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Facilitating participatory processes for policy change in natural resource management: Lessons from the highlands of southwestern Uganda

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Abstract

Despite the recognition that policy processes are important for sustainable natural resources management (NRM), there is concern that agricultural research and technology development have not been reflected in policy change, nor have they affected decision-making processes of wider communities. Most policy research focuses on policy analysis, often at the macro, national level, ignoring the much more difficult and rather murkier part on how to get policies implemented and adopted by users; and how to get the intended beneficiaries, small-scale resource poor farmers, to influence policies in NRM. This paper reports results of a participatory policy action research process that aimed at strengthening local-level processes and capacity for developing, implementing and enforcing local policies and byelaws to improve the adoption of NRM technologies in Kabale, Uganda. The policy action research was built around five components: facilitating community visioning and planning; participatory policy analysis; linking bottom-up processes to higher level policy processes through policy dialogue and policy learning events, and supporting policy action at different levels. Results show that pilot communities have formulated and implemented a number of byelaws on soil erosion control, tree planting, animal grazing, wetlands management, bush burning and food security. The paper suggests a five "INs" approach: strengthening local institutions; providing information; linking byelaws to NRM innovations; finding and promoting incentives, and building network of influence. Results suggest that recent decentralization reforms in Uganda provide significant opportunities for research to influence and support the process of policy change in NRM. Influencing policy in NRM is, however, a long process that needs perseverance, and a sustained programme of interventions by different institutions.

Key words: Byelaws, decentralisation; NRM; action research, policy process, social capital, Uganda

Introduction

Natural resource management (NRM) is becoming a relatively new and expanding thrust in policy research on African agriculture (Omamo, 2003; Scherr *et al.,* 1996; Shiferwa and Holden, 2000, Egulu and Ebanyat, 2000; Pender *et al.,* 2001). Many of these studies have concluded that if natural resources are to be protected against the risk of destruction, it is essential that governments devise a range of policy instruments that can influence behaviour for the adoption of technology innovations and institutions that promote sustainable management of natural resources to alleviate poverty. The new paradigms of integrated natural resource management "INRM" (Sayer and Campbell 2001), sustainable livelihoods approaches "SLA" (Carney, 1998; and integrated agricultural research for development "IAR4D" (FARA, 2003) emphasize the need to broaden natural resource management (NRM) research from technology solutions to include socio-economic and policy dimensions, with emphasis on participatory approaches that redefine the role of scientists, farmers and other stakeholders. All these approaches explicitly recognize that policy support is an essential ingredient for widespread adoption and scaling up of NRM technologies and innovation.

However, despite the recognition that policy processes are important for sustainable livelihood outcomes and natural resources management, there is concern that NRM research and technology development have not been reflected in policy change, nor have they affected decision-making processes of wider communities (NRSP, 2000). Most research on agricultural policy has been concerned with macro policy studies at national, and international levels. There is an implicit assumption that if research results are taken on board by policy-makers, planners at the higher levels, there is high probability that research results will translate into policies that can be implemented at lower levels. In their recent review of policy research on African agriculture, Idachaba (2001) and Omamo (2003) observed that agricultural researchers and policy analysts have failed to put Africa's agricultural problems on the policy agenda in more than abstract fashions. Idachaba (2001: 46) contends that policy analysis is the easier part, "the much more difficult and rather murkier part is to get the policy implemented and adopted by users; that is to get the results of policy analysis and policy recommendations into political decisions by governments". There is still a critical gap in policy research to provide insights for change in local communities (Scherr et al., 1995). Omamo (2003) recommends a different approach

to policy research focusing on piloting action research in case studies of innovative approaches for identifying convincing *how to* answers. Other studies have argued that participatory research approaches could make a significant contribution towards this critical, yet missing area of policy research (Scherr et al., 1995; Idachaba 2001; Keeley, 2001; Vincent, 2003; Scoones and Thompson 2003). For more than two decades, participatory methodologies have proved effective in enabling people to take greater control of the development process. However, with few exceptions, efforts have not focused on increasing local participation in policy review and formulation (Scoones and Thompson 2003). In a recent summary and reflection based on field experiences in participatory research in NRM, Vincent (2003) observed that there is still a critical gap for participatory research to address wider policy initiatives for transforming NRM, or how to build new policies to support NRM.

This paper reports results of a pilot participatory policy learning and action research project aimed at strengthening local-level processes and capacity for developing, implementing and enforcing local policies and byelaws ar d other local policies to improve the use and management of natural resources in the southwestern highlands of Uganda. Recent decentralisation efforts in Uganda have shown promising improvement in the participation of local people and other stakeholders in the policy decision-making process. These changes have brought some impressive results, creating a fundamentally different environment for an open and participatory policy and decision -making at the lower local community level (Saito, 2003; James 2002). However, despite such progress, there is concern that decentralisation has not resulted in improvements in the management and use of natural resources, nor has it affected the capacities and decision-making processes of local communities over the management of natural resources.

The main thrust of this action research is supporting and facilitating the integration of participatory approaches to policy decision-making by building and strengthening local community capacity to initiate, formulate, review and implement policies and byelaws that promote the adoption and wider impact of improved NRM technologies. The rest of the paper is organized into five sections. First we describe the research setting and its institutional and policy framework. We then present the operational framework for participatory policy action research. The results of the application of the framework are presented in five points: community visioning and action planning, participatory byelaw analysis, policy learning events; and policy dialogue linking bottom-up and top down processes, and mechanisms for policy process management and for supporting policy action. The implications for policy research in NRM are discussed in the concluding section.

Methodology and operational framework for policy action research

The research context and setting

In Uganda, the highlands account for 27% of land area and close to 40% of the total population. They are mostly in the southwestern and western part of the country as well as in the east. The action research was conducted in four pilot communities in Rubaya subcounty in Kabale district in the southwestern highlands. Kabale is a mountainous district (1500 to 2700 masl), but with an adequate bi-modal rainfall (annual average 1000mm). The district is characterized by high population density (exceeding 400 inhabitants/km^{2}in some areas). Arable land is seriously fragmented on different hills, valley bottoms and wetlands. Most households have plots scattered across and outside the village (averaging 6 and ranging from 0 to 38, with the average size of individual plots of 0.1 and 0.7 acres). The degree to which fragmentation appears on the landscape is deemed excessive, and has been found to impede incentives for better management of distant plots (Bamwerinde and Place 2000, Raussen *et al.*2002). In some villages, the number of plots owned by non-residents exceeded those owned by village residents. This highly disjunctive pattern of land ownership also makes collective action on soil conservation and management efforts exceedingly difficult.

The majority of the hills have semi-permanent bench terraces up to the tops, developed some 50 years ago along the contours of the hills that are a common feature of Kabale district. However, many of these old terraces have seriously deteriorated, and as a result, declining soil fertility and erosion is a serious problem. It is estimated that about 90% of the district soil is affected by erosion due to slope, population pressure, deforestation, poor farming and vulnerable soil. Results of a participatory field assessment of land degradation in four pilot communities in the Mugandu-Buramba watershed estimated that between 21 and 59 t/ha of soil are lost through gully and rill erosion, gullies, collapsing terraces, and flooding of valley bottom farmlands (Mbabazi *et al.* 2003).

Kabale is one of the eight benchmark sites of the African Highlands Initiative (AHI). AHI was established in 1995 as a CGIAR ecoregional program to focus on the issues of land degradation and agricultural productivity in the densely populated highlands of Eastern Africa. AHI's guiding philosophy is a client-driven approach using participatory methods and an effective research-development continuum. This enables researchers working in collaborative, synergetic partnerships, to bring together diverse contributions to foster farmers' innovation and collective action for design and dissemination of appropriate, integrated technologies and methods for improving NRM in diverse and complex situations. Recognizing that policy support is always

needed for the adoption of NRM innovations, the African AHI established a policy-working group to increase the policy relevance of research at the local level, and to design alternative policy instruments to facilitate adoption of NRM technologies (AHI 2001). One of the key priority areas identified for collaboration was to conduct research to review and synthesise the existing byelaws, and assess their effectiveness and implementation mechanisms. Further consultations with policy stakeholders led to the development and implementation of this project for linking NRM research and development to byelaws formulation and implementation

Institutional and policy framework

Decentralization in Uganda is one of the most ambitious reforms of local governance in Africa. The decentralization process was initiated in 1986 and culminated in the 1997 Local Government Act which provides the legal framework for the participation of local communities in policy-making. The mechanisms of decentralization are established and functioning, with the structure of a five-tier system of local councils and local government structures, a bottom-up planning process, and powers to collect and disburse local revenue (James *et al.*, 2001; Saito, 2002). The functions and services regarding land use, management and administration are the responsibility of local government and local councils or LC (Table 1).

Table 1. Decentralised structures in Uganda: levels and main functions

At the base of the local government structure, the local council or LC1 (village of about 50-100 households) consists of all adults residing in a particular village who elect a nine-member village local council executive committee. Beyond the village or LC1, in ascending geographical size, there are parishes (LC2), sub-county or *gombolola* (LC3), county (LC4) and district (LC5) councils. The sub-county level (LC3) is the basic unit of local government, both political and administrative. The district (LC5) is the highest level of local government and links with central government. The provision of local government elections guarantee widespread representation at the various councils and include quotas by gender, people with disabilities, and youths. For example, at least one-third of the council members must be women, an affirmative action to empower women and promote gender equity.

Operational Framework

The project's approach was grounded in the tradition of action research (Reason and Bardbury, 2001; Dick 2002), a process that pursues action (policy change) and research (understanding of policy process), at the same time learning by doing (participatory natural resources management). The framework (figure 1) is built around the following key components: i) community visioning and planning; ii) participatory policy analysis, iii) participatory policy learning, iv) policy dialogue, v) supporting policy action, and vi) policy process management.

Results and discussions

The results of the study are discussed following the key components of the framework.

Engaging with rural communities and developing visions of desired future conditions

Most participatory research projects routinely start with a participatory rural appraisal (PRA) exercise to identify problems and constraints in the farming system, and as an entry point into communities. Recently, PRA has come under criticism for being superficial, extractive, transitory, unable to initiate change and build local capacities (Ashby, 2003; Cook and Kothari, 2001), and lack adequate process of follow up. Influencing policy changes in NRM required a long-term vision of desired future conditions At the heart of initiating participatory policy analysis and action, there was an intensive and iterative process of community visioning to stimulate collective learning and articulation of collective visions of desired future conditions. An important principle of this approach is that it starts with an analysis of strengths and opportunities, rather than problems and constraints. It helps defining strategies for achieving the desired future conditions, and for empowering rural people to become able agents of their own change.

Farmers can take a longer term, more sustainable option when they are encouraged and facilitated to develop visioning scenarios on NRM issues. However, the longer the time frame for community visioning, the more dreams like and unrealistic the action plans will be. We have used 3 to 5 years for developing achievable community visions of desired future conditions. One important tool for community visioning is the "river code" (Timmel and Hodzi 1984). The "river code" is a play used for stimulating self-awareness and establishing dialogue for discussing participation, social change and approaches to development. It helps farmers and rural communities to realize the potential for change, and the need to be cognizant and understand the forces that can facilitate or constrain change, and define workable strategies for seizing opportunities and dealing with potential challenges. The river code play was based on the SARAR technique (The World Bank, 2000), which stands for the following five attributes:

1. Self-esteem: a sense of self-worth as a person as well as valuable resource for development
2. Associative strength: the capacity to define and work toward a common vision through mutual respect, trust and collaborative effort
3. Resourcefulness: the capacity to visualize new solutions to problems, and the willingness to take risks
4. Action planning: combining critical thinking and creativity to come up with new, effective and reality-based plans in which each participant has a useful and fulfilling role
5. Responsibility: for follow through until the commitments made are fully discharged and the vision of benefits achieved.

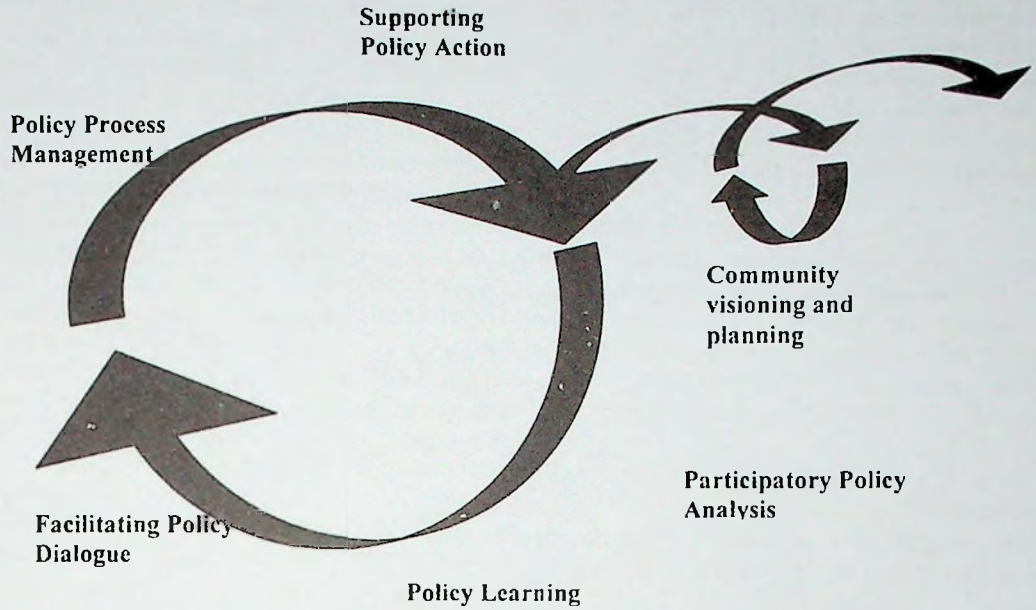


Figure 1: Operational framework for participatory policy action research

Visioning using SARAR techniques has the advantage of facilitating an internal drive for change, starting with people who are open minded and who believe in the success of change effort, and who can bring different perspectives and strategies for achieving collective visions. It is a valuable tool for working with communities to engage their creative capacities in problem solving and planning, and for creating awareness about NRM and policy issues. Combining SARAR with creative participatory tools such as community resources and social mapping are useful for fostering and strengthening SAAR community skills in systematic action planning, monitoring and evaluation in a participatory manner. Through this process, all the four pilot communities have developed action plans with explicit objectives, activities, roles and responsibilities of different stakeholders and partners. These pilot communities are in different phases of operationalization of their action plans. These plans specify objectives and desired outcomes, activities to implement, roles and responsibilities of different stakeholders. The community action plans clearly specified the need for strengthening the implementation of existing byelaws, and formulating new byelaws to support the implementation of action plans and facilitate mutually beneficial collective action in NRM.

Participatory byelaw analysis

In this paper, we use the term policy in its broad sense to refer to laws, rules and regulations and their implementation resulting from public (state) or collective decision-making (Thomson 2001, Means *et al.* 2002). Policies can be generated and operate at different levels: international, national, regional, district and local levels. In this study, we are particularly concerned with those local-level policies and community regulations usually referred to as byelaws. In Uganda, byelaws are rules made by lower local councils (LC1 and LC3) under the local government act and provide the local policy guidelines to be followed in sectoral developments, such as agriculture and natural resource management. These byelaws or local arrangements and institutions for natural resource management are now receiving greater attention as a viable alternative for enforcing government policies and rectifying their inefficiencies in agriculture and natural resource management. However, there is paucity of empirical studies and systematic experience that can inform decentralized local governments on the process of formulating and implementing byelaws and other local policies. It was therefore important to initiate participatory processes for analyzing the different byelaws to identify the key problems in their implementation and identify opportunities and incentives for their effective enforcement.

Across all the four pilot communities, the process of community planning identified six general byelaws in agriculture and natural resource management (soil and water conservation, food security, tree planting, bush burning, controlled grazing, and swamp reclamation bye-law). Each of these byelaws has specific regulations and enforcement mechanisms. For example, the soil and water conservation byelaw states that:

1: Any person who clears land for cultivation on a slope shall;

a. construct bunds /barriers across the slope parallel to the contour.
b. plant appropriate grasses or agroforestry trees on the bunds.
c. construct barriers as determined by technical agricultural extension officer

d. not plant annual crops on a steep slope, but plant trees
2: Planting of crops shall be done along the contour
3: Any person demarcating two plots shall not use farrows nor gullies but mark stones, live hedges or shrubs
4: (a) All paths, cattle tracks and access roads shall; be protected against erosion by run off channels and soak away pits and
(b) Paths or tracks may be closed by community leaders to prevent erosion and alternative routes provides Any person disobeying the provisions of this law shall be guilty of an offence and shall on first conviction be liable to a fine not exceeding shs. 3, 000/= or imprisonment for 15 days or both and shall on any subsequent conviction be liable to a fine not exceeding shs. 5,000/= or to imprisonment as may be effective.

The tree planting byelaw

a. Any person who cuts a live tree shall (a) plant two (b) ensure the planted ones are protected and well looked after
b. All persons who own private woodlots on hills and want to clear fell must first seek advice from forest department, local council and local chiefs
c. Appropriate tree species shall be planted not less than 3m on both sides of feeder roads
d. 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
e. The local committees with help of chiefs will make sure all road reserves are planted with rows of trees on both sides
f. Whoever contravenes the conditions of this byelaw should be guilty of an offence and shall on the first conviction be liable to a fine of 3,000/= and plant the number of trees felled. On second conviction will be liable to both imprisonment of 21 days and planting the number of trees felled.

Community visioning and planning process revealed that poor implementation of byelaws has been linked to degradation of natural resources and has hampered adoption of NRM technologies. Many of the existing byelaws were formulated without local participation, and many farmers were not satisfied with their implementation mechanisms. On the other hand, byelaws that were send to be more effective were associated with strong enforcement mechanisms, participation and sensitisation of local communities in their formulation and enforcement. They were also linked with technologies and practices that increased productivity.

The analysis, however, revealed that some categories of farmers will have difficulties in complying with many of the existing byelaws. These include older men and women, widows and orphans with limited family labour or money to hire labour and to buy implements like spades and hoes needed to establish conservation measures. Farmers with alternative sources of income, which are more lucrative than farming, may not have time for putting up conservation structures on the plots they are using for food security. It was also revealed that small livestock owners, especially women, who don't own grazing land or large farm sizes will have problems complying with the controlled grazing byelaw. The byelaw may force the poor to sell their livestock, and will increase poverty, conflicts and hatred among farmers. The task force committees and community meetings were encouraged to think creatively about potential arrangements to encourage compliance among those groups finding it difficult, by constantly asking questions such as: For whom is this a problem? Who benefits from the byelaw and how? Who loses out from the byelaw and how? Who will have difficulty in complying and why? What mitigating arrangements can be introduced for strengthening byelaw implementation?

It was evident that byelaws need to be supported by appropriate technologies that can increase agricultural productivity for resource-poor farmers with diminishing land resources. Many other recommendations to make bye-laws more effective require capacity building of different stakeholders, both local communities and decentralized structures, which R&D organizations are better placed to facilitate. This is a significant role that research and development (R&D) institutions can play to facilitate the implementation of policies and byelaws, and improve the adoption of NRM technologies. But, it requires initiatives to facilitate and promote policy dialogue between the different stakeholders and support policy learning and action.

Participatory Policy Learning

As observed by Norse and Tschirley (2000), in many cases policy makers don't know what kind of information they can reasonably expect or ask for from the R&D community. A proactive role was essential in assessing the information needs of policy makers and develop effective communication strategies for guiding and informing debate and fostering public understanding of the policy process. For example, we found that the majority of political leaders and policy-makers were not aware of the existing bylaws and NRM policies, their regulations and implementation mechanisms, and the process of formulating bylaws. The project initiated a series of policy stakeholder workshops and other learning events (seminars, field visits, documentation) to increase the relevance of research to policy makers, to communicate research findings to policy makers, to catalyse local political support for positive and sustainable NRM. The first policy stakeholder workshop held in November 1999 identified a number of areas for collaboration and information sharing between research and policy makers. In addition to regular subsequent workshops and policy meetings, one strategy has been to organize and facilitate field visits to identified success cases. This has had a much bigger effect to convince policy makers, local leaders and farmers by seeing things with their own eyes, and sharing of experiences with more innovative farmers. We found that this process has been very useful not only for exposing policy makers and f

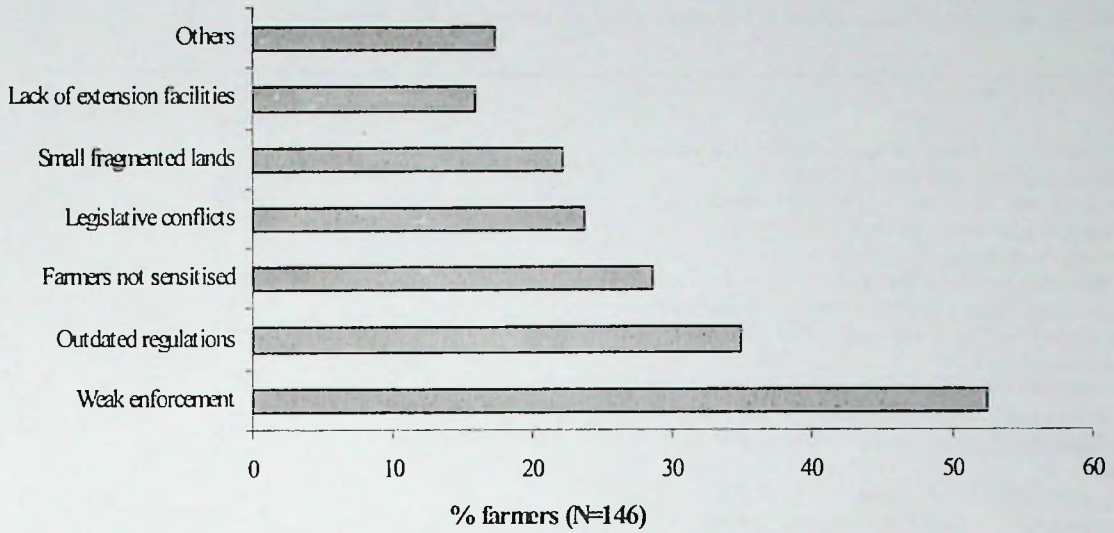


Figure 2: Farmers' assessment of the reasons for weak and effective byelaws

Table 1: Decentralised structures in Uganda: Levels and main functions

Local Council Level	Composition	Functions
Local Council 1: Village (composed of more or less 50 households	9 members, at least 4 women	• Assist in maintaining law, order and security • Initiate, support and participate in self help projects • Recommend persons for local defence units • Serves as communication channels with government services • Monitor the administration of projects • Impose service fees • Collect taxes • Resolve problems and disputes • Make byelaws
LC 2: Parish (composed of 3-10 villages)	• Depending on the number of villages elected from the village chat least 4 women	• Assist in maintaining law, order and security • Serves as communication channels with government services • Initiate, support and participate in self help projects • Monitor the administration of projects • Resolve problems and disputes
LC 3: Sub-county (Composed of 2-10 parishes)	• Depending on the number of parishes, 1/3 women • 2 youth • 2 persons with disabilities • elected councillors from parishes	• Local government • Enact byelaws • Approve subcounty budget • Levy, charge, and collect fees and taxes • Monitor performance of government employees • Formulate, approve and execute sub-county budgets • Resolve problems and disputes
LC 4: County (composed of 3-5 sub-counties)	• 5, chairpersons or vice-chairperson from each subcounty	• Advise district officers and area members of Parliament • Resolve problems and disputes • Monitor delivery of services
LC 5: District (composed of 3-5 counties)	• 36 members • 12 women councillors • 2 youth • 2 people with disabilities • 19 elected councillors	• Exercise all political and executive powers • Provide services • Ensure implementation of government policies and compliance with it • Plan for the District • Enact district laws and ordinances • Monitor performance of government policies • Levy, charge and collect fees and taxes • Formulate, approve and execute district budgets

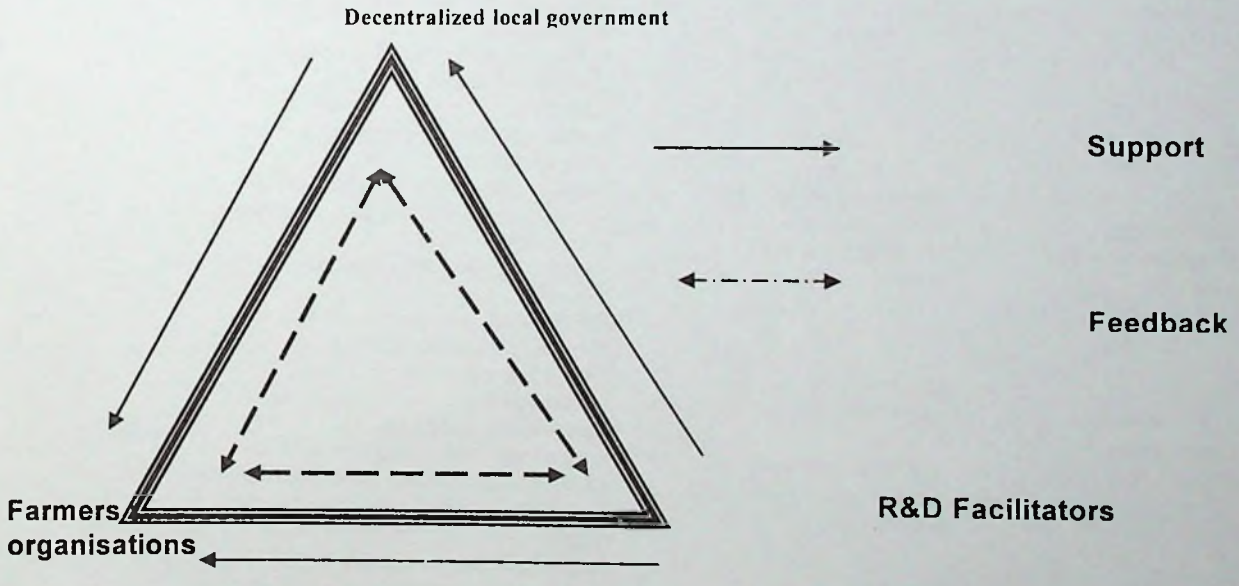
Source: Adapted from Raussen 2000

Table 2: Knowledge and assessment of the effectiveness of selected byelaw regulations

Details of the regulation	Percentage*	
	Effective	Not effective
Construct bunds across the slope parallel to the contour	77.8	19.0
Plant appropriate vegetation on the bunds	63.5	27.0
Construct barriers guided by extension worker	30.2	54.0
Not planting annual crops on steep slopes	28.6	27.0
Planting crops along the contour	34.9	49.2
Demarcating two agricultural plots with mark stones	81.0	14.3
Paths, cattle tracks and access roads protected against erosion	17.5	30.2
Any person who cuts a live tree shall plant two and ensure they are protected and looked after	68.3	31.7
Farmer shall ensure livestock graze only when herded	92.1	08
Livestock shall graze in own piece of land except with consent of land owner	74.6	25.4
Animals shall not take water from same point used to draw water for domestic uses	92.1	08
Pigs shall not graze where other animals graze	79.4	17.6
No grazing in crops and farmers whose crops are destroyed shall be compensated	96.8	03.2
No person shall set fire to a bush or part of it without authorisation	85.7	07.9
In the event of fire outbreak all able bodied members of community will participate in extinguishing it	82.5	17.5

** Percentages do not add up to 100%. Some regulations were not known to farmers.*

Figure 3: Policy Task Force Critical Triangle



Source: Adapted form Catacutan *et al.* (2001)

-making (Keeley, 2001). For example, the soil fertility loss narrative has been a powerful strategy for getting policy makers learn about and supporting agroforestry policies and byelaws. These types of narrative, coupled with field visits to research stations and on farm demonstrations, have been useful for getting policy support for the tree planting

Promoting and facilitating policy dialogue:

Despite considerable progress in local government reforms, it is only to a limited extent that policy makers seek information from key stakeholders in designing and formulating policies. James *et al.* (2001) observed that decentralization in Uganda is still a relatively young process, and does not yet constitute a genuinely participatory

system of local governance. Farmers and local communities are often limited to simple representation and the small-scale poor farmer is often forgotten. Participation can be promoted by facilitating fora where community members or community representatives can engage in dialogue with local leaders and government officials and other stakeholders. Effective decentralization

The main thrust of this action research is supporting and facilitating the integration of participatory approaches to policy decision-making by strengthening local-level processes and capacity for developing, implementing and enforcing byelaws and other local policies to improve natural resources management. The project used three mechanisms for promoting policy dialogue which are complementary and feed into one another: bottom-up community inclusive processes; subcounty representative policy meetings and district level stakeholders workshops. The village or community- level policy dialogues seeks to explore the multiple perspectives of resources users with the aim of gaining credibility and support of different categories of farmers through more inclusive and consultative processes. Farmers and local stakeholders are likely to see byelaws and other decisions they have participated in making as legitimate, addressing their own needs and constraints. Such byelaws are likely to be more effective and implemented by the communities. Social capital mechanisms are drawn upon to encourage better deals and byelaws that stick over time. Despite progress made at the village level, it was recognised that the strengthening of community level processes cannot stand on its own. The subcounty and the district constitute a critical aspect of the decentralisation system as they have important political and administrative powers to make byelaws, prepare development plans, budgets and allocate resources. The subcounty is the basic political and administrative unit of local government that enacts byelaws and resolves disputes. This level has good potential for stimulating local organisations and democratic processes to deliberate and influence policies from bottom up. The different byelaws initiated at the village level were presented and debated at the subcounty level for harmonisation and better co-ordination before they were enacted into byelaws. The District level dialogues are usually high profile events aimed at raising and refocusing the policy debate. The focus of the project is on building a network of actors who can influence the policy process with messages tailored and focused to gain attention and support. Five policy stakeholder workshops were held over the three years and brought together a large number of participants (80-100), district leaders and councillors, members of parliament, subcounty councillors, local government technical services, research and development organisations, and farmers representatives, and in the later years representatives of neighbouring districts and national institutions. and farmers representatives, and in some cases representatives of neighbouring districts. The Policy workshops and task forces offer a strong opportunity and case to achieve closer relationship between the different stakeholders and involvement in policy formulation process, and increasing the relevance of R&D to the needs of political leaders and policy makers

To make policy dialogues more effective and participatory, some specific efforts were necessary to strengthen the weakest stakeholders-the farmers. Effective policy dialogue must be based on effective and sustainable local institutions (or mature social capital) capable for engaging local communities directly in the articulation of their needs, analysis, design and implementation of NRM policies and innovations. The presence of social capital is a necessary pre-condition for the participation of resource-poor farmers in policy formulation and implementation, in research and development activities, and for the adoption of NRM innovations that require collective action and collaboration. To prepare farmers to be effective partners in the policy dialogue with district-level stakeholders, we use a range of participatory techniques (role plays, mapping and diagramming, mentoring, and other adult learning methods) for engaging and empowering local communities directly in the articulation of their policy needs, and in the analysis, design and implementation of policies and innovations. This has involved coaching and mentoring farmers' representatives to better articulate their policy needs and NRM visions with confidence. It has been particularly insightful to sequence policy dialogues with farmers' exposure visits, and horizontal linkages between the different communities where they harmonise their demands, share experience and rehearse their presentations. As a result, the most interesting moments during the policy dialogues are when farmers make their presentations, and articulate their community visions and experiences with the byelaws.

Policy process management:

A byelaw cannot be only a statement of intent. It needs to specify the institutional mechanisms that would translate the byelaw into practice, and clarifying the responsibilities of relevant institutions and people. The project initiated the formation and facilitation of byelaws committees at the village level, and policy taskforces at the subcounty and district levels. The formation of village byelaws committees followed a process that was open and inclusive of all social categories in the community. The criteria for electing or selecting members, and the number of members of the village PTF were determined during community meetings. In general, a byelaw committee or policy task force coud have between 8-12 elected and appointed members with considerable representation of women (at least 40%). These byelaws committees were conceived as part of the decentralization process for enhancing local participation in political process provided by the local government act and decentralization policy. The roles and responsibilities of the byelaws committees include: coordinate the review of existing byelaws, initiate new byelaws, facilitate and monitor their implementation, and linking with higher-level policy institutions and development organisations. Over

the three years of the project, over 78 village byelaw committee meetings and 24 community wide meetings have been conducted to discuss byelaws and other NRM issues. It is important to note that where the byelaw committees are integrated into other forms of social organisation, there have been many more opportunities to discuss byelaw issues. In communities where there are farmers groups working on agriculture and NRM, they usually have weekly meetings for the group.

These committees are supported by a skilled community development facilitator to strengthen the self-organizational capacities within communities, and create conditions in which local people are able to formulate, review, monitor and implement appropriate byelaws. The CDF is also instrumental in motivating and facilitating people to participate in the process of action learning, stimulate reflection on policies and byelaws, and supporting platforms and fora for negotiation of NRM issues, and linking local communities to other stakeholders.

At the subcounty and district levels, the policy task forces are modelled to the "landcare triangle" (Figure 2) of the tripartite relations of key actors in NRM: farmers, local government, and R&D technical facilitators (Catacutan *et al.* 2000; Garrity *et al.* 2000). These task forces help create space for constructive exchanges between key policy stakeholders and assist in fostering effective links between local community and policy makers and political leaders, as well as research and development organizations. These task forces comprising of local NRM champions and district leaders, are also instrumental in building networks of influence. They also serve as a kind of steering committee to follow up plans, and monitor implementation of the project.

Supporting policy action

As a result of this process, the pilot communities have reviewed and formulated a number of by-laws for improving agricultural production and natural resources management. These include by-laws on soil conservation and erosion control; on tree planning, on controlled grazing, drinking and wetlands management. These by-laws were debated at the subcounty and harmonised for their general application to other villages and parishes. For example, the soil and water conservation by-law states that:

1. Nobody in the village is supposed to clear land for cultivation, whether a resident in the village or not, on a slope where erosion can easily take place, without establishing trenches. Nobody in the village is supposed to cultivate his or her plot without putting a trench and planting stabilisers like elephant grass.
2. Areas that do not accommodate trenches or where trenches cannot be accommodated, elephant grass and legume grasses to act as stabilisers should be planted.
3. Every member of the community who accesses water from the community source is supposed to participate with the rest of the community in cleaning and fencing on an agreed routine and timetable.
4. Any member in the village who wants to destroy a bund (Enkkiigo) should do it in the presence of a neighbour.
5. Nobody in the community should wash near the source of water and anybody in the community who has land near the source of water or spring should leave some metres (1-2) before cultivating. And anybody who possesses land near a road reserve or where there is a trench or community path should leave at least 1 or 2 metres before starting to cultivate.
6. Anybody in or outside the community who is to hire land from the owner or neighbour for cultivation should be able to first negotiate the conditions of hire and be able to abide by the rules and by-laws set by communities. Anybody in the village who attempts to exchange land with a neighbour in the village should be able to agree with the already formulated policies in the communities/villages.
7. The tree planting by-law
8. Anybody in the village who cuts a tree should at least plant two and make sure that the existing ones are well protected.
9. If any member of the village is to plant trees, they should plant only agroforestry trees like Calliandra, Alnus and Grivellia which add fertility to the soil and reduce erosion. They should replant the one that existed after failing to get agroforestry trees.

Some of these by-laws have been implemented with different levels of success in the four pilot communities. The pilot communities have constructed more than 600 trenches for controlling soil erosion and water run off; and have initiated community agroforestry nurseries. As a result of village policy task forces formulating and implementing by-laws, a total of 480 farmers in the pilot communities have established trenches and associated soil and water conservation measures according to the by-laws. There has been a more widespread awareness of NRM issues and technologies to solve SWC problems. However, more efficient technologies for stabilising trenches and controlling soil and water run off need to be promoted. It was reported that setting bush fires in the pilot communities significantly reduced during the last dry season, compared to previous years and to incidence in other villages. This was attributed to the VPTFs role in catalysing community participation in the formulation and enforcement of by-laws on bush burning, and sensitisation through meetings in the pilot communities. Villages where the policy work is taking place have acted as centres for learning for people from nearby villages and other visitors who come to study the policy, how they began and the achievements and challenges so far.

An important consideration for the project has been the effect, and ultimate impacts of these measures, both on natural resources and on poorer households. However, this requires a long term and post-project tracking of changes and outcomes of the project on improving NRM and rural livelihoods, and for assessing the sustainability of local processes for initiating and implementing by-laws. There is need for a better understanding of the outcomes, uptake and potential impacts and conditions for sustainability of

such approaches; in particular, to assess the sustainability of local institutions for NRM policy formulation and implementation and their effectiveness in bringing about changes in NRM practice which do not disadvantage the poor.

Discussion and Lessons learned

Results of this action research suggest that with current decentralisation in Uganda, there are significant opportunities that research and development can utilise to influence policies, and to translate research results into policy and decision-making of wider communities to accelerate wider-scale adoption and dissemination of NRM technologies. Drawing from Barret et al. (2002), the paper suggests a five "INs" approach (strengthening local institutions; providing information; linking by-laws to NRM innovations; finding and promoting incentives and minimum inputs, and building a network of influence) as effective mechanisms that research and development organisations can use to influence policy action for sustainable NRM

Figure 4: the "Five Ins" model for influencing policy change in NRM

Strengthening local institutions

The main thrust of this action research process is building and strengthening a tripartite dialogue and interaction among local communities, local government structures and research, and development organizations. This critical triangle is operationalized by the community byelaws committees and the policy task forces at the district and sub-county levels. These committees and task forces have proved to be critical in building support for bye-laws 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, resources mobilization, 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, organizing 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 R&D organizations. Pretty (2003), Uphoff and Mijayaratna (2000), Woolock and Narayan (2000) and many others have shown that social capital lowers the cost of working together and facilitates cooperation, trust, and collective action. Empirical studies have found that given good knowledge about local resources, appropriate institutional, social and economic conditions, and processes that encourage deliberation and participation, rural communities can work together collectively to use natural resources sustainably over the long term (Pretty, 2003). Therefore strengthening social-capital i.e. the self-organizational capacities within communities, and create conditions in which local people are able to formulate, review, monitor and implement appropriate byelaws, and engage in mutually beneficial collective action. Facilitating policy dialogue through effective mechanisms to link bottom-up, community level processes that must be complemented and supported by high level institutions and political leaders with strong commitment and clear shared vision of desired future conditions.

Providing Information

In many cases policy makers don't know what kind of information they can reasonably expect or ask for from the R&D community. It is here that a proactive role of R&D was essential in assessing the information needs of policy makers and to develop effective communication strategies for guiding and informing debate and fostering public understanding of the policy process. One key strategy was to facilitate participatory policy learning events targeting people who make, influence or implement policy, through some powerful tailor-made policy learning events to expose policy makers and other stakeholders to existing practices and knowledge that improve natural resources.

Linking byelaw to NRM innovations

An important aspect of the success in formulation and implementation of the soil erosion control byelaw. It is therefore as important to link any byelaw to NRM technologies that would provide sufficient incentives to farmers to implement the policies. Research and development organizations have a role to disseminate profitable technologies to farmers and provide minimum inputs that are needed to resolve some key constraints and bottlenecks.

Finding and promoting policy incentives

Many of NRM technologies needed for the implementation of the soil erosion byelaw require some minimum inputs. Based on their experience with disseminating of agroforestery technologies in the highlands of Kabale, Raussen et al. (2001) recommended a "minimum input strategy" to facilitate widespread the adoption of agroforestry technologies. Other empirical studies in Ethiopia (Shiferaw and Holden 2000) showed that policies that link production subsidies with soil conservation could provide opportunities for combating soil erosion. Research could investigate the feasibility of developing a reward system to communities and farmers that are championing NRM issues and implementing the byelaws. This system could be integrated into local government development plans and budgets to provide inputs such as seeds of improved varieties, small livestock, seedlings of high value trees to those communities and farmers that are outstanding in NRM innovations. Such communities could be selected as priority areas for new government interventions and other development initiatives. A "land management fund" could

be institutionalized in local government development plans and budgets.

Building effective networks of influence

To be effective, R&D professionals need to stay close to the policy process, and exploit opportunities that come along to get local community byelaws translated into political decisions or policies. Reaching and influencing policy-makers depends on R&D building effective networks of influence between local NGOs with other national and international organizations. The emergence of the NGO's forum and the coalition for effective extension delivery (CEED), a coalition of major NRM R&D organizations in Kabale is a right step in this direction. Identifying and supporting local NRM champions: Having a political leader or policy maker with a listening ear is key to any policy action. The emergence of leaders at various levels of local government who champion NRM initiatives and demonstrate keen interest provided good opportunities for advancing policies that promote NRM. These political and community leaders consistently played an important role in any policy and community initiative. Opportunistic timing: It was important to identify key points of leverage, and recognize short-term opportunities associated with related legislative calendars, planning and budgeting activities, changes in key leaderships, political appointments and government personnel. It was also important to identifying and capitalizing on crisis situations because windows of opportunity for change can present themselves at times of crises, such as floods, land slides, fires and other natural disasters. Sequencing policies is also important. Many policies and byelaws have failed because they tried to do so much too soon, with little time of efforts to learn by doing. Piloting byelaws in selected communities offer policy makers, research and development agents and other stakeholders the opportunity to test the implementation of policies and byelaws, and their effectiveness in terms of sustainable NRM practices.

Conclusion

Results of this action research suggest that with current decentralization in Uganda, there are significant opportunities that research and development can utilize to influence policies, and to translate research results into policy and decision-making of wider communities to accelerate wider-scale adoption and dissemination of NRM technologies. The paper has highlighted mechanisms that research and development organizations can use to influence policy action and facilitate the participation of local communities in policy processes for natural resources management. Lessons learned suggest that to be able to influence policy, research and development need to adopt and support the policy process. The paper suggests a five "IN's" model for facilitating and influencing policy change: strengthening local *institutions*; providing *information*; linking byelaws to NRM *innovations*; finding and promoting *incentives*, and building a network of *influence*.

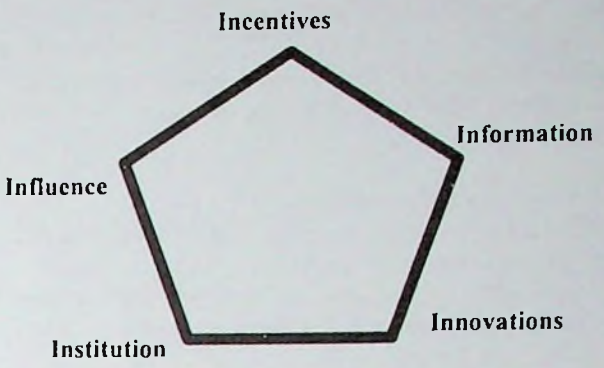


Figure 4: The Five "INs" Model for policy change in NRM

One key challenge is, however, how to sustain such processes and linking with national level policy structures. In order for the byelaws committees to become part of the policy making process, there is need to work towards mechanisms to institutionalise such participatory processes for policy formulation and implementation. The decentralization policy in Uganda offers good opportunities for achieving such participatory processes for policy change. Many district and other decentralized local governments have legislative and executive powers to formulate and implement their own policies and byelaws in NRM. They need support from research and development organizations for using effective ways of engaging local communities in the formulation and implementation of byelaws. At the national level, there are some opportunities that can be realized. Many national level institutions and programmes such as the National Environmental Authority (NEMA), the National Agricultural Advisory and Development Services (NAADS) and nationwide and international NGOs and civil society organizations within and outside Uganda could provide a fertile ground for scaling up such participatory policy action research processes for sustainable natural resources management. Understanding the effects of these initiatives on the status of natural resources, local livelihoods and local empowerment requires a longer-term perspective. However, the work described in this paper constitutes a promising beginning. Although it is difficult to estimate, about 5 million poor rural people in Uganda live in similar physical environments (taken as the nearby districts of Kabale, Kisoro, Bushenyi, Mbarara, Rukungiri, Ntungamo, and eastern districts of Kapchorwa, and Mbale), at high population densities, relying on rainfed arable cultivation on steep slopes and valley-bottom wetlands. If the other highlands areas of Tanzania, Ethiopia, Rwanda, Madagascar are included, then the project is representing the conditions of at least 50 million people who live in the highlands areas, where social capital has been eroded. However, it is important to note hat influencing policy is a long process that needs perseverance, and a sustained programme of interventions and lobbying by different institutions and actors.

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