based on gender and wealth. Men and women have different types of social capital that they mobilise in pursuit of their livelihood objectives and management of natural resources. Results also revealed significant gender dynamics in participation in farmers' groups and different types of participatory research for natural resources management (Sanginga et al., 2003)
c) Based on these findings, the project developed and tested in a participatory action research mode, appropriate mechanisms and approaches for strengthening social capital, and facilitating participatory processes for byelaw formulation and

implementation (Sanginga et al., 2004a). This involved the establishment and facilitation of functioning policy taskforces at the village, local government and district levels. These policy task forces championed the review, formulation and implementation of community byelaws initiatives, and become mechanisms for linking communities to local government structures and other rural service providers (Sanginga et al., 2005b). The project also suggested some mechanisms for bridging research and policy to accelerate adoption of NRM innovations in the highlands systems (Sanginga et al., 2005).

d) Through these participatory social learning processes, communities developed their own byelaws for controlling soil erosion, tree planting, animal grazing, drinking of alcohol, wetland management and bush burning were formulated and implemented with different levels of success in the pilot communities. The project assessed the effectiveness of these byelaws for conflict management (Sanginga et al., 2004b) and for facilitating the adoption of NRM technologies (Sanginga et al., 2005).
e) The project also developed, tested and promoted more innovative approaches for participatory diagnosis based on community visioning and appreciative inquiry techniques for facilitating the development of community action plans. The community visioning guide (Sanginga and Chitsike, 2005) provides more iterative and empowering tools for engaging with rural communities to collectively develop and articulate their community visions of desired future conditions based on their opportunities rather than problems and constraints; and for initiating a process of social change based on their collective strengths,

However, Pretty (2003b) cautions that the fact that social capital has been strengthened, policy task forces have been established, and bylaws formulated does not guarantee more equitable and sustainable outcomes on natural resources management and other livelihood assets.. Important questions relating to the wider outcomes of social capital remained unanswered. Such questions included: Does strengthened social capital translate into improved decision-making and participation in policy formulation and implementation? Does it translate into better management of natural resources? What are the conditions for sustainability of such intensive processes? Who benefits and who loses, and in what ways? What happens after project intervention? This study was initiated to find answers to these questions.

1.2. Objectives of the study

The purpose of this "tracking" study, undertaken one year after project's completion, was to investigate and document outcomes, potential impacts and conditions for sustainability of strengthened social capital and local institutions. This study aimed at documenting generic outcomes of social capital and producing research findings that can be used to promote effective approaches and processes for strengthening social capital, and facilitating participatory processes for influencing local policy change in NRM. As the title suggests, this study is more concerned with tracking outcomes and not with evaluating impacts. Outcomes are short and medium term, end of project results that usually involve change in the behaviours of people or organisations as a result of the project. Therefore, tracking outcomes implies a detailed description of the changes in the behavior relationships, activities and actions of stakeholders that can be logically linked although not necessarily caused by a project (Earl et al,2001). The relevance of a tracking study relates to the difficulties and limitations in assessing the impact of participatory processes in NRM. Impacts are long-term, lasting or significant changes in people's lives brought about by a series of actions (Roche 1999: 21) and are not the result of a single project. Since the impacts often become apparent after a long period, only a systematic and continuous process for tracking changes and outcomes will give valuable insights to stakeholders. Tracking outcomes is essentially a process monitoring and documentation research that helps to assess the process of reaching the final impacts by looking at intermediate results or changes in the behaviours of people or organisations.

The main hypothesis of this study is that strengthening social capital will translate into improvements in some of the five capital assets (social, human, natural, financial and physical). Increased social capital is also be instrumental in influencing policies, structures and institutions and in helping poor people and communities to cope with chocks and vulnerability. This study has two interrelated outputs. The first output aimed at "tracking" and generating evidence of outcomes, impacts, performance and sustainability of strengthened social capital in NRM. The second output focused on developing appropriate communication materials to be used in uptake promotion against selected target institutions.

1.3. Structure of the Report

The rest of this report begins by describing the context of the study and the research design for "tracking" social capital outcomes. The main findings of the study are divided into seven sections. First we examine the indicators for tracking social capital outcomes from project and community perspectives. These indicators are then compared with the sustainable livelihood framework. We then discuss the outcomes of social capital on the different livelihood assets (social, human, natural, financial and physical) and the conditions for sustainability of social capital as effective local institutions for influencing policy. The section that follows discusses the downside on social capital and its limits for coping with vulnerability and as an important strategy for improving livelihoods. Finally the report addresses issues related to uptake promotion and scaling up-potential of research results. The paper concludes with a summary of the main findings and their implications for further research on social capital.

2. METHODOLOGY FOR THE STUDY

The context and setting of this research is described in detail in previous reports and papers (Sanginga et al. 2005). The "tracking" study was conducted in the same four pilot communities where R7856 was implemented for four years (2000-2004). The study took five months (May-October 2005), one year after the completion of the intervention phase of the action research.

This tracking study combined iterative participatory approaches and tools with more conventional household and community survey methods. The first step was to facilitate a participatory analysis and selection of important byelaws that needed tracking. This involved a community analysis of the strengths, weaknesses, opportunities, and threats of different byelaws to prioritize the most important for the communities. Three byelaws, the soil erosion, tree planning and controlled grazing byelaws were selected out of the six byelaws developed by the different communities. The second step was to identify indicators for tracking changes, and establish a community-based process for tracking and analyzing and outcomes of the different byelaws and policy taskforces. Community indicators were then compared with, and enriched by indicators developed by field staff and other stakeholders.

Based on these indicators, a semi-structured interview checklist was developed and used with a sub-sample of 46 households. These include 16 households that participated in the case studies during the intervention phase (Martin et al., 2004), and 30 households from previous panel studies. The interviews were designed to look comparatively at households in contrasting circumstances in order to increase understanding of how social capital is activated in the pursuit

of livelihoods, particularly how social capital can assist or impede access to other forms of capital. It was also hoped that these case studies could illuminate any negative dimensions of social capital. In addition, key informant interviews were also conducted with 29 local leaders including members of the executive committee of local councils (LC1, LC2 and LC3), members of the various village policy task forces, and other group leaders in the community.

Table 1: Sample structure and description

	Description	Sample size
Communities	4 pilot communities and one control village	5
Case studies households	Households differentiated by gender and wealth categories	16
Household surveys	Stratified sub-sample from previous baseline studies, by gender and wealth	30
Village Policy Task Forces	Policy task force members Village local council members	29
Sub-county Policy task forces	Subcounty local council members NAADS coordinator Parish chiefs Agricultural Officer	15
District and	District Local council members District Technical services Civil society organisations	6

These household and key informant interviews were enriched with **focus group discussions** with the village and sub-county policy task forces (PTF). The focus group discussion sessions were organized to facilitate a collective process of reflection and analysis of the performance outcomes, uptake and sustainability of the policy task forces (PTF) form the perspectives of community members. To facilitate the "tracking" and documentation process, we used the **After Action Review** (AAR) tool, a participatory tool for facilitating collective learning by talking, thinking, sharing and capturing the lessons learned about a completed activity before they are forgotten (CIDA 2002). AAR has the advantage of creating a climate of confidence as it focuses on constructive feedback, and explicitly recognizes positive contributions. AAR was facilitated using the following six questions: (i) What was supposed to happen? Why? (ii) What actually happened? Why? (iii) What is the difference? Why? (iv) What went well? Why? (v) What could have gone better? Why? and (vi) What lessons can we learn?

These basic AAR questions were further specified to focus on issues for evaluating participatory and social learning processes including (Chambers 2005; Sanginga et al., 2006). These include: (i) what is the purpose and the motivating factors of policy taskforces? (ii) who is included, participating, what is the profile of members); (iii) what is the task force about (function, scope, ownership, management, themes) ?; (iv) how did the policy task force develop over time (lifecycle); and (v) what do government and community institutions and individuals gain from the policy task force? These questions provided the opportunity to evaluate what works, how and why, but also to induce a process of collective learning and sharing empirical examples and experiences, and to examine the critical factors that may have contributed to successes or difficulties in their effectiveness and performance. Feedback sessions were organized to validate findings, and to identify strategies for dealing with challenges and obstacles to successful implementation, sustainability and uptake of the byelaws, community action plans and policy task forces.

Data analysis is essentially qualitative and of descriptive nature based on individual interviews and group discussions. Narrative analysis is used to capture people's voices and experiences. Qualitative analysis is enriched with simple descriptive statistics (frequency, means, ranges, standard deviation). Logit regression models are performed to examine relationships between different dimensions of social capital variables and adoption of NRM technologies.

3. RESULTS AND DISCUSSION

The findings of this study are discussed in seven sections. First we discuss the outcome indicators of social capital based on the sustainable livelihood framework and participatory indicator development with communities and key informants. We then investigate the effects of increased social capital on the five livelihood assets: social capital, human capital, natural capital, financial and physical capital. Section 5 discusses the downside of social capital and its limits to cope with vulnerability. Section 6 examines the conditions for sustainability of byelaws and policy task forces as effective local institutions, before discussing the potential uptake promotion and scaling up of research results in section 7.

3.1. Outcome indicators of social capital

A radical critique regards the term social capital as a catch-all phrase, potentially including all social variables in whatever context and having

the capacity "to mean more or less anything", and therefore not analytically useful (Fine, 2002). A first step was to identify a set of community indicators for tracking social capital based on three outcome areas: participation, performance and sustainability **(for details See Annex B: Developing indicators).** Focus group discussion sessions were conducted in the four pilot communities to introduce the "tracking" study, to identify indicators, agree on a process for collecting information and feedback, and assign responsibilities to some community members to facilitate the process. Table 2 below shows the types of indicators identified by the communities as useful for tracking change in the three key areas of participation, performance and sustainability.

These indicators for measuring social capital can also be considered as social outcomes of social capital, and therefore were used in tracking social capital outcomes. To systematise the "tracking" process, we used the sustainable livelihood framework (Carney, 1998; DFID) as a useful framework for assessing the outcomes of social capital. Social capital is one of the five capital assets that people use to improve their livelihoods and achieve better livelihood outcomes. The main hypothesis of the study is that strengthening social capital will translate into improvements in some of the five capital assets (social, human, natural, financial and physical). Increased social capital is also instrumental in influencing policies, structures and institutions and in helping poor people and communities to cope with chocks and vulnerability.

Table 2: Community-based indicators for tracking social capital outcomes

Performance area	Outcomes and Indicators
Participation	• Continuous attendance to meetings and community activities • Number of farmers participating in various policy meetings, task forces and community NRM activities • Number of women participating in meetings • Number of meetings conducted by the task forces • Number of farmers involved in implementing byelaws • Change in motivation and expectations from participation • Extent of women's participation in making decisions
Performance	• Number of meetings of task forces and policy meetings at community levels • Level of compliance of the byelaws • Perception of effectiveness of byelaws and task forces by community members • New skills and knowledge level • Extent of collective action in NRM • Trees and grasses planted along the trenches • Increased number of trenches • Reduced soil erosion • Reduced conflicts • Resources mobilisation and allocation for collective action • Neighbouring communities seeking information and visiting • demand of NRM technologies • Number of nursery beds • Evidence of positive change in NRM •

Sustainability	• New action plans developed • Ability to take independent actions and decisions • Ability to analyze and explain issues and problem • Community willingness to plant trees and get seeds on their own • New activities initiated • Increased community savings to invest in NRM activities • Number of meetings of task forces and policy meetings • Number of community meetings at community levels • Linking with other development organisations • Knowledge and leadership skills of task force members

3.2. Social Capital Outcomes of Social capital

The first finding of this study is that the key outcome of increased social capital is **more social capital.** This is not tautological considering the different dimensions, types and mechanisms for activation of social capital. The World Bank's "Integrated Questionnaire for the Measurement of Social Capital (Grootaert et al., 2004) suggests six dimensions to assess social capital: groups and networks; trust and solidarity; collective action and cooperation; information and communication; social cohesion and inclusion; empowerment and political action. Narayan and Cassidy (2001) also suggest other criteria or indicators for measuring social capital: group characteristics such as financial contributions, frequency of participation in activities and extent of participation in decision-making, heterogeneity of membership; prevalence of norms of trust, helpfulness, fairness; closeness of everyday social interaction. Their criteria also include community characteristics, - neighbourly connections, the extent of voluntary work on community activities and sanctions for non participation; neighbourhood and leadership roles both inside and outside village; a sense of pride and identity; and the extent of communication between groups and communities.

Baseline surveys conducted in 2001 at the inception of the project (Sanginga et al., 2005a) revealed relatively high levels of bonding and structural social capital, but lower levels of bridging and linking social capital. Based on these findings, the project aimed at strengthening these later dimensions, and a broadening of the focus on social capital

from bonding social capital to wider network of social relations, especially linking with local government at different levels of decentralisation. Results show evidence that the project has strengthened three of the four key dimensions of social capital: structural, bridging, and linking social capital. We analyse the social outcomes of enhanced social capital along five key dimensions: participation in mutually beneficial collective action, participation in community byelaws implementation, compliance to byelaws and collective norms, and connectedness and networking.

3.2.1. Participation in mutually beneficial collective action (MBCA)

Uphoff and Mijayaratna (2000) stress that mutually beneficial collective action (MBCA) is the most specific outcome of social capital. The number of MBCA and the level of participation in MBCA were therefore used as key indicators and outcomes of strengthened social capital. Results show that one year after project completion, the four pilot communities organised up to 25 MBCA events (average 5) that directly relate to the implementation of the community byelaws (Table 4). These include tree planting, making trenches and managing community nursery as well as attending community meetings on byelaws. .

Table 4 Level of participation in mutually benefical collective action

Types of activities and level of participation	Mean number of events	Average Number of participants	Average Number of women	Maximum number of participants
making trenches	4.7 (4.7)*	25 (17)	11 (7)	100
planting trees	2.6 (3.7)	20 (20)	10 (9)	70
managing tree nurseries	4.7 (5.1)	32 (22)	17 (12)	70
Community meetings		53 (42)	48 (40)	150

* Figures in brackets are standard deviation

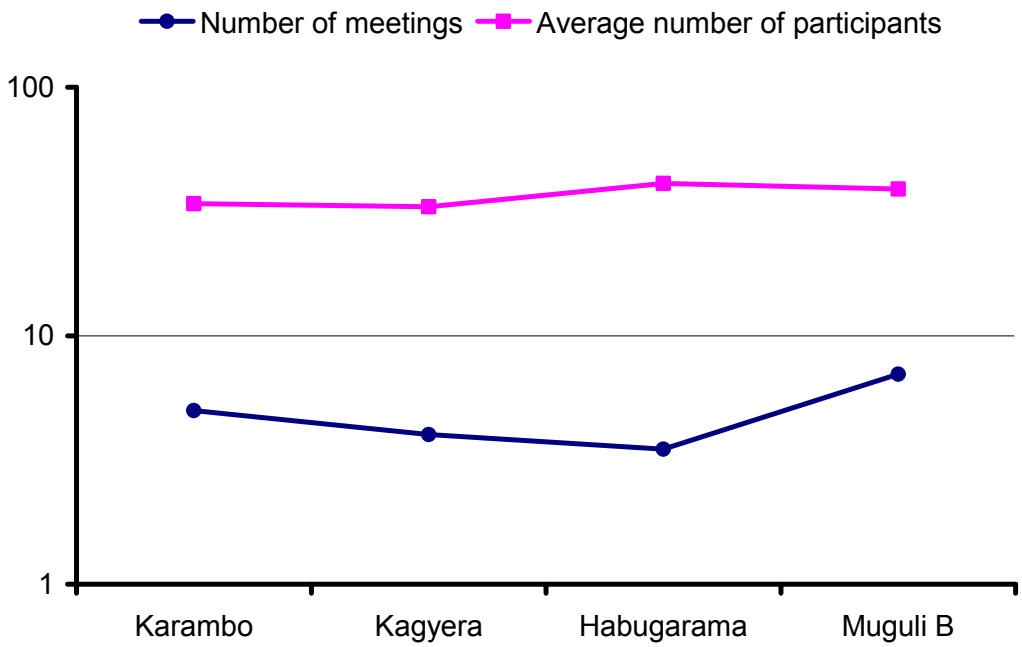
The level of participation in collective action has generally increased since the formulation of the byelaws and the four pilot communities organized collective action events regularly, except in Habugarama where only 66% of farmers thought it was regular. The most common forms of collective action concerned making trenches for soil erosion

control, tree planting, and managing community agroforestry nurseries. Collective action on agricultural activities for the benefits of individuals was restricted to group members only (22%) who relied on rotating exchange labour between group members.

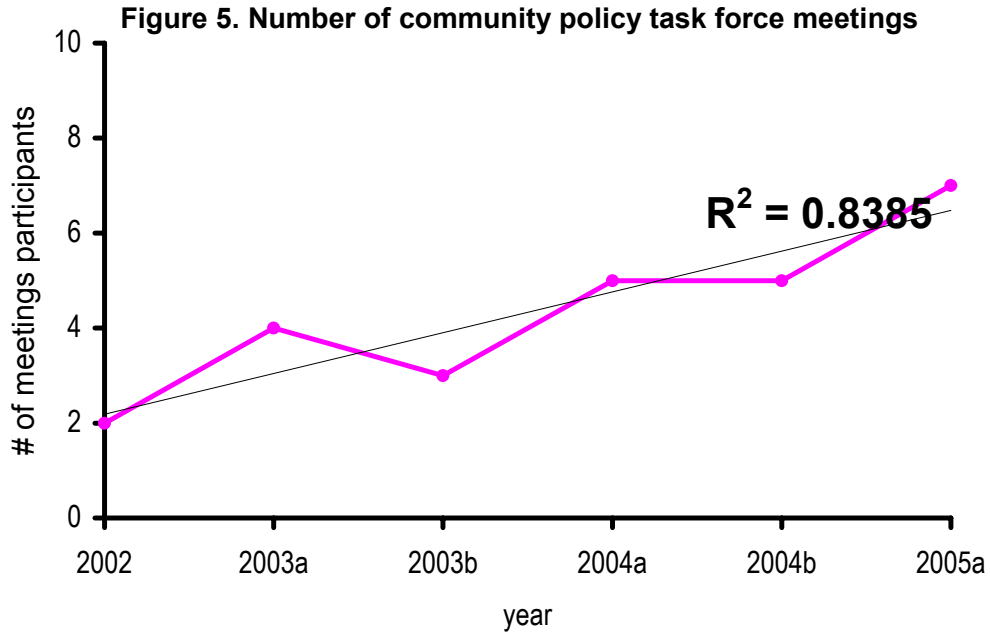
The level of participation in MBCA events has been consistently high and increasing over time. However, women's participation in trench making was limited as compared to the men. On average the women got involved two times while the men participated 24 times. Trench making was the activity in which male respondents participated most because of its labour demanding. In many cases, almost every household participated in tree nursery establishment, but the numbers reduced with time, then increased at the transplanting stage where tree seedlings were distributed to individual farmers. Men were more involved at the establishment phase and later transplanting of the seedlings. Management of nursery beds (weeding and watering) was mainly assigned to women (Place et al., 2004) and some men providing "technical support and protection". Participation in tree nursery management operations was one of the areas where collective action was ranked high (45.7%) and improving considerably.

An important aspect of sustainability of the VPTFs the numbers of meetings conducted over the year after project completion, and the average number of people participating in such meetings. The logarithmic line graph below shows that there is some variation in the four pilot communities in the number of meetings conducted, and in the average number of people who participated in different meetings or events organized by the PTF. The PTF in Habugarama was the less effective with only 3 meetings conducted, compared to Muguli B that conducted seven meetings in the year that followed project intervention. The average number of participating people varied from 33 to 41, reaching over 100 farmers (almost entire village) for some events organized by the PTF.

Figure 4: Number of PTF meetings and average number of participants in meetings



In Muguli B, the community that had most PTF meetings, there was a steady increase in the number of meetings, from two meetings initially, and four at the peak of the project, to seven meetings one year after project completion. There are several factors that explain this performance in both Muguli and Karambo, compared to the other two communities. First, the PTFs are embedded in decentralized local government structures at the village level, with the majority of its members doubling also as local councilors and members of the executive committees of agricultural-related groups in Muguli B. In Karambo the PTF is embedded in farmers' groups and play complementary roles to local leadership. In both Habugarama and Kagyera, the PTF were seen as parallel structures to the local council, and were not sufficiently integrated in existing farmers groups. This would explain some of the conflicts and confusion recorded, and low participation in meetings.



The PTF had a strong and recognized leadership, embedded in other social structures and existing groups within the communities. This gave considerable power and authority to impose sanctions for those farmers who do not comply with the byelaws.

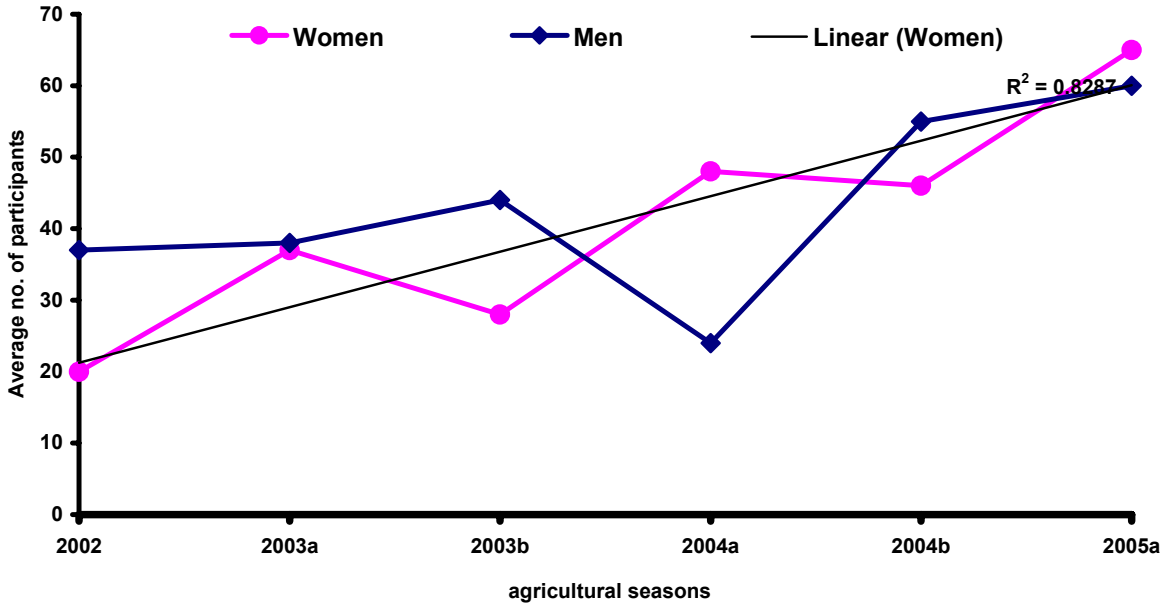
3.2.2. Participation in community byelaws formulation and implementation

An important aspect of social capital is related to the process of formulation and implementation of byelaws. Byelaws are common rules, norms and sanctions mutually agreed that place community interests above those of individuals. Mutually agreed sanctions ensure that those who break the byelaw know how they will be punished. They give individual confidence to invest in collective activities knowing that other will do so (Pretty 2003), and create some level of trust that lubricates cooperation and social obligation. One key performance area was therefore to assess the extent to which farmers are aware of these community byelaws, and the extent to which people comply or not to the established byelaws. The study revealed that there was a widespread awareness of the different bylaws. Over 75.6% of households regularly attended at least two community meetings concerning the byelaws.

While participation has not been very consistent over the periods, there have been periods of high participation and low participation of both men and women (Figure 1). A key outcome of social capital is the extent of participation of women's in community activities. In Africa,

women are central to the forms of social capital that development organizations and governments are keen to mobilize (Molyneux, 2001) in community development programmes. The relatively high participation of women is consistent with analysis of the dynamics of participation in farmers' organisations in Africa (Sanginga et al., 2003) which show that membership in farmers' organizations is dominated by women.

Figure 1. Gender patterns of participation in community byelaw meetings over time in two pilot communities



While the high participation of women is consistent with analysis of the dynamics of participation in farmers' organisations in Africa (Sanginga et al., 2003), it is interesting to note that contrary to earlier findings on group dynamics which show decreasing participation of men's in group activities, the findings of this study show that men's participation was sustained over time. There is evidence that participation has increased over time, and has been somehow sustained. A linear trend line based on women's participation shows steady increases of women (R^2 =0.83) from below 20 to more than 60 women in the different community meetings. Participation in community meetings on byelaw implementation has been relatively regular, with an average of 53 men and 48 women for a maximum of 150 farmers per community. However, this number reduces when it comes to actual implementation of byelaw and participation in collective action events on tree planting, trenches making and nursery management. Men tended to participate

in meetings where important decisions were supposed to be made on the byelaws. A key outcome of this project was therefore to increase both men and women's participation in community activities and in MBCA events.

3.2.3. Structural social capital: Membership in groups and social organisations

An important consideration in assessing the outcomes of social capital was to look at social capital as a resource that is connected with group membership and social networks. There has not been any significant change in the level of structural social capital expressed as membership into groups and other social organizations. The four pilot communities are endowed with high level of structural social capital measured by the organizational density within the community and membership to diverse groups (Sanginga et al., 2005a). However, oover the last year, there was emergence of two new groups in Muguli B and Karambo for managing community nurseries and soil conservation. These two groups had a membership of 32 farmers (17 women) and have quickly stabilized. We also found that at least seven existing groups in the four pilot communities have expanded their activities to include soil erosion control and agroforestry nursery. AAR revealed that two of the four VPTFs are increasingly taking on new roles in their communities, and tend to transform themselves into formal organisations with defined memberships and boundaries. They have established some byelaws regulating participation, financial contributions, and are defining new group structures and objectives beyond byelaw monitoring to include other activities. In their analysis of factors determining group performance, Place et al. (2004) reported that the most important variable that explained group performance was whether the group has taken on new activities. Groups that have taken on new activities performed better than others.

3.2.4. Bonding social capital

This aspect of social capital is difficult to assess in a survey mode and requires more involving approaches of participant observations or more in-depth case studies. An attempt was made to capture people's perceptions on the extent of improvement of some dimensions of bonding social capital (trust, reciprocity and exchange, altruism, etc.). In general there has not been significant improvement in those more cognitive aspects of social capital. Most farmers however reported a slight improvement which is still difficult to dissect the contribution of this process. Altruism or spirit of helping others, especially those in need, is still weak in most communities, although there have been some positive examples in some communities.

Table 3: Assessment of effect of different dimensions of bonding social capital

Dimensions of bonding social capital	Has improved significantly	Has improved slightly	No change	Has deteriorated or never happens
Compliance to norms and rules	44.8	41.4	3.4	10.3
Participation in community activities	17.2	75.9	6.9	---
Financial contribution	10.3	41.4	20.7	27.6
Cooperation amongst people (Reciprocity and exchange)	6.9	75.9	10.3	6.9
Altruism (helping others)	3.4	20.7	10.3	65.5 (44.8)*

** Percentage farmers who believe the spirit of helping others does not exist in their communities*

Results in Table 3 show that there has been significant improvement in the extent of compliance to community byelaws over time in the four pilot communities. In the same vein, participation in community activities and cooperation amongst people (reciprocity and exchange) tend to increase over time, and in 17% of cases it has increased considerably. This cooperation is more of the diffuse nature (Pretty, 2003) that refers to a continuing relation of exchange that at any given time may not be met, but contributes to the development of long term obligations between people, which is an important part for achieving positive environmental outcome. It is important to note that improvement in some dimensions seem to occur at the expense of altruism or spirit of helping others, which is decreasing. This decline reflects some downside of social capital which may exclude some categories of people endowed with less social and financial capital.

Several factors account for these notable improvements including strong leadership of the village PTF in communities and groups, a lot of sensitization on byelaws, regular monitoring and feed back, and consistent support to byelaw implementation by NGOs and the subcounty, as well as high levels of social capital. However, in communities where there was limited improvement in the compliance of byelaws, the main reason was low social capital as expressed by lack of cooperation among community members, with the majority of men spending a lot of time in bars and not attending meetings, and low

financial contribution to solve collective problems. This was specific to Habugarama which has also been marred with leadership conflicts.

3.2.5. Bridging and Linking social capital: Connectedness and networking

An important consideration in assessing the outcomes of social capital is to look at social capital as a resource that is connected with group membership and social networks. There has also been considerable improvement in 'bridging' social capital as expressed by the structural relationships between the village policy committees with the decentralized local government political structure (local councils), other social groupings within the community. There is increasing coordination or collaboration with these groups for sensitization, organizing collective action, organizing exchange visits across communities and groups, and in some cases mediating conflicts between groups. While only 30% of farmers have been on exchange visit to other communities and majority of farmers have hosted other farmers and groups visiting their NRM work and exchanging experience on the byelaw formulation and implementation process.

There have been at least three different processes in which the VPTFs have been connected to existing social institutions and groups within the communities. In Muguli B, the VPTF was embedded in the decentralized local government structure at the village level (local council 1) as its chairman and majority of members are also local leaders and members of the main agricultural groups in the community. In Karambo, the PTF was embedded in the most active agricultural groups in the village but is not closely linked to the village local council. The PTF play a complementary role to the local council, and has been assigned the role of monitoring the implementation of the byelaws. However, the power to enforce implementation and to impose punishments still remains with the village local council. In Habugarama, the PTF is seen as parallel to the village council, a situation which has created conflicts, confusion and power struggles resulting into divisions within the village. These different processes partly explain differences in performance and sustainability prospects in the different communities.

These results show that the VPTFs alone do not possess the resources needed to promote broad-based participation and sustainable NRM. Rather, synergies between VPTF and local councils based on complementarity and embededness produced more positive outcomes. Complementarity refers to mutually supportive relations between VPTFs and decentralised local government. Embededness refers to the nature and extent of the ties connecting people and communities and public

institutions. The decentralisation process in Uganda provides a framework for such synergies. AAR revealed examples of cases where the VPTFs were used by local communities to demand accountability from local council. The VPTFs were also increasingly seen as complementary or alternative to the LC in enforcing byelaws and managing conflicts. Better understanding of how the synergies between VPTF and LC can be strengthened is crucial for the performance and sustainability of both the VPTFs and community byelaws.

3.3. Human Capital Outcomes of Social Capital

One key outcome of social capital is improvement in human capital (Colleman, 1998), expressed as increased awareness, skills and knowledge; changes in behaviour and attitudes, respect of self worth, ability and confidence to speak in public, and to effectively participate in decision-making. AAR and household surveys revealed that there is a general awareness and knowledge of the byelaws and technologies for improving NRM. There has been consistent flow of information between the PTF and community members, and the PTF and local government and research and development organizations. The PTF has helped in facilitating the flow of information not only on byelaws but also on technologies and other NRM aspects. This role of the PTF as a knowledge-builder has effects on increased knowledge, skills, reducing risks and increasing a number of other social benefits (Rudd, 200). Majority of farmers have also acquired skills in nursery management, tree planting, soil erosion control and other NRM practices. Policy task force members have also been trained in leadership skills, negotiation and conflict management skills, communication and assertiveness, citizen participation and mobilization, and effective skills for managing groups and conducting meetings.

A key consideration when assessing human capital outcomes was to assess whether the process has increased women's confidence and perceptions within the communities. Most farmers interviewed (95.6%) indicated that women's participation in community activities over the last three years had improved. In two of the four communities, women groups have been awarded district tenders for maintaining rural feeder roads. While men have succeeded in getting their wives (41.4%) to effectively participate in the community byelaws meetings, only 13.7% of women have managed to convince their husbands to participate. " *… there is increased co-operation among wives and husband in some households while implementing the byelaws. For example some husbands assist their wives in constructing trenches and planting trees …*"

Individual interviews and focus group discussions revealed that men's respect and consideration of women had considerably improved (94.1% of the male and 85.7% of the female respondents). Results show that both men (85.7%) and women (88.2%) shared the opinion that women's confidence to speak in public had improved a lot over the three years. A number of women were holding leadership responsibilities in their respective groups, despite low literacy levels. *"…Women's participation in community activities is increasing because they have attended trainings and know that development of community depends on them..."*

However, the extent to which this has translated into changing intra-household and community gender relations still need to be established. It it may still be possible that women who speak in public "are mainly those who are educated but others are still shy" or have resources that most women do not have. The degree of women's participation and control over agricultural decision-making varies among households, and is a result of several factors. Many households, however, are increasingly operating a division of labour in which women take main responsibility for agriculture activities, while men are involved in non-farm occupations. It is important to examine the extent to which this type of community-driven development, participatory planning and other fine-sounding initiatives that make claims of participation can turn out to be driven by particular gendered interests, leaving the least powerful without voice or much in the way of choice (Cornwall 2003).

3.4. Access to financial and physical capital

Discussions on sources of finance and credit with the case study households indicated the vital role played by increased social capital in accessing financial capital, particularly for poorer households. There have not been good cases of financial contributions to support the implementation of byelaws, although in some groups, there are internal lending and saving mechanisms that have been used to support those members who are not able to participate in trench making and tree planting. The low income level and high levels of poverty certainly affects the ability and willingness to contribute. The elderly, sick, and the poor generally are unable to contribute financially and to participate in community activities requiring use of labour and financial resources. There were differences in the levels of regular financial contributions to savings groups. For example, Muguli Tweterane – "Muguli let us unite" requires a contribution of 2000/- per month. It provides loans at 20% interest over 6 months. Other groups have more modest entrance requirements. They require contributions of between 1000/- and 2000/- per month and provide loans to members. Interest is 10% per month. Joining fees of these groups vary between 5,000-10,000/-. In

spite of the prevalence of savings groups, nevertheless, there is also a strong reliance on social networks of relatives and friends to provide small amounts of loans and financial support (for example, a loan from in-laws of 10,000/- to pay graduated tax)

However three of the four VPTFs have mobilized internal financial resources from community members, and have been able to attract matching grant from local government and NAADS for soil conservation work and establishing community nurseries. These resources were used to purchase seedlings and farm implements, to finance exchange visits and to purchase foods and beverage for people participating in collective action events. We found that the process has increased resources sharing amongst community members.

Table 4: Resources sharing issues in the study communities

Resources sharing	**Muguli B**	**Karambo**	**Kagyera**	**Habugarama**
Agricultural tools	50.7	48.1	57.5	48.6
Labour	50.0	44.4	65.0	48.6
Money	47.6	40.7	50.0	47.2
Grazing land	25.3	29.6	37.5	10.8
Farmland	30.8	25.9	42.5	27.0
Seeds	17.8	25.9	25.0	13.5
Swamps/wetlands	12.3	22.2	12.5	16.2
Woodlots	13.0	14.8	15.0	8.1
Trees	10.3	14.8	10.3	5.4
Crops	11.0	7.4	15.0	16.2

Majority of households (83.6%) indicated that they are increasingly sharing some assets and resources within their communities (Table 4). The resources commonly shared by the majority of farm households are labour (50%) and agricultural tools (50.7%) as well as money (47.6%). Analysis showed that resources are generally shared with community members (66.1%), who are generally 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. The availability of collective tools and tree seedlings for supporting their initiatives in implementing byelaws was a critical factor in enhancing the PTF performance. This boosted the commitment of community

members and their expectation to access seedlings and planting materials.

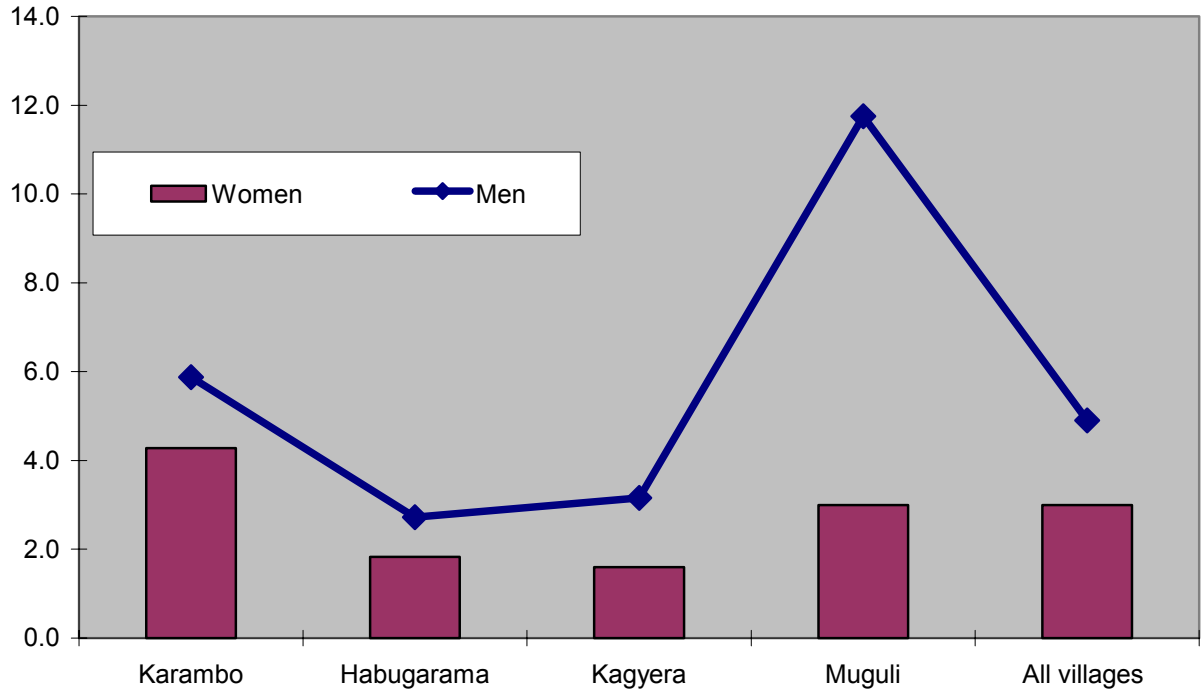
3.5. Natural Capital Outcomes of social capital

The NRM impacts of social processes are usually long-term and need more complex procedures to measure. However, it is possible to assess some outcomes or changes in behaviours and practices that may lead to improved natural resources management if sustained. In this study, we considered two important aspects: adoption of NRM technologies and conflict management mechanisms.

3.5.1. Adoption of NRM technologies

The participatory land degradation survey conducted in 2002 showed that most farmers (93.5%) experienced collapsing terraces, gullies, and different forms of erosion (Mbabazi et al., 2003). It was evident that some farmers are making concerted efforts to reverse land degradation by establishing new terraces, digging trenches and planting trees and grasses on different locations within the communities. A number of farmers have attempted to to stabilize their terraces with live barriers such as agroforestry species and other fodder plants. Most people felt there were benefits from the implementation of byelaws to stop soil erosion. Benefits identified in included a reduction in some forms of soil erosion and flooding; reduced problems of crop damage by livestock and tree planting by community members has reduced theft of trees.

Figure 3: Average number of new trenches by male and female farmers in the pilot communities



Results in figure show significant differences between communities, as well as significant gender differences within and among communities. For example, Muguli and Karambo communities have the highest number of new trenches, 169 and 200 respectively. While in Karambo and other villages, differences in the number of trenches by men and women are not considerable,male farmers in Muguli B established about 12 trenches compared to an average of about 3 trenches for female farmers. The high involvement of men in this village has been attributed to the embededness of the VPTF into local village structures that were effective in mobilizing men for MBCA.

The number of NRM technologies practiced by farmers, and their willingness to purchase and plant more trees has increased significantly. The study found that a bout 43.3% of households have established several new terraces over the recent past, 36% have further made trenches and 28% have planted agroforestry technologies to stablize these trenches.

Table 5: New soil conservation measures established in 2005 (percent of farmers)

Soil Conservation Measures	Female headed households	Male headed households	All households
Construction of new terraces	38.6	45.3	42.1
Digging of trenches	32.9	38.7	35.9
Stablizing with agroforestry technologies	25.7	30.7	28.3
Planting grass strips	8.6	9.3	9.0
Use of trash lines	5.7	6.7	6.2

Results also revealed a clear willingness to use and purchase agroforestry technologies, at a rate significantly higher to current use status, and compared to other tree species currently purchased by farmers. The fact that some farmers are now paying for agroforestry seedlings and are willing to pay when such seedlings are often distributed free of charge by development organisations and local government services is indicative of the awareness that farmers have acquired through this process. As noted earlier some VPTFs were able to mobilize money to purchase seedlings for community nursery.

Table 6: Willingness to purchase and plant trees (percent of farmers)

Types and purpose of trees	**Purchased**	**Willing to purchase**
Eucalyptus	38.5	48.3
Agroforestry trees	17.9	68.1
Fruits	19.4	51
Alnus	55.2	52.8

To further examine the relative importance of social capital variables in influencing adoption of agroforestry and other NRM practices, we performed three separate Logit regression models with agroforestry, constructing new terraces and planting grass strips or trash lines as

dependent variables.. Table 5 presents the results of the probability of using to control erosion and improve soil fertility.

Table 7: Determinants of use of soil conservation technologies by farmers' households: Logit estimates

	Agroforestry	Terracing	Grass strips
Gender (1=men)	-.270	-2.21	1.87
	(-.41)	(-3.18)***	(.63)
Age	.036	.055	.092
	(1.72)*	(2.73)***	(2.20)**
Education level	.424	.91	-.323
	(1.42)	(2.40)**	(-.80)
Farm income	.002	.000	.003
	(1.16)	(0.67)	(.57)
Number of plots	.704	1.20	-3.49
	(1.45)	(3.08)**	(-2.46)**
Number of adult males	-.815	.823	2.62
	(-140)	(1.69)	(1.02)
Village type	.258	.616	7.82
	(.43)	(1.05)	(1.98)**
Collective action	.656	-.198	-.309
	(2.48)**	(-0.55)	(-.95)
Structural social capital	1.538	.083	1.07
	(2.08)**	(.11)	(.72)
Bridging social capital	.100	1.77	2.98
	(1.33)	(2.35)**	(1.67)*
Conflict index	.098	1.97	4.51
	(.14)	(2.93)***	(1.94)*
Boundary conflicts	2.159	-2.00	-2.84
	(2.86)***	(-2.87)***	(-1.85)*
Tree cutting	-1.423	-.77	4.64
	(-1.71)*	(-1.18)	(1.93)*
Livestock grazing on crops	.777	.573	9.04
	(.70)	(.46)	(1.64)*
Constant	-8.186	-10.15	-15.19
	(-3.53)***	(-4.15)***	(-1.68)*
N	120	113	129
Pseudo R	.59	.62	72

Figures in brackets are z statistics
*Significant at 0.10; ** Significant at 0.0; Significant at 0.001.

Results showed that two dimensions of social capital: norms and sanctions or byelaws, and number of collective action events were positively and significantly related to the adoption of agroforestry innovations. We found that awareness and compliance with the three planting and soil and water conservation had significant effects on

farmers' adoption behaviour. For example, the tree planting states that (i) any person who cuts a live tree shall plant two trees and ensure that the planted trees are protected and well looked after, and (ii) only agroforestry trees shall be planted on the boundary, terraces of neighbouring plots. Other tree species should be planted at a distance not less than 3m away on any other boundary. Many cases of conflicts between neighbours (animal grazing, terrace destruction, boundary conflicts, tree cutting) were resolved through the implementation of community byelaws which require better management of natural resources. The "terracing" model shows significant negative relationship between gender and making new terraces, as expected. . This can be explained by the traditional gender division of labour in which require men are responsible for making the conservation structures, while women are responsible for producing and managing the farm. Most of these conservation measures require high physical labour. The "grass strip" model also confirmed the importance of social capital variables as positive drivers of adoption of NRM practices.

It is important to note that the prevalence of conflicts was positively related to adoption of agroforestry technologies. For example, there was a positive and significant relationship between boundary conflicts and adoption of agroforestry technologies. In other words, conflicts over farm boundary provided an incentive for farmers to plant trees to demarcate their boundaries (See Annex D). We now turn to the role of VPTF in conflict management.

3.5.4. **Alternative conflict management mechanisms**

Results show that the byelaws and the VPTFs have increased the ability of local communities to manage conflicts, minimize their destructive effects, and transform conflict situations into opportunities for collaboration for mutually beneficial collective action. Reinforcement of byelaws give individuals confidence to invest in collective activities knowing that other will do so and create some level of trust that lubricates cooperation and social obligation (Ruud, 2000; Pretty 2003),. In their study of adoption of agroforestry technologies in eastern Zambia, Ajayi and Kwesiga (2003) also found that community byelaws played and important role in the scaling up of agroforestry technologies. Many conflicts were resolved through arbitration, taking the case to the PTF who facilitate negotiation between parties or arbitration to reach a mutually agreed decision. In other cases the VPTF referred some conflicts to the LC1 who have powers to impose decisions and sanctions on the people.

3.6. Downside and Limits of social capital

3.6.1. Downside of social capital

Although, results above show that the outcomes of social capital have largely been positive, there are also some important downsides of the participatory process of byelaw formulation and implementation. These include increased conflicts among grazers and cultivators, which in some cases have led to divisions and hearted within communities, conflicts and confusion between the decentralized local government structure at the village level, and in some cases conflicts within households. Table 8 below presents the negative changes that community members have experienced over the period of byelaw implementation.

Table 8: Some negative effects of byelaws enforcement (%)

Negative changes	**Males**	**Females**	**Total**
Conflicts between grazers and cultivators	54.5	60.0	58.1
Hatred between none complaints and the local leaders	18.2	5.0	9.7
Conflicts within homes	9.1	10.0	9.6
Committing the old and the weak to implement the byelaws	9.1	5.0	6.5
Reduced grazing land	-	10.0	6.5
A lot of time spent during byelaw implementation	-	5.0	3.2
Trees attract grazing animals that destroy crops	9.1	-	3.2
Loss of implements	-	5.0	3.2
Total	**100**	**100**	**100**

> *"… They are two groups/factions that have now emerged in this village as a result of controlled grazing byelaw. One group – Nyang'obutungi for the rich, dislikes the system of free grazing and do not allow other farmers to graze in their plots. These farmers have their own big farms in which they graze their animals. It is this group*

that is pushing for strict enforcement of the controlled grazing byelaw because they have plenty of grazing land.The second faction – Nkund'obutungi for the poor who have small and few plots are forced to confine their animals or be exposed to the byelaw process. They don't have land or people to keep their animals. Nyang'obutungi group passed a byelaw against grazing on their plots that affected the poor who belonged to Nkund'obutungi. In turn the Nkund'obutungi group also organized themselves in a strong group for the poor who have limited land or no farms but own livestock and agreed to always graze in each other's land. This conflict led to the failure of controlled grazing byelaw and implementation was left to the rich while the poor continued decided that the poor graze on the poor person's land. We don't even have a mechanism for deciding on this as a community. That is why I liked the other group in Karambo ..." narrated a female farmer.

From a general perspective, the major constraint experienced by community members was lack of tools to facilitate byelaw implementation especially constructing trenches. There are no mechanisms to integrate the weak, aged and most of them have many other domestic cores to attend to (see table below). Due to the limited powers entrusted to women in communities, they cannot confront the free grazers who are mostly men. Secondly little time is available for concentrating on activities involved in byelaws implementation due to a lot of domestic demands. Lack of support from the husbands further aggravates the situation.

"… I used to dig when I was still young and energetic but due to my old age, I no longer participate. I like people who dig especially the young ones. I have five plots of land but they are all uncultivated. Some of my children who would have helped me, some died and others left for Kampala to look for job. My grandson who was assisting also left yesterday for Kabale. I am so miserable now and no one is willing to help me. I am tired of being called for some of these useless meetings where you don't gain anything…I think I am too old and should be left alone …" Said an aged woman form Habugarama village.

Table 9: Problems faced by women in byelaw enforcement (%)

Problem	Males N=21	Females N=31	Total N=52
Some women are weak and aged	28.6	32.7	34.6
Lack of tools	23.8	19.4	21.2
Many household cores	14.3	22.6	19.1
Lack of support from husbands	19.1	9.7	13.4
Lack of money to purchase seedlings and hire labor	-	6.5	3.9
Lack of seedlings	9.5	-	3.9
Limited support from LCs	4.8	3.1	3.9
Total	**100**	**100**	**100**

> *"... Ever since I came to this village, I have been participating in meetings to discuss byelaws. Several byelaws to conserve our soils but very few people followed them. We keep on repeating the same thing in all meetings. But no one is providing tools to use…I tried to dig trenches on my plots, but I tell you the job is so hard. I have tried to maintain my trenches and soil erosion has reduced but production has not changed too much. Every time it rains, soil will fill up the trenches. We planted some shrubs but they take time to grow, even the trees don't grow well. We are spending too much time and we don't see the benefits. We don't even have time to work on our own gardens. This is only benefiting these LC people who are quick to impose fines and spend their time drinking and in meetings..."*

3.*6.2.* Social capital and gender dynamics

An important consideration in assessing the outcomes of social capital is the extent to which women's participation and decision-making has increased. Previous reports (Sanginga et al., 2005) and results of this study confirmed that both women's participation has been sustained, and men's perceptions of women's ability to participate in community activities have also improved. Diagnostic and assessment of social capital study (Martin et al., 2005) showed that there are gender differences in the kinds of networks to which men and women belong. 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).Women's networks are often more akin to coping strategies, relying on unremunerated time and non-monetised labour exchanges, as compared with the more economically advantageous networks of men (Mayoux, 2001). Men had more formal networks across wider social groups (bridging) and more contacts outside the village (linking). The informal social capital generated between kin and neighbours is very important for coping with poverty. However, it is the bridging and linking social capital that generates more dramatic and far reaching changes in livelihoods.

The different roles of men and women with respect to the maintenance of social capital also risk being subsumed if approaches exclusively emphasise the community or household as the locus of social capital and participation. Similarly, Cornwall (2003) observed that community-driven development, participatory planning and other fine-sounding initiatives that make claims of participation can turn out to be driven by particular gendered interests, leaving the least powerful without voice or much in the way of choice. Until recently gender has been a neglected element in agricultural research. Akerkar (2001:3) observed that even participatory approaches have lacked an awareness of gender and gender differences. "Gender was often hidden in participatory research in seemingly inclusive terms: the people, the community, the farmers". The need to deconstruct notions of "community" due to internal social differentiation and political processes operating at the local level that have an important influence on resource distribution and access is well-documented (Agrawal and Gibson, 1999; Guijt and Shah, 1998).

AAR and case studies revealed that women in highland communities face a number of challenges that affect their ability to participate in and derive benefit from collective action events, and for increased social capital. Women were not able to significantly contribute labor and other resources for making trenches and therefore some missed out on possible benefits. Making trenches is labour intensive and not appropriate for the majority of women. It is culturally a man's job that requires some appropriate tools that most farmers do not own and use for other farming activities. Women participated more in managing tree nursery and tree planting. Such processes relying on unremunerated time and non-monetised labour exchanges, as compared with the more economically advantageous networks of men. It is however important to note the disparities between attendance to community meetings related to byelaws and effective participation in collective activities.

Table 10: Constraints to effective implementation of byelaws

Type of constraints	Males N=27	Females N=31	Total N=58
Lack of tools	14.8	22.6	19.0
Limited co-operation from animal grazers	11.1	25.8	19.0
Limited support from the local leaders	11.1	19.3	15.5
None compliance by members from other communities and across the boarder	22.2	3.2	12.1
Lack of required tree species	14.8	6.5	10.3
Laziness among some of the community members	14.8	3.2	8.6
Others	11.1	19.4	15.5
Total	**100**	**100**	**100**

Furthermore the benefits of trench making or tree planting are not immediate and require time to be seen. The excessive fragmentation of small plots scattered within and outside the communities is also an important disincentive to collective action and implementation of byelaws. There are many situations where farmers own more that 5 plots in different locations, and in communities where byelaws are not strongly implemented. Farmers from different communities do not see themselves as subject to the byelaws, and defy compliance. For example, an average of 53 people attended meetings on soil conservation byelaws, but only 17 actually participated in making trenches, and 20 in planting trees. There are several reasons to this. Some farmers were genuinely unable to participate due to their advanced age and ill health. These were elderly women and men who did not have labour and other resources required to participate in meetings and collective action activities.

3.6.3. Limits of social capital

The study also found that social capital mechanisms have some limits, and were not always effective in resolving certain types of conflicts. One important finding from this study is that social capital mechanisms were not effective for managing conflicts between local communities and external powerful stakeholders. Many of these MBCA events and conflict resolution mechanisms often have a high social cost for local

communities, especially to women and other vulnerable groups, who end up taking the burden of paying fines and other forms of social exclusion and coercion.

The constraints to adoption/compliance with byelaws were explored with different households. Poorer households with limited land, emphasised the constraints to accepting the rules. "People do have not enough land and they cannot accept the lack of a place to cultivate and they end up destroying bunds and spilling agricultural activities into the swamps/wet land (Muguli). In contrast, richer and more powerful members of the community may take the view that the land is theirs; having bought it, they will use it the way they wish. With respect to grazing – "not all people have enough land and if you say' graze on your own land' this will stop those who want to buy sheep or goats; people who may have no money to buy land – this encourages poverty' (Kagyera). Construction of terraces was also viewed as problematic by some ; 'because of lack of land, people don't want terraces; people end up hating those who are supposed to be implementing the law". Others pointed out the negative aspect of enforcement which brought the risk of increasing conflict with the village leadership.

Social capital mechanisms have certainly a number of strengths and have been effective in a number of cases. However, AAR showed that the VPTF did not always ensure fairness, especially to women, and other farmers endowed with less assets, human, financial, social and political capital. Some community members stubbornly refuse to abide by the byelaw because they are more influential politically, economically and socially, thus are not subject to punitive measures at the local level. The laxity of some local leaders to enforce some regulations of the byelaws, coupled with political interference when elections are approaching has been one important factor in the problems faced by the VPTFs.

3.6. Assessment of sustainability of policy task forces and community byelaws

The village policy task forces (VPTF) were conceived as a community-level mechanism to lead the process of formulation, monitoring and implementation of the byelaws (Sanginga et al., 2004; Sanginga et al, 2005). The study assessed the extent to which the VPTFs continued to function one year after project completion. Interviews with PTF members revealed that there has been stable membership in the PTF (78% retention), and an increasing degree of trust and cohesion among members. One year after project intervention the VPTFs have continued to function effectively and hold regular meetings with consistent

participation of people. They have a strong and recognized leadership, embedded in other social structures and existing groups within the communities. This gave considerable power and authority to impose sanctions for those farmers who do not comply with the byelaws.

Interviews and AAR results revealed considerable optimism from different villages to sustain the participatory process of byelaw implementation and monitoring with limited external assistance. This enthusiasm is based on the facts that there is now a general awareness of the different byelaws and their benefits, local leaders have become more active and responsive to community needs. Majority of farmers have also increased their knowledge ands skill levels for managing tree nursery, participatory visioning and planning, experimentation and group development. Some of them have been trained in alternative conflict management approaches (Means et al., 2003), leadership skills, citizen mobilization and participation, assertiveness and communication skills, participatory monitoring and evaluation, as well as in other technical skills for improved NRM.

An important aspect of sustainability of the PTF when dealing with complex and long term NRM issues, has been the development of collective vision of desired future conditions (Sanginga and Chitsike, 2005). Community visioning is seen as a form of structural and bonding social capital articulating linkages between individual actions and collective visions, and contributing to the development of shared norms, rules and sanctions. It acts as a motivating factor that leads to concrete actions and collective decision-making, which is one critical aspect of sustainability. Some more organized groups have initiated internal savings and lending, and other income generating activities that can support the implementation of their community action plans.

These policy task forces have increased the ability of farmers groups to engage with external agencies and to link poor people and those in positions of influence (Pretty 2003). There is evidence that the VPTFs in three of these communities have been instrumental in linking farmers and communities to decentralized local government structures and development organizations, thereby increasing access to technologies and external technical support. There are also opportunities within the existing government structures and new government programmes to continue the support to these community-based processes. A number of new groups have also emerged and are able to mobilize more community members. Interviews and records of the sub-county PTF revealed that 34 of the 58 villages have been sensitized to the new byelaws, and 52% of these villages have initiated processes for their implementation and monitoring, modeled to the initial four village PTF.

An important achievement was lobbying the sub-county council to enact their byelaws to give them more legitimacy and applicability in other communities. They have been successful in integrating community NRM activities in the NAADS program and other partners' programs that have assisted in setting up demonstrations on improved NRM technologies. A key outcome of this type of communication is illustrated by the Karambo Tukoro policy task force members who won a district tender for providing facilitation services on institutional development to other groups in a different sub-county. Providing backstopping services to this group remains an important issue for follow up.

There is increasing interest from other research and development organisations and other national and regional institutions on strengthening farmers' organisations and local institutions, and understanding mechanisms for participatory policy formulation and implementation. The project team participated in several scientific discussions and made presentations at scientific fora. Results were also published in peer reviewed journals and other forms of publications. An important outcome of such discussions was the explicit inclusion of social capital and community byelaws as important aspects of integrated agricultural research for development (IAR4D) agenda in the Lake Kivu Pilot Learning site of the Sub-Saharan Africa Challenge programme (Bekunda et al., 2005). Specifically, there are two research hypotheses, namely the Farmer Association Hypothesis and the community leverage hypothesis. The Farmer Association Hypothesis states that "*Stronger farmer associations have increased bargaining power and the ability to influence markets and thus increase members' returns to investment, land and labor".* The Community Leverage Hypothesis states that "*stakeholder empowerment and its resulting collective action encourage local government to develop more responsive policies toward agribusiness, land tenure and natural resource management.*" A key objectively verifiable indicator related to the development and promotion of appropriate policy and institutional options explicitly states "At least **X** stakeholder/community groups successfully formulating and promoting appropriate byelaws by 2010".

Uptake of the project results is also reflected in the just completed competitive grants systems of the African Highlands Initiative (AHI) under the Association for Strengthening Agricultural Research in Eastern and Central Africa (AFRICA). A number of research proposals explicitly sought to upscale and validate this type of research for integrated watershed management in other parts of Uganda, Tanzania; Ethiopia, and Rwanda. New research projects have also been developed to further test some aspects of this project's findings. These include:

- Making markets work for the poor: Unlocking opportunities for agro-enterprise diversification in Eastern and Central Africa. This project will be implemented in the Lake Kivu Pilot Learning Site (Uganda, Rwanda and DR Congo) of the Sub-Saharan Africa Challenge Programme and will explore, among others, mechanisms for strengthening farmers' organisations and other rural innovation systems to encourage participatory processes for linking with local government to develop policies that facilitate efficient marketing systems and promote sustainable natural resources management.
- Strengthening the Capacity for Research and Development to Enhance Natural Resources Management and Improve Rural Livelihoods in sub-Saharan Africa. This collaborative project between the Tropical Soil Biology and Fertility Institute (TSBF) and the Enabling Rural Innovation funded by the International Development Research Centre IDRC, has two outputs related to strengthening farmers' organisations and on participatory policy analysis and formulation to improve NRM. The project will be implemented in Uganda, Kenya, Malawi, Zimbabwe, Ghana and Burkina Faso.
- Enhancing watershed functions for improved productivity, sustainability and equity in the Lake Kivu Pilot Learning Site of the Sub-Saharan Africa Challenge Program. This proposal submitted for targeted funding by BMZ will be implemented in the Lake Kivu PLS of the SSA-CP. The project will promote institutional innovations and policy options for participatory planning and integrated watershed management.
- Institutional Platform for Scaling Out Innovations (Technologies, Approaches, Institutions) that Link Smallholder Farmers to Input, Output, and Financial Markets for Improved Livelihoods. This concept note Submitted to Gatsby Foundation, and to be implemented in Kenya aims to strengthen bridging and linking social capital through second order farmers organisations that effectively linking farmers to markets and research and development services.

4. SUMMARY AND CONCLUSION

The project dealt 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...) is occurring in the midst of rural poverty. Results of this study provide evidence that social capital is an important asset upon which poor people who are largely dependent on the natural resource base to draw in pursuit of their livelihood objectives for improving NRM. Findings of this study can be used to promote effective approaches and processes for strengthening social capital, and facilitating participatory processes for influencing local policy change in NRM. This "tracking" study was intended to provide the evidence-base for the uptake and dissemination of the processes and approaches for strengthening social capital. The generic findings and contributions of this study can be summarized in the nine points below:

First, while R7856 increased our understanding of the dimensions, levels and approaches for strengthening social capital, this study contributes to the development of approaches and indicators for monitoring and evaluating the outcomes of social capital on different aspects or rural livelihoods. This involved an iterative process of community-driven participatory monitoring and evaluation that empowers communities to develop their own indicators of change relevant to their aspirations, attitudes, knowledge and practices. After Action Review (AAR) tools are particularly useful to facilitate a collective process of reflective learning and critical analysis. When well structured, AAR allows comparison between communities and processes, and therefore provides a framework for lessons learning and generalisation that are applicable elsewhere. This "tracking study" is an important step towards the development of a more robust framework for monitoring and evaluating the tangible and non-tangible benefits of participatory learning and action research. However, broadening this analysis over time to include lasting livelihood changes and attributing impacts to different dimensions of social capital, or their combinations to achieve wider outcomes is still an important challenge for research and development.

Second, a major finding of this study is that the key outcome of increased social capital is more social capital. This is not tautological considering the different dimensions, types and mechanisms for activation of social capital. For example, strengthening bonding social capital (trust, solidarity and cohesion) alone may not result in wide ranging collective action, since such trust, cooperation and reciprocity are confined to group members only. Bonding social capital is limited

in impacts, since its strength is founded on exclusivity. Therefore other dimensions of social capital need to be strengthened to produce collective norms and rules, or byelaws that facilitate cooperation beyond the small group. For collective action to take place, the village Policy Task Force (PTF) played a significant role in initiating, facilitating and monitoring the effective implementation of community byelaws. The PTFs have continued operating well after the finish of R7856. Embeddedness in community social networks and groups, and connecting groups and communities, as well as linking them to service providers and decentralized local government structures have been critical in ensuring positive outcomes of the PTF and byelaws.

Third, one key achievement of this process has been the establishment and functioning of village byelaw committees and local institutions for managing the policy process and facilitating policy dialogues with local government structures and other key stakeholders. These village committees and local institutions have proved to be critical in building support for byelaw review and formulation, mobilising political, social, human and technical resources that are needed to sustain the participation of local communities in policy dialogue and action and for the adoption of NRM innovations. They are also supporting mutual beneficial collective action and other important dimensions of social capital such as exchange of information and knowledge, resource mobilisation, collective management of resources, cooperation and networking and community participation in research and development activities. They are increasingly becoming a vehicle through which farmers are pursuing wider concerns, initiating new activities, organising collective action among members and extending relations and linkages with external organisations. They are also increasingly taking the lead in catalysing the development process within their communities, and are increasingly making demands to research and development organisations. Results also show that the different village PTFs have increased the ability of farmers groups to engage with external agencies, either to draw on useful resources or to influence policies. This suggests improvement in linking social capital that links poor people and those in positions of influence (Pretty 2003).

Fourth, there is evidence of significant improvements in human capital, expressed in terms of new skills and knowledge, change in attitudes and behaviour that support the implementation of byelaws. This suggests that strengthening social capital is likely to be most successful in enabling individual investments in NRM and other social benefits. These findings are in line with other studies that point to the role of diverse forms of social capital in enhancing human capital (Coleman, 1988; Uphoff and Mijayaratna, 2000; Johnson et al., 2003). In addition to gains in human capital, there have been some tangible outcomes of

the community byelaws and PTF. The physical outcomes of the two byelaws, and the performance of the PTF were measured in terms of the extent of land degradation, number of trees planted, number of trenches constructed and farmers perceptions of NRM improvement. Results show that a considerable proportion of farm households have adopted a number of NRM technologies for controlling soil erosion. The fact that many farmers are paying for these technologies and their willingness to buy agroforestry tree seedlings and invest in NRM are sufficient indications for sustainability. However, while there is evidence of attempts to control soil erosion through the implementation of byelaws on making trenches, it is still too early to make a robust assessment of the impacts of strengthened social capital on sustainable natural resources management.

Fifth, results show that mature social capital has increased the ability of local communities to manage conflicts, minimize their destructive effects, and transform conflict situations into opportunities for mutually beneficial collective action (MBCA). The PTF were instrumental in mobilizing both men and women to participate in various MBCA events, and continued to function effectively even after the project intervention ended. They have also been effective in monitoring the implementation of byelaws. We found that these mutually agreed norms and sanctions give individual confidence to invest in collective activities knowing that other will do so and create some level of trust that lubricates cooperation and social obligation (Ruud, 2000; Pretty 2003). Social capital mechanisms and particularly byelaws implementation have also been important drivers of adoption of agroforestry technologies. In their study of adoption of agroforestry technologies in eastern Zambia, Ajayi and Kwesiga (2003) also found that community byelaws played and important role in the scaling up of agroforestry technologies. However, the study recognizes that byelaw enforcement alone cannot lead to sustainable NRM. There is need for innovative strategies based on the five "INs" approach (Sanginga et al. 2004) that emphasizes strengthening institutions; providing information; finding incentives, linking byelaws to NRM innovations, and building a network of influence. A particular area of research interest is to explore opportunities for expanding market access and agroenterprise diversification options that will provide incentives for investment in NRM and widespread adoption of NRM technologies (Sanginga et al., 2006; Sanginga 2006).

Sixth, Some PTFs have proved to be robust over time, and growing in confidence. AAR also revealed that the PTFs in the two leading communities have a long-term vision. Pretty (2003b) provide evidence that institutions with a long-term social vision have proven to be robust over time and some have survived over generations. Although still too

early to make conclusions, these results suggest that social capital can be not only productive, but also persistent. With appropriate catalysation, social capital can become an important factor of societal production that helps people meet their livelihood needs better, with whatever other resources are available.

Seventh, there is however, a danger of appearing too optimistic about the capacity of social capital mechanisms to bring about positive lasting change in most equitable ways. The study shows that while increased social capital has positive benefits, social capital mechanisms can trap some people within inequitable social relationships (Pretty, 2003; Colleman, 1988). Bourdieu emphasised the construction of social capital and its attachment to forms of stratification which, in turn, are associated with the exercise of economic and other forms of exploitation (Fine, 2002), may become a resource in the struggles that are carried out in different social arenas as actors seek to advance their interests and change their positions within hierarchical social structures (Siisiäinen, 2000). In hierarchical relationships, unequal power distribution, increased social capital may bring benefits to some and at the same time may may result in socially undesirable outcomes. It is argued that since women are frequently those with highest participation in community activities and collective action, strengthening social capital "can come at a high, if unacknowledged, cost to women" (Molyneux, 2001:177). On the other hand, it is argued that social structures involving and managed by women are often stronger, more sustainable and more accountable, and can therefore they can be an excellent base for MBCA activities. While agreeing that social capital in the form of networks and associational activity is an important resource in tackling poverty, we re-emphasise that social capital is no substitute for policies designed to achieve a more socially integrated society through redistributive measures and sound economic policies (Molyneux, 2001; Sanginga et al., 2005a).

Eighth, an important consideration to bear in mind is that effective innovation in the policy and institutional arenas is generally location and context specific. Therefore, understanding the scaling up process and the sustainability of such intensive social learning processes is an important research challenge. Further research should assess what other conditions are necessary to influence policies from bottom up processes. Understanding the conditions under which such participatory processes could transform into functional innovation platforms for articulating demand from communities and for providing quality services to rural communities is an important area for comparative action research. One important consideration in assessing and sustaining such social learning processes is the issue of transaction costs. It is generally considered that such processes

inherently result in high transaction costs, and are inherently time and resources consuming. It is generally argued that the tangible and non tangible benefits may offset the initial high costs, which gradually decrease as farmers build trust and continue to work together. Unfortunately, few projects have records and data on the real costs (operation, transaction and opportunity costs) incurred with these participatory learning processes. This makes it more difficult to make an evidence-based assessment of the cost of strengthening and maintaining social capital.

Finally, some of the methodological difficulties in relation to social capital are common to wider research into poverty and livelihoods, including challenges of how to derive valid generalisations, to link different levels of analysis, incorporate diversity of livelihood components, especially over time, and how to understand the relationship with the macro context together with political economy analysis (Murray 2001; Bagchi et al 1998). The study underlines the extent to which social capital and its relationships to gender and vulnerability is still poorly understood. New interest in studying gendered social capital and social inclusion/exclusion processes in accessing technologies and linking farmers to markets and higher level institutions has emerged and will form our research agenda in the near future.

Bibliography

Agrawal, A. and C.C. Gibson 1999 Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation. World Development 27(4):629-649.

Ajayi, O.C. and Kwesiga F. 2003. Implications of local policies and institutions on the adoption of improved fallows in eastern Zambia, Agroforestry Systems 59: 327–336, 2003.

Bekunda, M.; Mudwanga, B.E.; Lundall-Magnuson, E.; Makinde, K.; Okoth, P.; Sanginga, P.; Twinamasiko, E.; Woomer, P.L. 2005. Entry points for agricultural research and rural enterprise development in the Lake Kivu pilot learning site of the Sub-Saharan Africa Challenge Program. Forum for Agricultural Research in Africa (FARA). Sub-Saharan Africa Challenge Program. 91p.

Bourdieu, P. 1986. "The Forms of Capital". Pp. 241-258 in Handbook of Theory and Research for Sociology of Education. Ed. J.G. Richards. New York: Greenwood Press.

Bourdieu, Pierre. 1977. Outline of a Theory of Practice. New York: Cambridge University Press.

Bridger, J. C. and A.E. Luloff 2001 Building the Sustainable Community: Is Social Capital the Answer? Sociological Inquiry 71(4):458-472.

Carney, D. 1998. Sustainable Rural Livelihoods: What Contribution Can We Make?, Department for International Development, London;

CIDA (Canadian International Development Agency). (2003). Knowledge Sharing. Methods, Meetings and Tools. Canadian International Development Agency, Ottawa, Canada

Cohen, Stephen S and Gary Fields,1998. Social Capital and Capital Gains, or Virtual Bowling in Silicon Valley., working paper 132, Sept 1998. Berkely Roundtable on the International Economy.

Coleman, J.S., 1988. Social capital in the creation of human capital. American Journal of Sociology 94: 95-**120**

Coleman, James S. 1990. Foundations of Social Theory. Cambridge, Mass.: Harvard University Press.

Cornwall, A. 2003. Whose Voices? Whose choices? Reflections on gender and participatory development. World Development 31(8): 1325-1342.

DFID (Department for International Development). Not dated. Sustainable Livelihoods Guidance Sheets. Section 5: POLICY REFORM. http:// www.livelihoods.org

Earl, S., Carden, F. and Smutylo, T., 2001. Outcome Mapping: Building Learning and Reflection into Development Programs. Ottawa: International Development Research Centre.

Fine, Ben 2001. Social Capital Vs Social Theory: Political Economy and Social Science at the Turn of the Millennium London: Routledge, 2001.

Fine, Ben, 2002. It Ain't Social, It Ain't Capital and It Ain't Africa. From Studia Africana, No. 13, 2002, pp. 18-33.

Grant, E. 2001. Social capital and community strategies: Neighbourhood Development in Guatemala City. Development and Change 32: 975-997

Grootaert, C. 1998, Social Capital, the Missing link. World Bank, Social Capital Initiative Working paper 3.

Grootaert, C. 2001. Does Social Capital Help the Poor? A Synthesis of findings from local level institutions studies in Bolivia, Burkina Fasso and Indonesia. Local level Institutions Working Paper no 10. The World Bank, Washington DC

Grootaert, C. and T. Van Bastelaer, 2001. Understanding and measuring social capital; synthesis of findings and recommendations from the social capital initiative. SC initiative working paper 24.)

Grootaert, C., D.Narayan, V.N. Jones, M. Woolcock, 2004. Measuring Social capital; an integrated questionnaire. World Bank working paper 18.

Guijt, I. and Shah, M.K. 1998 The Myth of Community: Gender Issues in Participatory Development. London: IT Publications.

Johnson, N. N. Lilja and J. Ashby. 2003. Measuring the impact of user participation in agricultural and natural resource management research. Agricultural Systems. 78: 287-306.

Martin, A.; Sanginga, P.; and Kamugisha, R. 2005. Case study methodology for assessment of social capital. Final Technical Report Annex C.

Mayoux, L. 2001. Tackling the down side: social capital, women's empowerment and micro-fianance in Cameroon. Development and Change 32 (2)

Mbabazi, P.; Bagyenda, R.; and Muzira, R. 2003. Participatory mapping and land degradation assessment in the highlands of Kabale. Technical Report

Means, K., Josayma, C., Neilsen, E. and Viriyasakultorn, V. 2002. Community-based forest resource conflict management. A Training package. Vol.1&2. Food and Agriculture Organisation of the United Nations, FAO-Rome.

Molyneux, M. 2002. Gender and the silences of social capital: Lessons from Latin America. Development and Change 33(2): 167-188

Narayan D. and Michael F Cassidy, 2001. A dimensional approach to measuring social capital; Development and validation of a social capital inventory. Current Sociology, March 2001, Vol 49 (2) 59-102.

Narayan, D and L. Pritchett 1999. Cents and Sociability: Household Income and Social Capital in Rural Tanzania. Economic Development and Cultural Change 47 (4): 871-897

Narayan, D. 1999, Bonds and Bridges. Social Capital and poverty. Poverty Group, PREM World Bank.

Ostrom E, 1998. The institutional analysis and development approach. In E. T. Loehman and D.M Kilgour, eds, Designing institutions and environmental and resource management, Cheltenham, UK, Edward Elgar publishing pp. 68-90

Place, F.; Kariuki, G.; Wangila, J.; Kristjanson, P.; Makauki, A. and Ndubi, J. 2004. Assessing the factors underlying differences in achievements of farmer groups: Methodological issues and empirical findings from the highlands of central Kenya. Agricultural Systems 82: 257-272

Pretty, 2003a. Social capital and connectedness: Issues and implications for agriculture, rural development and natural resources management in ACP countries. CTA working document number 8032.

Pretty, J. 2003b. Social capital and the collective management of resources. Science 32: 1912-1914

Putnam R 1993, The prosperous Community – Social Capital and public Life. The American Prospect (13) 35-42)

Putnam, R 1995, Bowling Alone, Americas declining Social Capital. Journal of Democracy 6 (1) 65-78

Rudd, M. A. 2000. Live Long and prosper: collective action, social capital and social vision. Ecological Economics 34 (234): 131-144.

Sanginga, P. Tumwine, J.; and Lilja, N.K. (2006 In press). Patterns of participation in farmers research groups. Agricultural and Human Values 23 (4)

Sanginga, P.;, Marin, A.M.; and Kamugisha, R. 2005a. Strengthening Social Capital for improving policies and decision making in NRM. Final Technical Report to the Natural Resources Systems Programme of the Department for International Development. www.nrsp.co.uk

Sanginga P., Kakuru A, Kamugisha, R, Place F., Martin. A and Stroud, A (2005b) Bridging Research and Policy for Improving Natural Resource Management-Lessons and Challenges in the Highlands of South Western Uganda; Pp 247-266. In Stocking M, Helleman H and White R (2005) Renewable Natural Resource Management for Mountain Communities

Sanginga, P. and Chitsike, C., 2005b. The power of visioning. A handbook for facilitating the development of community action plan. Enabling Rural Innovation Guide #1. International Centre for Topical Agriculture: Kampala, Uganda

Sanginga, P., Kamugisha, R., Martin, A., Kakuru, A. and Stroud, A. 2004a. Facilitating Participatory Processes for Policy Change in Natural Resource Management: Lessons from the Highlands of Southwestern Uganda. U. Journal of Agricultural Sciences 9 (1): 958-970

Sanginga, P., C. Chitsike, R. Best, Robert Delve, Susan Kaaria, Roger Kirkby (2004b). Linking Smallholder Farmers to Markets: An approach for empowering mountain communities to identify market opportunities and develop rural agroenterprises. Mountain Research and Development, **Vol 24 (4): 288-291**

Sanginga, P.C.; Kaaria, S.; Muzira, R.; Delve, R.; Vanlauwe, B.; Chianu, J.; Sanginga, N. 2006 In Press. The resources-to-consumption system: A framework for linking soil fertility management innovations to market opportunities. In: Bationo, A. Waswa, B.; Kihara, J.; Kimetu, J. (eds.), Advances in integrated soil fertility management in sub-Saharan Africa: Challenges and opportunities.

Sanginga, P., Kamugisha, R. and Martin, A. 2006 In Press Conflicts management, social capital and Adoption of Agroforestry Technologies: Empirical findings form the Highlands of Southwestern Uganda. Agroforestry systems (.Manuscript AGFO12R1 Accepted 22 February 2006)

Sanginga, P., Kamugisha, R. and Martin, A. 2006 In Press The Dynamics of Social Capital and Conflict Management in Multiple Resource Regimes: A Case of the Southwestern Highlands of Uganda. Ecology and Society (Manuscript ES-2006-1698 Accepted 7 May 2006)

Shah, Amita (1998) Watershed Development Programmes in India: Emerging Issues for Environment-Development Perspectives. Economic and Political Weekly, June 27, 1998.

Siisiäinen, Martti 2000. Two Concepts of Social Capital: Bourdieu vs. Putnam. Department of Social Sciences and Philosophy, University of Jyväskylä. Paper presented at ISTR Fourth International Conference, "The Third Sector: For What and for Whom?" Trinity College, Dublin, Ireland July 5-8, 2000. http://www.jhu.edu/~istr/conferences/dublin/workingpapers/siisiainen.pdf

Uphoff, N. and Mijayaratna, C.M. 2000. Demonstrated benefits of Social Capital: The productivity of farmers' organisations in Gal Oya, Sri Lanka. World Development 28(11) 1875-1840

Woolcock, M. and Narayan, D. 2000. Social Capital: implications for development theory, research and policy. The World Bank Observer, Vol. 15 (2): 225-249

World Bank, 2000, Let's Talk Social Capital, The World Bank's discussion group on social capital http://www.worldbank.org/research/growth/social_capital.htm