

Tracking outcomes of social and institutional innovations in natural resources management

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ABSTRACT

This paper reports outcomes and potential impacts of a five-year participatory learning and action research that aimed at strengthening social capital and local institutions for improving policies and decision-making in natural resource management (NRM), in the southwestern highlands of Uganda. The project facilitated the establishment and functioning of “Community Parliaments” (CoPa) that act as community-based mechanisms for formulation of byelaws, monitoring compliance, and coordinating collective action in NRM, as well as networking and linking communities to local government structures and other rural service providers. One year after completion of the action research project, a tracking study was initiated to monitor and document the outcomes of these social, institutional and policy innovations. The paper discusses the outcomes of CoPa on five key areas: compliance and performance of community byelaws, participation in mutually beneficial collective action, adoption of NRM technologies and conflict management, changes in gender dynamics, connectedness and networking, performance and sustainability. It also discusses the downside of social capital and its limits to cope with vulnerability, and . examines the conditions for sustainability of byelaws and CoPa as effective local institutions, and the potential uptake promotion and scaling up of research results. These results suggest that, with appropriate catalysation, such social and institutional innovations can not only be productive, but also persistent and robust over time, creating long-term vision in rural communities. The paper argues that 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.

Key words: social capital, innovation, community parliament, gender, sustainability, After Action Review, policies, impacts, Uganda, NRM

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Introduction

Recent research has shown the importance of social and institutional innovations in creating a wide ranging sets of socio-economic outcomes, from successful natural resources management (NRM), household welfare, policy interventions, economic growth and poverty alleviation (Durlauf, 2002; Coleman, 1988; Putman 1993; Woolock and Narayan, 2000; Uphoff and Mijayaratra 2000; Gillinson, 2004; Grootaert and Narayan, 2004). An extensive literature including many case studies describes institutions that have been constituted by local communities (see Berkes 1986, 1989; E. Ostrom 1990; Bromley and others 1992; Fairhead and Leach 1996; Fox 1993; Fortmann and Bruce 1988; McCay and Acheson 1987). Recent work on institutional analysis and institutional change begins to provide a solid theoretical foundation for understanding the conditions needed for individuals to craft or evolve their own institutions and enforce these institutions themselves (see Bates 1988; Calvert 1995; Libecap 1989; North 1990; Ostrom 1998b; Ostrom, Gardner, and Walker 1994; Ostrom, Feeny, and Picht 1993).

Drawing from the increasing literature and experience that show the increasing importance of social and institutional innovations in natural resources management (NRM), we facilitated a five-year (2000-2004) participatory learning and action research project: *Strengthening social capital for improved policies and decision-making in natural resources management* in the southwestern highlands of Uganda (Sanginga et al., 2005). This project was premised on the ground that social capital is an important asset upon which people who largely depend on the natural resource base draw in pursuit of their livelihood objectives for improving natural resources management, technology adoption and successful policy interventions (Rudd, 2000; Grootaert and Narayan, 2004; Rudd, 2000; Collier, 1998). Therefore the project developed and tested in a participatory action research mode, appropriate mechanisms and approaches for 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). These social and institutional innovations in the local policy arena are like Community Parliament (CoPa) through which 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.

However, Pretty (2003b) cautions that the fact that social capital has been strengthened, does not guarantee more equitable and sustainable outcomes on natural resources management and other livelihood assets. Unlike physical and natural capital which are usually tangible and obvious to external observers, social innovations are not as easy to find, see, and measure (Ostrom, 2000). Social innovations, by contrast, may be almost invisible unless serious efforts are made to inquire about the ways in which individuals organize themselves and the mechanisms and norms that guide their behavior. This requires more systematic tracking studies and process documentation research to find answers to questions such as: 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? Who benefits and who loses, and in what ways? What happens after project intervention? What are the conditions for sustainability of such intensive processes?

In this paper, we use empirical evidence from a “tracking” study that aimed at investigating and documenting specific outcomes, potential impacts and conditions for sustainability of strengthened social capital and local institutions. This paper is more concerned with tracking intermediary outcomes and not with evaluating impacts of social and institutional innovations 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. 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. Since the impacts often become apparent after a long period, 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 rest of this report begins by describing the context of the study and the research design for “tracking” social capital outcomes. The findings of this study are discussed in seven sections. First we discuss the outcome indicators of CoPa based on participatory indicator development with communities and key informants. The first four sections investigate the effects of CoPa on the key outcome indicators: compliance and performance of community byelaws, participation in mutually beneficial collective action, connectedness and networking, adoption of NRM technologies and conflict management, and changes in gender dynamics. We then discuss the downside of social capital and its limits to cope with vulnerability; and investigate the conditions for sustainability and the potential uptake of byelaws and CoPa as effective local institutions for participatory policy change in NRM. The paper concludes with a summary of the main findings and their implications for further research on social capital.

Context of the study and data collection

The action research was conducted in Kabale district in the south-western highlands. The district is characterised by high population density (exceeding 400 inhabitants/km² in some areas), steep cultivated slopes (1500 to 2700 masl), but with an adequate bi-modal rainfall (annual average 1000mm). The “tracking” study was conducted in four pilot communities where the “strengthening social capital” project 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.

We conducted eight focus group discussions with members of the Community Parliament in the four villages and at the subcounty and district levels, and four FGD sessions with male and female farmers in the pilot villages. . These FGD sessions sought to facilitate a collective process of reflection and analysis of the performance outcomes, uptake and sustainability of the policy task forces (COPA) from the perspectives of community members. These FGDs were based on the After Action Review (AAR), a participatory technique for facilitating collective learning by talking, thinking, sharing and capturing the lessons learned about a completed activity before they are forgotten (CIDA 2002). 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 six basic AAR questions were further specified to focus on issues for evaluating participatory and social learning processes (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? 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. To complement FGDs and to obtain quantitative and individual insights, 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. 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. Data analysis used both narrative and simple statistical analysis.

RESULTS AND DISCUSSION

An important step was to identify a set of community indicators for tracking outcomes of the community byelaw process. 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. Three key areas were identified as important for tracking outcomes: participation, performance and sustainability (Table 1). These were further specified into seven broad indicators related to awareness and compliance to community byelaws, participation in mutually beneficial collective action, connectedness and networking, adoption of NRM technologies and conflict management, changes in gender dynamics, downside and limits, and performance and sustainability of village byelaws committees.

Compliance to byelaws and policies

Byelaws are local community regulations, norms and sanctions for managing natural resources in a way that place community interests above those of individuals. Byelaws can be defined as negotiated rules, social norms and agreed behaviors, obligations and expectations shared among members of a group that permits to cooperate with one another (Colleman, 1988; Fukuyama, 1999; Bowles and Gintis, 2002). It is the willingness to live by the norms of one’s community and to punish those who do not. An important aspect of evaluating CoPa was related to the process of formulation and implementation of byelaws. To create social innovations, individuals must spend time and energy working with one another to craft institutions and sets of rules, monitoring arrangements, and methods for imposing sanctions on non-conformance (Ostrom 1990, 1992). 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. These are byelaws on controlling erosion control and planting trees. Results show that there was a widespread awareness of the different byelaws.

The majority of men and women in the case study households had detailed knowledge of past and present byelaws on burning, tree cutting, making terraces and the more recent discussions on controlling grazing on agricultural land, planting agroforestry species and grasses, and management of woodlots and swampland. However, the extent to which the more recent recommendations were being implemented varied between households and there were similarly different views on enforcement. Some saw the need for more sensitisation for the community and more commitment to supervision and enforcement on the part of the local councils. “Local leaders should themselves set and example by abiding by the rules, especially on grazing on others land”.

The benefits of participating in byelaw formulation were frequently mentioned. Rather than just instructions to follow rules, the CoPa has helped to develop awareness of benefits of byelaws “*people just used to call us and tell us what to do – not to graze, not burn, to have a granary etc. but they didn’t allow us to contribute to the byelaws. Now we make our own byelaws* (Muguli). As a result of this process, the pilot communities have reviewed and formulated a number of byelaws for improving agricultural production and natural resources management. These include byelaws on soil conservation and erosion control; on tree planning, on controlled grazing, drinking and wetlands management. These byelaws were debated at the sub-county and harmonised for their general application to other villages and parishes.

These achievements have been attributed to the establishment of byelaw committees and their role in catalysing community participation in the formulation and enforcement of byelaws and sensitisation through meetings in the pilot communities.

One key outcome of CoPa was significant improvement in cognitive dimensions of social capital (Coleman, 1998), expressed in terms of 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 CoPa and community members, and between the CoPa and local government and research and development organizations. The CoPa has helped in facilitating the flow of information not only on byelaws but also on technologies and other NRM aspects. This role of the COPA as a knowledge-builder has effects on increased knowledge, skills, access to information and technologies for improving NRM.

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 and institutional innovations. The number of MBCA and the level of participation in MBCA were therefore used as key indicators and outcomes of CoPa. 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 2). These include tree planting, making trenches and managing community nursery as well as attending community meetings on byelaws. The level of participation in MBCA events has been consistently high and increasing over time. The most common forms of collective action concerned making trenches for soil erosion control, tree planting, and managing community agroforestry nurseries. Participation in tree nursery management operations was one of the areas where collective action was ranked high (45.7%) and improving considerably. Majority of farmers participated in tree nursery establishment, but the numbers reduced with time for management of community nursery (watering), then increased at the transplanting stage where tree seedlings were distributed to individual farmers. The level of participation of men was significantly higher in collective action events for making trenches, mainly because of its higher physical labour demand.

Results in Table 3 show that there has been significant improvement in the extent of cooperation amongst people (reciprocity and exchange) over time, and in 17% of cases it has increased considerably. However, this cooperation is more of the diffuse nature (Pretty, 2003a) 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. For example, older people expressed some

distrust of the youth who dominate village committees and farmers organisations and linking with external organisations. There were also perceptions of jealousy, resentment and allegations of witchcraft toward the elderly people.

While participation has not been very consistent over the periods, there have been periods of high and low participation of both men and women (Figure 1). A key outcome of CoPais 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. However, 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. 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. A key outcome of CoPa was therefore a sustained increase of both men and women's participation in community activities and in MBCA events.

Bridging and Linking social capital

Baseline studies showed that the four pilot communities were 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, they had weak bridging and linking social capital. The action research project strategy was therefore to build on existing social capital and strengthening the bridging and linking dimensions.

Results show that 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.

There have been at least three different processes in which the CoPas have been connected to existing social institutions and groups within the communities. In Muguli B, the CoPa 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 CoPa was embedded in the most active agricultural groups in the village but is not closely linked to the village local council. The CoPa played a complementary role to the local council, and had been assigned the role of monitoring the implementation of the byelaws. However, the power to enforce implementation and to impose punishments still remained with the village local council. In Habugarama, the CoPa was 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.

Natural Capital Outcomes of social and institutional innovations

Because the NRM impacts of social processes are usually long-term and need more complex procedures to measure, it was only 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. Results show that the number of NRM technologies practiced by farmers, and their willingness to purchase and plant more trees has increased significantly. The study found that about 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 stabilize these trenches. There is 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 CoPa were able to mobilize money to purchase seedlings for community nursery. 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 embeddedness of the CoPa into local village structures that were effective in mobilizing men for MBCA.

To further examine the relative importance of social capital variables in influencing adoption of agroforestry and other NRM practices, three separate Logit regression models were performed with agroforestry, constructing new terraces and planting grass strips or trash lines as dependent variables (Sanginga et al., 2006a). 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. Results showed 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.

Results show that the byelaws and the CoPa 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 (Sanginga et al., 2006b). 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 an important role in the scaling up of agroforestry technologies. Many conflicts were resolved through arbitration, taking the case to the CoPa who facilitate negotiation between parties or arbitration to reach a mutually agreed decision. In other cases the CoPa referred some conflicts to the LC1 who have powers to impose decisions and sanctions on the people. 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.

Gendered outcomes of Community Parliament

An important consideration in assessing the outcomes of social and institutional innovations was to examine the extent to which women's participation in CoPas and MBCA and decision-making has increased. 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. This consistent with the argument that women exhibit more cooperative behavior than men due to greater interdependency and altruism (Folbre, 1994; Sharma, 1980; White, 1992). Molinas (1998) observed that successful collective action is dependent on the degree of women's participation.

Women's participation was vital since their interests were significantly different to men's. On average, women constitute over 67% of the membership of these groups and are increasingly taking on leadership positions in mixed groups and farmers' forums. Women represent between 34-50% of the membership in village byelaw committees and policy task forces. A key indicator when assessing outcomes of social and institutional innovations in NRM 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. 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..."*

Downside and Limits of social innovations I

Although, results above show that the outcomes of CoPas have largely been positive, there are also some important downsides. Table 6 below presents the negative changes that community members have experienced over the period of byelaw implementation. There have been cases of increased conflicts among grazers and cultivators, which in some cases have led to divisions and hearted within communities, as illustrated by AAR during focus group discussions.

"... 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 ..."

Such negative social capital encourages ethnocentrism and exclusion as it closes groups and enhances prejudice towards outsiders, rather than putting efforts into cooperating across group boundaries to create more bridging social capital (Gillinson, 2004).

Results also show that many of these MBCA events 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. 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. 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. 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.

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). 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'. 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. This implies some negative aspects of enforcement which brought the risk of increasing conflict with the village leadership.

Performance and sustainability of Community Parliaments

The study assessed the extent to which the CoPas continued to function one year after project completion. Results show some variations 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 CoPa. The CoPas 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 CoPa. In Muguli B, the community that had most CoPas 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 CoPas 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 CoPas was embedded in farmers' groups and play complementary roles to local leadership. The CoPas 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. In both Habugarama and Kagyera, the COPA 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.

An important aspect of sustainability of the CoPas 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. There is evidence that the CoPas 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. An important outcome was lobbying the sub-county council to enact their byelaws to give them more legitimacy and applicability in other communities. Interviews and records of the sub-county CoPa 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 CoPa. Another 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 has been genuine interest and willingness of the sub-county to upscale the process beyond the pilot communities to the whole sub-county. Other parishes have expressed interest in forming village policy task forces (CoPas) to initiate and review byelaws to improve the management of natural resources. Initially this will need facilitation and technical support from research and development partners. Discussions were initiated with CARE-Farmer Innovation Project and NAADS to provide technical support to selected communities, and identify and train other service providers to facilitate CoPas in other communities. Several village sensitisation meetings on byelaws and NRM practices have been held in the pilot communities. A number of farmers' groups and other development organisations visited the pilot communities to learn about the participatory process of formulating and implementing community byelaws, and NRM practices. The policy task forces are operational and sustainable institutional arrangements are in place to embed the social process developed by the project with guidelines on how to formulate appropriate policies and byelaws. Partnerships have been established with AFRICARE in Karambo and Muguli, with NARO in Kagyera, and with CARE-FIP in Habugarama. NAADS, facilitated by AHI in Rubaya, is also operating in all the target communities and many farmers are members of the sub-county farmer forum. Linkages with AFRENA on agroforestry technologies have been strengthened through training, exchange visits and provision of seedlings.

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

CONCLUSION

This "tracking" study was intended to provide the evidence-base of the outcomes, potential impacts, performance and sustainability of social and institutional innovations in NRM as a follow-on to an action research project that aimed at strengthening social capital for improving policies and decision making in NRM. Results show that the process has had positive outcomes

on at least three other key components of sustainable livelihood assets: human, social and natural capital. There was 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 COPA. 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. Social capital mechanisms and particularly mutually beneficial collective action and 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 an important role in the scaling up of agroforestry technologies.

This study reinforces the notion that social and institutional innovations do not wear out with use but rather with disuse (Ostrom, 2000). In fact, the CoPas have proved to be robust over time, and growing in confidence. They have continued operating well after the finish of the action research project. 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 CoPas and the byelaws formulated. The different CoPas 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). This is possible in political context of decentralisation and devolution of power to local communities. Recent decentralization efforts in Uganda provided a fertile and conducive environment for strengthening social capital and linking local communities to higher decentralized government structures.

However, the results of this paper also illuminate some negative dimensions of social and institutional innovations, such as excessive burden of obligations to women and the elderly, perceptions of corruption or exclusion. The CoPas did not always ensure fairness, especially to women, and other farmers endowed with less assets, human, financial, social and political capital. Many of these MBCA events 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 emerging literature on social capital is increasingly questioning the general presumption that strong social capital has only positive effects (Durlauf, 2002; Rose, 1997; Granovetter, 1995:137) benefits to some may imply harm to others or may result in socially undesirable outcomes (Fine, 2002; Siisiäinen, 2000; Molyneux, 2001:177; Coleman, 1988).

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. After Action Review (AAR) tools are particularly useful to facilitate a collective process of reflective learning and critical analysis, and therefore provides a framework for lessons learning and generalisation that are applicable elsewhere. 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.

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Table 1: Community-based indicators for tracking social capital outcomes

Performance area	Outcomes and Indicators
Participation	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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

Table 2. Level of participation in mutually beneficial 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	5.2 (3.4)	53 (42)	48 (40)	150

- Figures in brackets are standard deviation

Table 3: 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

Table 4: 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

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

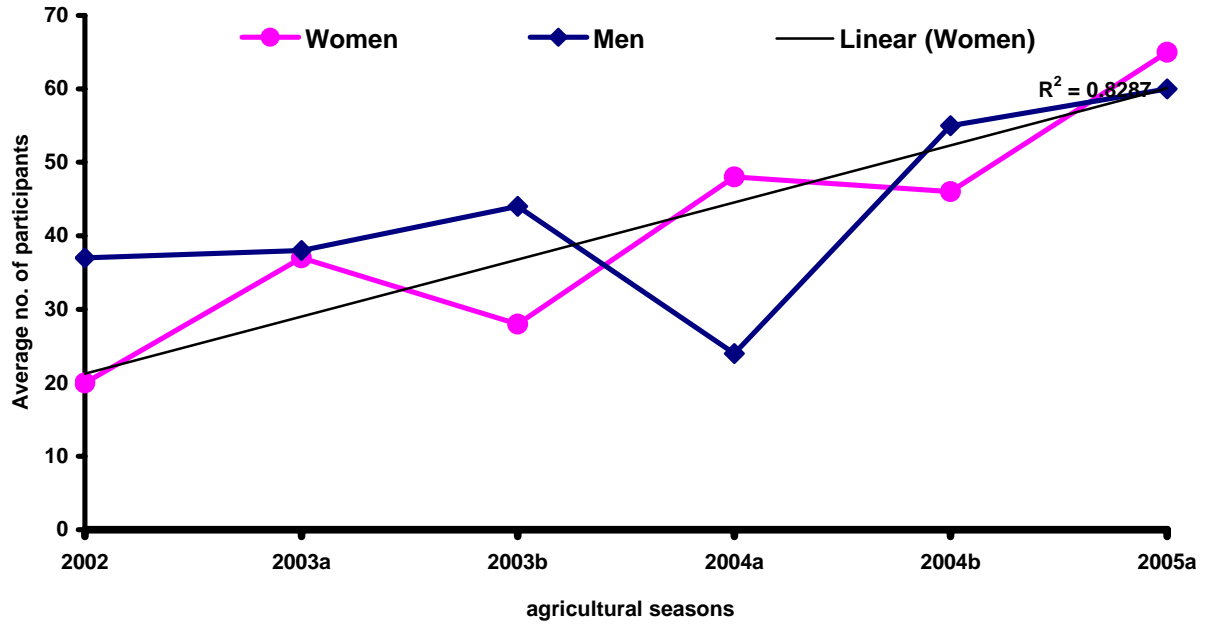


Figure 2: Average number of new trenches by male and female farmers in the pilot communities

Figure 2: Number of COPA meetings and average number of participants in meetings

