NATURAL RESOURCES SYSTEMS PROGRAMME

PROJECT REPORT[1]

DFID Project Number

R7856

Project Title

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

Project Leader

Dr. Pascal Sanginga

Organisation

International Centre for Tropical Agriculture-

African Highlands Initiative, Uganda

NRSP Production System

Hillsides Production System

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

NATURAL RESOURCES SYSTEMS PROGRAMME
FINAL TECHNICAL REPORT R 7856

Strengthening Social Capital for Improving Policies and Decision Making in Natural Resources Management

ANNEX E

Byelaws and Local Policies for Improved Agriculture and Natural Resources Management in the Highlands of South-western Uganda

Pascal C. Sanginga[1*], Geoffrey Muhanguzi[2] and Rick Kamugisha[3]

[1.] International Centre for Tropical Agriculture (CIAT),
Kawanda Agricultural Research Institute, P.O. Box 6247, Kampala, Uganda

[2.] Faculty of Forestry and Nature Conservation, Makerere University,
P.O. Box 7062, Kampala, Uganda

[3.] African Highlands Initiative, Kabale Benchmark site,
P.O. Box 239, Kabale, Uganda

* Corresponding Author, CIAT, email: P.Sanginga@cgiar.org

DRAFT WORKING PAPER PREPARED FOR THE
AFRICAN HIGHLANDS INITIATIVE

FEBRUARY 2003

Acknowledgements

The authors wish to acknowledge the contribution of several people and organisations in the development of this working paper. First and foremost, special appreciation is due to hundreds of male and female farmers who inspired this study and attracted our interest to the understanding of byelaws and local policies as important mechanisms for improving agricultural production and natural resources management. Their enthusiasm, wealth of knowledge and experience has been an important source of motivation for this study.

We wish to thank the Kabale District local government leadership at all levels, from the District, the sub-county, parish to lower councils in the villages for cooperating in this study and providing the necessary information that provide substance to this paper. Special thanks are due to Mr. Adison Kakuru, Kabale district local government chairperson and chairperson of the Policy Task Force for his encouragement and dedication to issues related to natural resources management in the fragile ecosystems of Kabale. We thank all the Local Council (LC) Five councillors, farmers' representatives, community leaders, Non Government Organisations (NGOs) and other stakeholders who participated in various workshops and seminars where the findings of this study were presented. Their questions, comments and suggestions were invaluable inputs to this paper.

This paper, and the study from which it is based, has benefited from various inputs comments, suggestions and questions from several people right form its conception, design, implementation, presentation and restitution of results to early versions of various drafts. Nelson Turyahabwe participated in the initial design of the study and provided invaluable contribution in conducting preliminary interviews. Dr. Joy Tukahirwa, formerly site coordinator of the African Highland Initiative (AHI) Kabale benchmark site, played a key role in facilitating the formation of the Policy Task Force. With Frank Place, they were instrumental in organising and co-facilitating various Natural Resources Management (NRM) policy stakeholder workshops, which discussed various aspects of this study and provided important insights. The interviewing and facilitation skills of Rick Kamugisha, Olive Nakintunda, Lilian Kobusingye and Michael Besigye were critical in gathering the information from which this paper is based.

We wish to thank Ann Stroud who provided us with necessary encouragement throughout the study. Professor Michael Stocking's mid term review of the project helped us to focus the study.

This paper is an output of a Development Fund for International Development (DFID) funded project for the benefits of the poor in developing countries. Special thanks for the Natural Resources Systems Programme (NRSP) and to Margaret Quin for their encouragements and funding our regular interactions and exchange of experience with other projects on similar issues in different countries.

We also acknowledge additional funding from the East and Central Africa Programme for Agricultural Policy Analysis (ECAPAPA) of the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA) to expand the study to examine the role of local policies and byelaws in minimizing conflicts in natural resources management and use.

Finally, we accept responsibilities for any oversights and errors in the interpretation and analysis of data and facts contained in this document.

TABLE OF CONTENTS

1 Introduction

1.1 Background and Context of the study

The decline of agricultural productivity caused by the degradation of natural resources in highland systems is having a negative impact on livelihood systems and is a root cause of poverty **(International Centre for Agroforestry Research** (ICRAF), 1997). The dearth of innovative, participatory approaches to generating and disseminating technologies, poor links between research, development and policy, have been found to be among the reasons explaining the lack of adoption and impact of NRM technologies in the highlands of south-western Uganda (Wang'ati, 1994; Hazel *et al.*, 1997). Over the last eight years or so, AHI has been promoting community-based participatory approaches to addresses NRM issues related to maintaining soil productivity and land-use efficiency, and to generating technologies that are more appropriate to farmers' circumstances.

The current program of the AHI/National Agricultural Research Organisation (NARO) Kabale benchmark site emphasises:

i. integrating solutions to productivity and NRM issues by adopting participatory and systems approaches;
ii. strengthening partnerships, enhancing collaboration and building the capacity of institutions and organisations involved in NRM and agriculture;
iii. improving the integration of biophysical and social science research; and
iv. linking local policy formulation to technology development (AHI 1997a).

Natural resource management is a complex issue influenced by several factors, among which are policies at different levels operating through different mechanisms (Scherr *et al*, 1996). Recognising that policy reforms are almost always needed for the implementation of NRM innovations to alleviate poverty, AHI established a policy-working group to increase the policy relevance of research at the local level, to identify and undertake joint priority activities, and to design alternative policy instruments to facilitate adoption of NRM technologies. The AHI local NRM policy research initiative focuses on assessing the effects of policies on NRM, the degree of harmony or conflict of policies on NRM as they are implemented at local levels, the effectiveness of local NRM policy processes and assessing the relationships between policy change, technology adoption, and NRM (Place, 2001).

In Uganda, AHI is supporting efforts to catalyse local political support to promote the adoption and impact of sustainable NRM innovations and policies that require concerted action and collaboration. A Policy Task Force was subsequently formed to provide a forum for institutional linkages and collaboration among relevant stakeholders, prioritise research and policy needs, and follow up actions of common interest (AHI 1999). This paper is based on experience with a DFID funded project that supports this local policy initiative through a participatory learning and action research aimed at strengthening social capital to improve policies and decision-making in NRM in selected communities in the highlands of Kabale, south-western Uganda. The purpose of the project is to strengthen local-level processes and capacity for developing, implementing and enforcing byelaws and other local policies to improve natural resources management by supporting the integration of participatory approaches to policy decision-making and implementation in selected communities in the highlands of Kabale. The project assists in facilitating platforms for improving links between local communities with district and higher-level policy institutions and other stakeholders, through regular fora and stakeholders meetings (Sanginga, 2000).

In November 1999 in Kabale District, a workshop on "**Improving links between policy makers and researchers for better NRM in Kabale, Uganda**" brought together local leaders, policy makers from the different levels (local councils to members of parliament), and research and development organisation representatives from Kabale.

The objectives were to:

i. forge dialogue amongst stakeholders involved in agricultural production and NRM;
ii. catalyse local political support for positive and sustainable NRM, and
iii. identify key NRM policy issues that require concerted action and collaboration.

A policy task force was subsequently instituted to provide a forum for institutional linkages and collaboration among the stakeholders, prioritise research and policy needs identified during the workshop, and follow up actions of common interest (AHI 1999b). One of the priority areas identified was to improve NRM through strengthening of local-level processes and capacity for developing, implementing and enforcing byelaws and other local policies.

1.2 Rationale and objectives of the study

1.2.1 Rationale

The problem of land degradation and productivity declines with countries with fast growing population that are also suffering from poverty and malnutrition is becoming an important area for policy intervention (Shiferwa and Holden 2000). Several studies conclude 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 in a decentralized manner (Tyler 1999, Buckles 1999, Egulu and Ebanyat 2000).

Policy is defined as a 'course of action designed to achieve particular goals or targets'. Public policy is made by government to achieve particular national outcomes (DFID). A policy is stated and approved by government by publication in official gazette for use by the appropriate government institutions to guide their activities (Kamugisha, 1993; NARO, 2001).

Policies influence livelihood strategies in many ways:

- The access that poor people have to assets, the benefits they derive from them, as well as incentives for the development of assets, depend upon institutional arrangements. These in turn depend upon the institutional environment, information flows, asset characteristics and the vulnerability and power of different actors.
- Institutions influence a person's social capital; the institutional arrangements that she or he is able to engage in affects their relative power within a community. A person's social capital and power determine her or his access to other assets and how much that person is able to gain from them.
- Development of institutional arrangements may reduce risk and vulnerability – e.g. through definition of property rights.
- Developing and maintaining institutional arrangements, for example sharecropping contracts, is of critical importance to the poor.

Policies operate at all levels, and in both public and private spheres, private organisations or communities may also form their own policy to achieve defined goals. In this context, policy can be defined in simple terms as the rules, norms and values that shape our behaviour. They can be formal (e.g. laws that govern land tenure) and informal (e.g. social customs and

conventions); created (e.g. as a result of deliberate political or policy decisions) or may evolve over time; present at local, organisational, national, and international levels.

However, the success of public policies to improve natural resources management depends to a large extent on the presence of local level policies, institutions and organisations to enforce them (Rasmussen and Meinzen-Dick, 1995). Recent decentralisation efforts in Uganda have shown promising improvement in the participation of local people in the policy decision-making process. Under the decentralisation, various laws and institutions have been created to ensure the devolution of functions, powers and services to the districts. The Local Government Act provides, among others, a clause on control of soil erosion, protection of wetlands, bush fires, vegetation cover, environment, etc.

Byelaws are such policies made by local communities. Byelaws provide the local policy guidelines to be followed in sectoral developments, in this case agriculture and natural resource management. Byelaws are defined in the Local Government Act (1997) as rules made by lower local councils under section 39 of the same Act. Byelaws are important as useful guidelines and regulations of general application to guide agricultural practices and prevent such practices that could be detrimental to the community (Fleay, 1956). 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 (Gebremedhin et al., 2002) in agriculture and natural resource management. Under decentralisation, many local governments are involved in reviewing existing byelaws and formulating new ones.

There is a general impression that many byelaws are outdated. Many of them dating to the colonial days and were enforced using punitive measures. These byelaws are seen to be inappropriate and lack deterrent effects (Agricultural Policy Secretariat 2000). The implementation of byelaws was ignored over a long period of time, especially after independence, and during the 1970s due to the decline of extension services and effectiveness of chiefs. With increased democracy and civil liberties, the implementation of byelaws is resented. There is now a growing interest in reviewing or formulating byelaws and other local policies for regulating the use and management of natural resources, especially land degradation. The hypothesis is that the formulation and implementation of byelaws will improve the management of natural resources, and accelerate the adoption of improved technologies.

However, there is no systematic information that provides policy makers and other stakeholders with much guidance on people's awareness, implementation and assessment of the effectiveness of existing byelaws; constraints in their implementation and their outcomes, and strategies for making existing byelaws more effective. In too many cases, byelaws and policies are designed on the basis of inadequate empirical understanding or weak empirical evidence. There is a need for more empirical information about the awareness and effectiveness of current byelaws and other local policies, and the problems or constraints for their implementation, and opportunities for improving their implementation. It is against this background that the Task Force recommended to conduct a study that will improve the understanding of byelaws, the level of awareness of existing byelaws, the assessment of their effectiveness, and suggest mechanisms and processes for improving the formulation and implementation of byelaws and other local policies.

1.2.2 Objectives

This study was aimed at reviewing and analysing byelaws and local policies in relation to agricultural and natural resource management in Kabale district, Uganda.

The specific objectives of the study were to:

- Reviewing the historical background and evolution of byelaws in agriculture and natural resource management
- Analysing the process of formulation and implementation of byelaws
- Assessing the effectiveness of existing byelaws and other local policies by:
  - defining the key problems in the implementation and reinforcement of byelaws, identifying opportunities and incentives for policy change and byelaw enforcement, and
  - identifying gaps, opportunities and incentives for policy change and byelaw enforcement.

The study aims at improving our understanding and byelaws of byelaws and other policies in relation to agriculture and natural resources management. The study is aimed at policy makers, from various levels of policy making to local community leaders who are charged in designing, formulating and implementing policies for improving natural resource management to better understand and subsequently identify and assess appropriate byelaws, institutions and processes to improve the implementation of regulations, rules, laws and other policies aimed at sustainable NRM and rural livelihoods.

1.3 Structure of the Report

The remaining of this working document is divided into seven sections. First we present the methodology for participatory byelaws analysis, and describe the institutional and policy framework of the study setting, and the methods for data collection. We then give an historical account of the byelaws from colonial administration to the recent decentralisation in Uganda based on relevant records and archives from the Kigezi highlands. The process of formulating byelaws is reviewed in section four. Section five unpacks the formal byelaws and gives a detailed account of the various regulations under the soil and water conservation byelaw, the food security, bush burning, tree planting, and swamp reclamation. We then discuss some informal byelaws. Section six assesses farmers' knowledge and effectiveness of byelaws and discusses byelaws which are effective and those which are weak or not effective, the reasons for their effectiveness, and the problems in enforcing the byelaws. The last section discusses recommendations for making byelaws more effective based on respondents' perspectives and other findings from the study. Finally, the report concludes with some implications for policy, research and development for improving the effectiveness and relevance of byelaws to regulate and improve sustainable management of natural resources.

2 Methodology for participatory byelaw analysis

2.1 The setting

The highlands of Uganda 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.

Kabale district is found in the popular Kigezi Highlands, the southwestern highlands of Uganda. It covers an area of 1,827 Km^2, bordering Kisoro in the west, Kanungu and Rukungiri in the north, Ntungamo in the east and the Republic of Rwanda in the south (Rwabwoogo, 1998). Kabale district lies between latitudes 1^0 and $1^0$30' S and longitudes $29^0$18' and $30^0$9' E.

Kabale is a mountainous district with altitudes ranging from 1220 to 2700 masl. The topography is rugged, characterised by broken mountains, steep convex slopes of 10-60^o and gentle slopes 5-10$^{o.}$

The project area is characterised by high population density (averaging 300 inhabitants/km2), steep cultivated slopes (1500 to 2700 masl), fragmented land holdings, land shortage and adequate bi-modal rainfall (annual average 1000mm). 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 now a common feature of Kabale district. These soil conservation measures were widely practiced prior to the 1970s, promoted by agricultural services and enforced by the local administrators. However, as a result of several years of political turmoil, breakdown in administrative services, population pressure and poverty, many of these old terraces have been destroyed and have seriously deteriorated (Pender *et. al.*, 2001). As a result, declining soil fertility and erosion is a serious problem in the densely populated and steeply sloping areas. National Environment Management Authority (NEMA) (2001) estimated that about 90% of the district soil is affected by erosion due to slope, population pressure, deforestation, poor farming methods and vulnerable soil.

The preliminary results of the 2002 population census put the total population of Kabale District at 461,785 inhabitants with an annual growth rate of 0.9% compared to 3.3% for the country. This figure is well below the estimated 629,400 based on projections from the 1991 census figure of 417,218 (Kabale District, 2002). However, Kabale is one of the most densely populated rural districts in the country, with about 345 inhabitants per square kilometre.

Arable land is seriously fragmented on different hills, each plot measuring between 0.1 and 0.7 acres (Kabale, 2002).

Livelihood options for most people are limited to food crops production. Major crops include sorghum, beans, field peas, Irish potatoes, sweet potatoes, maize, wheat and a few livestock. Off-farm employment options are limited, but there is an increase in the number of men seeking employment elsewhere—thus exacerbating labour shortage.

The study was conducted in four sub-counties (Rubaya, Bubale, Kashambya and Ikumba) purposively selected using a maximum variation procedure to reflect different situations and dimensions of social capital, local policies and NRM situations. The sub-counties of Rubaya and Bubale were selected because of their involvement in NRM research activities by AHI

and AFRENA. However, for comparative purposes Kashambya and Ikumba were included to represent contrasting situations, based on "expert judgement" after a "scooping" exploratory study.

2.2. Institutional and policy framework

Decentralisation in Uganda is probably one of the most ambitious and far-reaching local government reform undertaken in sub-Saharan Africa. The decentralization process was initiated in 1986 when a commission of enquiry into the system of local government was instituted. The process culminated in the 1993 Local government statute. The statute was later revised in order to harmonise it with the 1995 Constitution and culminated in the 1997 Local Government Act (Agricultural Policy Secretariat, 2000). The local Government Act initiated an ambitious and far-reaching decentralisation program. Government functions were strengthened at lower administrative levels, with fiscal, legislative and administrative power, giving greater control to local councils at the district, sub-county and lower levels. These changes have brought some impressive results, creating a fundamentally different environment for an open and participatory policy and decision -making at the lower councils. The role of Central Government is primarily to provide policy guidelines and standards, and carry out monitoring and evaluation. The functions and services regarding land-use, management and administration are the responsibility of local government.

The Act further specifies functions and services that the District can devolve to sub-county and lower level councils for managing natural resources.

These include:

- providing agricultural ancillary services such as extension
- controlling soil erosion and protecting wetlands
- taking measures to prohibit, restrict, prevent and regulate or abate destruction of grass, forest or bush fire, including the requisition of able-bodied males to extinguish such fires and cut-fire breaks and generally protect the local environment
- providing measures to prevent and contain food shortages, including relief work, provision of seeds, and storage of food stuffs

All these services and functions provide an institutional and policy framework for sustainable natural resources management. There are however, some problems in the implementation of the decentralisation policy. The inadequacy of resources, inadequate trained personnel and human capital, revenue collection and use, accountability of funds, weak institutions, and misconception of policy are some of the most common problems (Kabale District, 2002).

The provision of local government elections guarantee widespread representation at the various councils and includes quotas by gender and special interest groups like people with disabilities (Table 1). For example at least one-third of the council members must be women.

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

Local Council Level	Composition	Functions
LC1: 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
LC2: Parish (composed of 3 - 10 villages)	- Depending on the number of villages - Elected from the village councils - At least 4 women	- Assist in maintaining law, order and security - Serves as communication channel with government services - Initiate, support and participate in self help projects - Monitor the administration of projects - Resolve problems and disputes
LC3: 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 governance - Enact byelaws - Approve sub-county budget - Levy, charge, and collect fees and taxes - Monitor performance of government employees - Formulate, approve and execute sub-county budgets - Resolve problems and disputes
LC4: County (composed of 3 - 5 sub-counties)	- 5 members - Chairpersons or vice-chairpersons from each sub-county	- Advise district officers and area Members of Parliament (MPs) - Resolve problems and disputes - Monitor delivery of services
LC5: 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 2001

2.3 Framework for participatory byelaw analysis

To help systematise participatory policy analysis process, the study adapted and modified the IISD sustainable development framework to analyse policies and practices (IISD 1997). The framework has eight steps:

- Identify policies (byelaws, micro and macro) and key stakeholders and determine whether they are enabling or hindering efforts to build sustainable livelihoods and NRM practices.
- Bring together all of the stakeholders and begin to analyse the issues. This step involves meetings with all the relevant categories of stakeholders to begin to analyse the policies and byelaws and related issues, adopt an appropriate scope and focus for the analysis.
- Prioritise policies and byelaws for analysis
- Analyse the effectiveness of these policies and byelaws in terms of their implementation and consequences to sustainable NRM and broader rural livelihoods.
- Assess the capacity for implementing policies and byelaws to identify potential problems
- Develop action plans to revise policies and to build capacity for policy formulation and implementation.
- Develop criteria and indicators by which progress will be assessed and measured
- Review and monitor the implementation of policies and byelaws on a regular basis

However, this paper reports the results so far obtained up to step six. The project is engaged in a participatory learning and action research to facilitate the implementation of the remaining steps.

2.4 Data Collection

The implementation of the study required a creative combination of alternative methods and sources of information ensuring the participation of local stakeholders. This triangulation involved combining and sequencing research methods, multiple sources of information and research teams to crosscheck and validate information collected.

The methodology was based on a combination of qualitative and quantitative methods, participatory and formal survey methods. These included individual interviews with key informants2, focus group discussions, case studies, resources mapping and diagramming (social, mobility, resources, etc), field observations, community workshops and stakeholder meetings. Two separate research teams, conducting parallel exercises, using same methods, collected data. The results were later on shared, compared and integrated.

The first team worked in some selected villages in two sub-counties, concentrating on key informant interviews, and crosschecking with individual interviews. The second team facilitated group interviews and conducted household interviews in all the 4 sub-counties. Prior to, during and after these "field studies", stakeholder workshops and task force meetings were conducted to identify and focus policy issues for the study (steps 1-4 of the framework). Periodic meetings, workshops and consultations were organized to assist local communities and local government councils to identify issues and policies that affect NRM, and to prioritise issues and byelaws for analysis. At the district level, a "Policy Task force" was formed with representatives of district and local councils, local governments, technical

[2] Key informants included Agricultural, Forest and Veterinary Officers; former administrators and district officials (Appendix 1)

services, research and development organisations as well as farmers' representatives. The Task Force met regularly to monitor and facilitate the process.

A search for secondary information on existing policies and literature on policy research, archival data and records on byelaws and policies were evaluated, compiled and synthesised.

The interviews were designed with reference to 1955 Kigezi District Council Constitutional Regulation and using samples of the 1989 revised agricultural byelaws, obtained from the Kabale District Agriculture office. A total of 63 respondents were interviewed for this study. Oral history techniques were used in different ways to trace the actual sequences and changes of byelaws formulation and implementation processes.

At the community level, group interviews and group meetings were organised in most communities to discuss and identify existing byelaws - both formal and informal - and other rules and regulations in relation to the use and management of natural resources. These group discussions combined several participatory techniques to facilitate discussion, learn and share knowledge, experiences and opinions. The group discussions helped to shape a semi-structured questionnaire, which was administered to representative households and individuals using stratified sampling techniques to ensure that different categories of people were included in the study. Significant efforts were devoted to ensure the representation of women and other disadvantaged categories of the rural poor. A total of 72 households were thus selected to allow quantitative analysis.

The individual farmers interviewed included 21 females (33%) and 42 males (67%), with various levels of education and secondary occupation. Fifty-four (87%) of respondents were members of community groups especially the village ambulance groups, credit groups, and farmers' groups. Almost half of the respondents (49.2%) had been members of village administration and included sub-county chiefs, parish chiefs, and local councillors and/or had played other roles such as activity group chairmen or committee members.

3 A historical account of byelaws in the Kigezi highlands

The evolution of legislation seeking to regulate management and use of natural resources in Uganda can be described in three phases: the Pre-independence; post independence, up to 1986 and the post 1986 recovery phase under the National Resistance Movement (NRM) government.

3.1 Byelaws in the pre-Independence era

The history of byelaws making can be traced to the colonial administration but the year is not clear. The colonial "Africa orders in Council-1889" gave enabling powers and authority to the Governor and the Legislative council (Legco) to make subsidiary laws for good governance in Uganda. From 1902 to Uganda's political independence in 1962 there were Ordinances made by the Legco and enacted by the governor (Kamugisha, 1993). Before the Second World War there used to be administrative orders from the colonial governors and provincial commissioners, for example after the 1924 rinderpest epidemic and 1930 famine (Rutanga, *pers. com*). Bisamunyu (*pers com*) recalls that district councils, which were launched in 1946, originated most byelaws. However, the Kigezi District Plan (1952) and District administration (District councils) ordinance (1955) were more specific on the formulation of byelaws. It was revealed during interviews that a certain Mr. Purseglove,

the agricultural officer at time was in charge of enforcing the byelaws under Governor Cohen.

Byelaws were instituted in the 1950s to supplement the existing national legislation on soil and water conservation (Fleay, 1956). The colonial administration considered soil erosion a serious problem with potential to cause rapid reduction in agricultural productivity (Stockdale, 1937) thus implemented a rigorous soil and water conservation policy. It included such measures as incorporation of appropriate conservation practices into the farming system, soil and water conservation awareness campaigns and conservation of vegetation cover, and regulating bush burning and grazing. The 1952 Kigezi district plan had highlights of the existing agricultural plan that had been popularly referred to as 'Pulani'. This was a statement of district policy. It gave detailed regulations on cultivation of steep slopes through continuous contour stripping and with bunds of grass or trash of minimum 3 Ft. and provided for the maintenance of such grass. For example, it emphasised "All cultivation shall be on continuous contour strips with a maximum width of 16 yards, reduced to 12 yards on steeper slopes." It also talked of a fallow period for cultivated fields and how such fields would be protected from bush fires. Burning was not allowed without permission from the sub-county chief and unless there was adequate control to prevent fire causing damage to trees and soil erosion.

The 'pulani' provided for soil erosion control with regulation against gullies on boundaries of cultivated plots and paths used by people and cattle. Provisions for soil fertility improvement included mulching and pruning of perennial crops, such as bananas. Cultivators were required to make use of compost and animal manure. The 'pulani' mentions that annual sub-county soil conservation competitions had started earlier in 1946 and had achieved considerable success. The performance in soil conservation competitions would be judged according to regulations in soil conservation and maintenance of fertility. The winner would be rewarded.

There was an Administrative Order with regard to the maintenance of food reserves, which was about to be replaced by a byelaw of the district council. This was after communal food reserves at sub-county headquarters had been discontinued. It was then made obligatory for every household by administrative order to store at least 50 lbs (110 Kg) of either millet or peas. Records of the stored amount were maintained and regularly monitored by a chief.

Section 32 of District plan (1952) talks about collaboration with other stakeholders in agriculture. During the period 1920-1956, the agricultural extension system in Uganda was largely regulatory; chiefs were actively supplementing the efforts of field extension officers. The local chiefs were given three months training in simple agricultural practices and this probably explains the rapid development of export crops during that period (NARO, 2001). The missionaries were involved in agricultural training and owned most training institutions. School garden competitions were being held annually to reward good farming practices. Section 41 mentions the encouragement of farmers to plant trees, selection and protection of village forests by *miruka* (parish) councils. This policy was supported by the existing local government forest orders.

The District Administration (District Councils) Ordinance (1955) Part 7; Section 36, allowed the formulation, alteration or revoking of byelaws in respect to the following:

- the control of the method of husbandry to be followed in respect of any agricultural land;

- the taking of such measures as may be necessary for the preservation of harvested crops;
- the prevention and control of soil erosion, requiring occupiers of agricultural land to maintain and improve its productivity and to preserve soil fertility;
- the seizing and impounding of stray animals, selling and destruction of such animals including powers to provide for the payment of compensation for damage done by such animals;
- the prohibition, restriction or regulation of the keeping or grazing of livestock;
- the regulation or control of the movement and storage of agricultural or animal produce including livestock;
- the enforcement of measures for the prevention, control or relief of famine;
- the control and protection of wells, springs, dams and other water supplies;
- the prohibition of any act or thing which may cause damage to any public road;
- the prohibition, restriction, prevention or regulation or abatement of grass, forest or bush fires;
- requiring any able bodied male persons to extinguish grass, bush or forest fires and the cutting of firebreaks and
- any other purpose which the governor or council would prescribe.

The Kigezi District Council Constitutional Regulation (1955) effected the requirements given in the District Councils' Ordinance (1955) and made byelaws according to Part 20 paragraph 1. Section 37 of Part 7 of the District Administration (District Councils) Ordinance (1955) provided for the penalties for breach of byelaws. Any breach of any byelaw would attract a penalty or a fine (not exceeding five hundred shillings) or imprisonment of not more than six months or both such a fine and such imprisonment subject to the foregoing limitations. There were different fines and terms of imprisonment for successive or continuous breaches of any byelaws.

The 1958 Soil Conservation Ordinance (on non-African land) was in line with District Councils' Ordinance (1955) and prescribed cultivated plot measurement prescriptions and penalties depending on first offence, fine, prison term and subsequent ones respectively. It gave powers to the Governor to establish a soil conservation committee, which included his two nominees. Kamugisha (1993) observed generally that the laws were good, progressive, flexible, contained adequate details to render them feasible and bore harsh penalties that were deterrents. It is important to note that they gave much power to local chiefs and did not cater for African land.

Any byelaw would provide that in addition to any penalty, any expense incurred by the council in consequence of any breach of such byelaw or in the execution of any work directed by any such byelaw to be executed by any person and not executed by him shall be paid by the person committing such breach or failing to execute such work and may be executed summarily as a civil debt.

Section 38 of Part 7, paragraph 2 allowed any byelaws to confer upon a council, its officers, chiefs and employees, such powers of inspection, inquiry and execution of works as would be reasonably necessary for the proper carrying out or enforcement thereof. This provision gave enforcement powers to local chiefs who in most cases were uneducated and lacked the technical backing therefore were likely to act harshly and to no surprise created a harsh administration that bred animosity and the byelaws were abandoned when the political administration changed with time.

3.2 Byelaws in the post independence era (1962-1986)

When Uganda got political independence in 1962, most basic aspects of the policies and laws governing natural resources remained virtually intact apart from changes in words. There was failure to develop basic policies and 'home grown' laws to govern the use of natural resources, and in terms of agricultural crops, emphasis was on cash crops and more so on processing, marketing and quality control irrespective of any land-use implications (Kamugisha, 1993). From 1962 up to around 1972 there were some effort to handle agricultural extension professionally through farmers groups and few nucleus farmers from whom others were expected to copy (Mubiru and Ojacor, 2002). The idea of nucleus farmers tended to support a capitalist approach to agricultural development leaving out the majority peasants. The period between 1971-1986 was characterised by changes in political leadership and mismanagement in government structures. The economic war of the 1970s was a struggle for survival affecting most structures. Policies were issued as decrees and orders from government down to farmers through chiefs. However, there was demoralisation among government employees and policy administrators who were supposed to enforce the byelaws.

3.3 Byelaws in the post-1986 recovery phase

The post-1986 phase falls under the National Resistance Movement leadership. Policy changes in natural resources management started with the creation of Ministry of Environment protection, but which was later restructured to form the bigger Ministry of Natural Resources. This phase has initiated various policies and witnessed several policy changes in agriculture and natural resource management. The agricultural sector development objectives are to stimulate growth that can meet the country's food requirement, generate foreign exchange and improve the living standards of the rural poor. Government also intends to regain its market shares in traditional export crops such as coffee, tea and cotton and diversify into new export crops (NARO, 2002). The Plan for Modernisation of Agriculture (PMA) envisages a shift from subsistence to commercial agriculture, from low to high yielding technologies and sustainable utilisation of soils and other natural resources. A National Soils Policy for Uganda is being prepared in order to streamline soil management methods and to improve and maintain soil quality and productivity on a sustainable basis (NEMA, 2001).

3.3.1. *The National Environment Management Policy*

The overall goal of the National Environment policy (1995) is to promote sustainable social and economic development that enhances or maintains environmental quality and resource productivity on long-term basis. The policy emphasises meeting the needs of present generation without compromising the ability of future generations to meet theirs (NARO, 2001). Further, the policy seeks to meet the following objectives:

- To enhance the health and quality of life of all people in Uganda and promote long term sustainable socio-economic development through sound environmental and natural resource management and use
- To integrate environmental concerns in all development policies and activities at national, district and local levels with full participation of the people
- To conserve, preserve and restore ecosystems and maintain ecological processes and life support systems
- To raise public awareness and ensure individual and community participation in activities that improve the environment

The National Environmental Management Policy (1995) was aimed at achieving sustainable social and economic development that maintains or enhances environmental quality and resource-productivity on long-term basis; and that meets the need of the present generations without compromising the ability of future generations to meet theirs (NEMA, 2001). The policy also set the agenda for decentralised environmental governance in Uganda allowing the formulation of district environment management policies that are specifically focused on local concerns.
The National policy for the conservation and management of wetland resources (1995) is aimed at the following:

- Establishing the principles by which wetland resources can be optimally used now and in the future
- Ending practices which reduce wetlands productivity
- Maintaining biological diversity of natural or semi-natural wetlands
- Maintaining wetlands functions and values
- Integrating wetlands concerns into the planning and decision making of other sectors

The Constitution of Uganda (1995), National Environment Statute (1995) and the Local Government Act (1997) express the right of the public to participate in environmental management. This guarantees a process of consultation at district, local councils and communities before any plan or policy can be adopted by cabinet. In the context of decentralised environmental management, the district environment committee is mandated to ensure free and open participation of the community in its deliberations and in the formulation of byelaws (NEMA, 2001).

There have been several revisions in environment policies and even today (2002) the Kabale district council is yet to review the existing byelaws in accordance with section 39 of the Local Government Act (1997). The most recent regulations are presented in the Statutory Instruments Supplement No 1 of the mountainous and hilly area management regulations (2000) and are consistent with Kigezi district plan (1952) and the National Environment Statute (1995).

The mountainous and hilly area management regulations (2000) give guidelines on cultivation of slopes, with emphasis on soil erosion control and gives responsibility to lower local government environment committees. The regulations are based on the principle that every landowner while utilising land shall observe the following principles:

- observe the carrying capacity of the land
- carry out soil conservation measures
- carry out measures for protection of water catchments
- use the best available technologies to minimise significant risks to ecological and landscape aspects, and
- maintain such vegetation cover as may be determined by an agricultural extension officer or local environment committee.

Landowners in hilly and mountainous areas have a duty to reduce runoff through use of grass cover, mulching and bund maintenance on medium and steep slopes, and practising Agroforestry and not burning grass on steep slopes. District environment committees may regulate land use by restricting and controlling activities inconsistent with good land husbandry practices. In addition the committees can make guidelines for the management of areas prone to land slides, floods, drought, falling rocks, fires and damage by wind. Therefore the Kabale district environment committee should make it a matter of urgency to fulfil their statutory requirement of formulating byelaws that can regulate the use of natural

resources in their area. This is important because the regulations in the present form are very generalised and require expert interpretation in order for the local person to appreciate and follow.

The national policy on agricultural sector is aimed at stimulating growth to meet the country's food requirement, generate foreign exchange and improve living standards of the rural poor (NARO, 2001). Furthermore, the government of Uganda has set modernisation of agriculture as a medium plan within her macro-economic development objectives. The objectives of the Plan for Modernisation of Agriculture (PMA) include:

- To produce sufficient food, ensure food security and adequate nutritional balance
- To increase and diversify the production of agricultural export commodities to meet the country's balance of payment requirements
- To produce adequate agricultural raw materials for developing domestic agro-based industries
- To create sufficient employment opportunities in agricultural sector and thereby improve socio-economic welfare of rural people and alleviate rural poverty

The objectives of the PMA must therefore be consistent with sustainable natural resource management and should not undermine the environment policy.

The guiding principles to operationalise the PMA include participatory involvement of stakeholders, focusing on poverty and gender mainstreaming, environmental impact assessment and strengthening decentralisation (NARO, 2001). The following initiatives have been instituted to enhance PMA:

- Government has developed a land sector strategic plan as a framework for improved management and use of land resources in Uganda. Land tribunals and district land boards have been created for increasing security of land tenure as an integral component of the PMA.
- Agricultural research and technology development is being co-ordinated by NARO and the National Agricultural Advisory Services (NAADS) Programme is being implemented in some districts.
- NEMA supports district environmental action plans and sectoral guidelines on environmental impact assessment
- Management of wetlands was decentralised thus allowing action planning at district and community levels, which then would build into a national inventory on wetlands

3.3.2 *The Local Government Act*

Under decentralisation, local governments are involved in reviewing existing byelaws and formulating new ones, with the assistance of relevant institutions such as the ministry of agriculture and the ministry of justice. The Local Government Act and the National Environment Statute give authority to the districts to enact ordinances and to make byelaws related to environmental management (Agricultural Policy Secretariat 2000). The making of such byelaws is supposed to be participatory and bottom-up. Apart from some byelaws that are seen as outdated, there is a serious problem of enforcement of byelaws.

The weak enforcement of byelaws is associated with a number of problems:

- The elected local leaders are reluctant to oversee the enforcement of byelaws for fear of not being re-elected;
- There is confusion of roles and responsibilities, and competition between elected councillors and the administrators
- Limited awareness about existing byelaws

- Limited sensitization about the benefits from enforcement of byelaws
- Some byelaws are considered as oppressive and inappropriate

4 BYELAW FORMULATION PROCESS

4.1. Formulation of byelaws

4.1.1 *Pre-independence period*

The British colonial administration issued byelaws to address increased levels of soil erosion and land degradation caused by cultivation and livestock rearing. The byelaws were implemented by local chiefs and government officials who imposed stiff penalties on farmers who failed to comply (Walaga *et al.*, 2000). Central government and legislature have historically dominated the process of policy formulation in Uganda while the beneficiaries were only involved during implementation (NEMA, 2001).

The British colonial authority ensured strict supervision and widespread implementation of the soil and water conservation policy as it was considered important for production of raw materials for British industries and sustaining food production. Researchers consider the soil and water conservation policy to have been a good one but lacked deliberate attempt to explain the importance to the population but instead concentrated on enforcing compliance. Kamugisha (1993) observed that the African farmer was assumed to be unaware of the value of soil conservation and could only be listed to orders and penalties, which were oppressive. So when there was less or no enforcement, the soil conservation policy was abandoned. Farmers never understood how it came and its intentions were misrepresented to favour the colonial administration.

The history of soil and water conservation policy highlights several issues relating to the policy formulation process. Having identified the soil erosion problem, the then administrators proceeded to formulate policy to combat it without involving farmers nor telling them why it was important to adopt the measures. No regulatory policy can last long unless stakeholders are involved in developing it, acknowledge its legitimacy and support its enforcement. The high handiness led to the policy being abandoned after independence because then there was no more coercion (Egulu and Ebanyat, 2000).

Section 39 of the District administration (District Council) Ordinance (1955) provided that byelaws would be made under the common seal of council and could not have effect until they were approved by the Provincial Commissioner, at the time Uganda had administrative provinces. The Provincial Commissioner could approve or refuse to approve any byelaw submitted and could, upon the date of approval, fix the date on which the byelaw would come into operation. Byelaws would be published in the gazette and in such other manner as Provincial Commissioner could direct.

The Provincial Commissioner would at any time having given to council a reasonable notice and having considered the representations of the council thereon, make or amend any byelaw, which such council was empowered by the 1955 District Councils Ordinance to make or revoke any byelaw made by such council or by him.

During the colonial period, wetlands were designated as reserves and placed under central government. Political changes after independence led to loss of a sense of attachment for wetlands and people started encroaching on them. At present it is difficult to understand the tenure and property arrangements over the wetlands (MISR, 1998; NEMA, 2001).

Government unwritten policy on wetlands since 1950s and before 1995 encouraged uncontrolled swamp drainage for pastures and crops. Indeed minute 39/53 of Kigezi District Council supported and recommended the draining of swamps after appreciating the positive contributions. In practice farmers were not provided with appropriate technical assistance to ensure the swamps were drained in a controlled manner. It is alleged that uncontrolled swamp management has led to reduction of soil acidity, lowered water levels and contributed to the higher average temperatures in Kabale district (Kamugisha, 1993).

In Uganda, the management of natural resources (soil, water and vegetation) was done on the basis of numerous laws and regulations often without a gazetted policy. The laws could be so scattered that their implementation resulted in pitched conflicts between government departments, the similarity of basic principles, interests and goals not withstanding, which in turn undermined their effectiveness on the ground (Kamugisha, 1993 and Barrow, *et al.*, 2000).

The model district council byelaws (1956) from Ministry of Natural resources were intended to provide for improved agriculture and prevent famine. They were guidelines to help district councils draft their own localised and adapted byelaws. District councils were urged to institute regulations that would prevent such practices that could be detrimental to society. Agricultural byelaws could not teach farming but could be effective in achieving the general application of agricultural practices. The circular advised district councils to draft suitable byelaws as suited to the local conditions and to aim at self-sufficiency in foodstuffs. The circular noted that it was desirable for districts to consider famine, food planting and storage. It further noted that agricultural knowledge was not static and that councils ought to be led to appreciate that there would always be new advice available from research and experiments thus calling on them to be ready for modifications as would be necessary.

4.1.2 *Post-independence to advent of the NRM government*

Strict enforcement of byelaws started weakening after independence and almost collapsed with successive regimes (Egulu and Ebanyat, 2000).

The constitutional coverage of environmental issues in Uganda grossly ignored the interdependence of ecological systems. Environmental protection relied on sectoral laws enacted during the colonial days that lacked strong legal basis. Subsequent revisions retained the institutional fragmentation and friction with environmental management. The rise of the military junta (1971-1979) hastened institutional breakdown thus worsening the unreliable environmental governance with political and technical governance in different sectors. NARO (2001) refers to this period as non-directional. There was poor leadership and deterioration of the economy and a drain on professional and technical manpower. There was no funding and logistical support to agricultural extension and worse still there was little research whose information could not be processed. Institutions responsible for environmental management became helpless observers or participated as the environment got abused.

4.1.3 *Under decentralisation*

The National Resistance Movement government has changed the top-down approach to allow beneficiaries contribute to the process, by initiating ideas through decentralised governance, though this may not yet be fully realised (Egulu and Ebanyat, 2000). The 1995 Constitution consolidates participatory democracy as envisaged under the local council system. Decentralisation was adopted as the main form of local government based on

principles of devolution and democratic governance. The NEMA Statute (1995) establishes district environment committees supposed to co-ordinate the work of district local councils on environment as well as ensuring that environmental concerns are integrated in district planning (Okoth-Ogendo and Tumushabe, 1999).

The Local Governments Act (1997) gives legislative powers to district councils to make laws consistent with the national constitution. Such laws should be passed into ordinances by district councils, certified by the Attorney General for consistency and signed by the district chairperson. Section 40-2d of the same Act allows village councils to make or initiate byelaws that can be submitted to higher level councils for verification of consistency with other laws. Village councils can also identify offences and penalties.
There are few available records on revisions of the byelaws formulated in accordance with the District Councils' Ordinance No.1 of 1955 but there were revisions during 1989. The latest draft was in 2000 but the process of revising the draft regulations is not yet finalised. It was noted that such revisions were small and simple addition/exclusion of a few words to the existing regulations and updating the penalties thereof.

It has been argued that the livelihood of communities using natural resources is being threatened by the very policies of governments meant to bring development. First, most African countries are still largely dictated by norms if not policies that have a colonial legacy. Colonial governments were powerful and the use of that power without fully taking into consideration the interests of people has persisted among African governments. It has also been argued that most of the initial laws in Africa were not always drafted in the interests of the communities and for that matter they were drafted with little understanding of the environment, the natural resources and the communities, which lived near these resources (Mascarenhas, 2001).

The present process of passing local bills into ordinances, passing byelaws by the district, urban, sub-county, municipal division or village councils into byelaws and regulations according to Section 39 - 44 of Local Government Act (1997) goes through steps detailed in Box 1 below.

Under decentralised governance, a problem can be identified by communities and presented to their local councils for relaying to higher councils, for developing into a draft bill before it can be introduced into the council. It is possible that delays in reviewing byelaws are due to the long technical process.

Box 1: Steps in formulating byelaws in local government structure

- Any community can initiate the process of formulating a byelaw or their councillor can draft a bill seeking to formulate a byelaw
- The draft bill is introduced to Council by one councillor
- Bill is then published and distributed to all councillors by clerk to council
- Bill can then be debated and approved within 14 days after publication (if there is no emergency)
- For municipal/division council, sub-county council or village council, if passed, the bill is forwarded to the relevant higher council for certification of consistency with constitution, ordinance and other laws after which it is returned
- If such a Bill is passed, it is forwarded through the line Minister to attorney general for certification
- Attorney General certifies for consistency with parliamentary laws and constitution after which it is returned.
- The certified bill is then signed by District Chairperson to become ordinance for district bill or byelaw for lower council bills.
- The ordinance or byelaw is then published in the gazette, in local media or any conspicuous place

4.2 Community participation in byelaw formulation and implementation

A crucial prerequisite for successful community action hinges on a common understanding that an important problem exists and that communities are willing to invest resources to tackle it. In order to fully gain insight of how a local community can identify a problem and initiate collective action, a case study of Kyantobi Community (Butoboore parish, Bubaale sub-county) is presented in Box 2.

Community action is possible because local authorities can make suitable arrangements, and village and/or sub-county councils can originate and implement byelaws. Furthermore, local governments can help identify true demands of the communities and organise discussions on possible solutions. Higher levels of local government assist lower levels to initiate contacts with relevant organisations that may help in implementing projects, thus facilitating a bottom-up planning of projects (Raussen *et al.*, 2001). Communities can collaborate with development institutions to develop innovations for action. Such innovations can be available locally or can be introduced to the farmers but the provision of involving farmers keeps their enthusiasm high.

Raussen *et al*., (2001) mentiones that working through established community groups (like local councils) allows a development organisation to concentrate on what it is best at: providing training and the few necessary materials. It also allows the local council to concentrate on its strengths: planning, mobilising the community, facilitating joint efforts and resolving conflicts. This saves any development organisation from investing in such services. Democratically elected village institutions are respected and well placed to fulfil such functions more cost-effectively.

It is essential for research and development organisations to participate in local government planning processes, because that is when they can be perceived as true partners. Together they can design sustainable development plans. Structured collaboration was found to be effective and trusted thus influencing the perception of *Cupertino* on both sides (Raussen *et al*., 2001).

Box 2. A case of Agroforestry farmers group in Kyantobi Village
Bubaale sub-county

During the El-Nino rains of 1997-98, farmers of Kyantobi village, experienced problems of erosion from the fields on the steep slopes, flooding and sedimentation on the valley bottom soils. The erosion led to massive loss of fertile topsoil on the slopes; destruction of crops and deposits of infertile soil and at times large stones.

Representatives from the village contacted the Agroforestry Research and Development Project jointly implemented by International Centre for Research in Agroforestry (ICRAF) and the Forestry Resources Research Institute (FORRI). When ICRAF-FORRI dissemination staff visited the watershed, it became obvious to them and farmers alike that any effective measures to help control the problems of runoff would require community action throughout the watershed. Particularly since farmers had fragmented fields, and erosion control in a single field on a given slope would not have any significant effect. The project offered to help with training and materials for soil conservation and local leaders were to organise for community action. The villagers accepted this arrangement. There already existed community arrangements for grazing regulations to protect crops and planted trees and to prevent fires. Community action was possible because community leaders were able to mobilise their people against a common problem and were willing to solve it.

Local level initiatives are necessary for survival. Environmental degradation by Africa's rural people is not an act of ignorance and greed, but more of desperation and a need to survive. Local people have interest in sustainability of their development initiatives that should be truly strategic in intent and can lead to sustainable development action. Thus there should

be complementarity between efforts of government extension and those of the rural population (Taylor and Mackenzie, 1992).

Hardi and Zdan, (1997) identified some principles in the practise of assessing sustainable development and summarised them to include the identification of policy, communities and creating an effective dialogue between institutions and the community. Given the broad range of effects that a policy may have, an inclusive process may necessitate representatives from various stakeholders. It is important to use participatory methods in identifying key issues and policies that affect the livelihoods of the different stakeholders. All procedures and activities must be inclusive, consultative, participatory and transparent including the creation of sustainable development principles and criteria.

Real impact of lasting importance can be achieved through promoting farmer innovations to regular extension practices. Farmer-participation in solving their problems should be institutionalised and based on participatory approaches (Critchley, 1999). In training, farmers can impart knowledge and skills to other farmers and act as agents of change in their own communities. They can facilitate in seminars and exchange visits and share information. Farmers are more inclined to believe what they have seen or heard from fellow farmers than from researcher or extension agents. Activity groups within communities should be strengthened (or formed where they do not exist) and supported to establish contacts with other community-based organisations. Development agents can then strengthen the knowledge base and give additional information (ICRAF, 2000).

Active participation should be fostered where there is decentralised governance because rural people need to be actively involved in decisions affecting their own livelihoods. Participatory rural appraisal methods are very useful in consulting with and involving rural people, despite the shortcomings (Barrow, *et al.*, 2000).

In this study over 30% of respondents were not sure of the procedure through which the byelaws were formulated, 46% thought it was top down delivery of the laws. The respondents mentioned that citizens were not consulted on the byelaws but they came as government instructions or orders from district commissioners, supposed to be obeyed (Rutanga, *pers com*) which is consistent with observations made by Egulu and Ebanyat, (2000). However 14% of respondents felt that the then local chiefs and councillors (locally known as *Abanyansi/Abatiikiri*) were involved in the process of formulating byelaws. Musabiiro (*pers com*) affirms that after 1980, the process of formulating byelaws involved consultations between technical officers who prepare drafts that are debated by district councils on behalf of their constituents.

4.3 Reasons for formulating byelaws

The respondents gave possible reasons for the formulation of byelaws as presented in Table 2.

Table 2: Reasons for formulation of byelaws (n=63)

Reason	% Respondents
Guide agricultural practices	47.6
Promote social development	39.7
Prompted by community practices	36.5
Reason not given	28.6

5 UNPACKING THE BYELAWS

This section aims at describing the various byelaws analysed in this study. These are of two types: formal or written byelaws, and informal byelaws which are not written but serve as community rules to regulate the use and management of natural resources.

5.1 Formal byelaws

The formal byelaws are presented with the specific regulations, and the fines or sanctions in case of non-compliance.

5.1.1 *The soil and water conservation byelaw*

The soil and water conservation byelaw as by 1989 had the following regulations:

- Any person who clears land for cultivation on a slope shall
  - construct bunds /barriers across the slope parallel to the contour
  - plant appropriate grasses or Agroforestry trees on the bunds
  - construct barriers as determined by technical agricultural extension officer
  - not plant annual crops on a steep slope, but plant trees

- Planting of crops shall be done along the contour
- Any person demarcating two plots shall not use farrows nor gulleys but mark stones, live hedges or shrubs
- All paths, cattle tracks and access roads shall be protected against erosion by runoff channels and soak away pits, and
- Paths or tracks may be closed by community leaders to prevent erosion and alternative routes provided

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 Uganda shillings (UShs.) 3, 000/= or imprisonment for 15 days or both and shall on any subsequent conviction be liable to a fine not exceeding UShs. 5,000/= or to imprisonment as may be effective.

5.1.2 *The food security byelaw*

The regulations under this byelaw included the following:

All households shall have or plan to save enough food by

- having food stores/granaries kept in water proof conditions and guarded against rats
- not selling all the food harvests without precautions to ensure enough reserves
- having at least ¼ acre of sweet potatoes, 50 Kg of beans/ peas and 100 Kg of sorghum or maize for an average family of 7 people
- No person shall be allowed to gather in bars and trading centres with intent to consume alcoholic drinks before 2 PM and after 10 PM
- No adult of sound mind and able bodied shall behave as idle, disorderly and unproductive on regular basis

Any person who contravenes the provisions of this byelaw shall be guilty of an offence and shall on conviction be liable to a fine not exceeding UShs. 500/= or imprisonment for a period of 60 days or to such a fine and imprisonment and will be required to purchase grain and other foods to refill his granaries.

5.1.3 *The tree planting byelaw*

Regulations under this law included:
Any person who cuts a live tree shall

- plant two trees
- ensure the planted ones are protected and well looked after
- 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
- Appropriate tree species shall be planted not less than 3 Meters on both sides of feeder roads
- 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 3 Meters away on any other boundary
- The local committees with help of chiefs will make sure all road reserves are planted with rows of trees on both sides

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 UShs. 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 (KDAD, 1989).

5.1.4 *The bush burning byelaw*

Regulations under this law included:

- No person shall set fire to a bush or part of it without authorisation (to prevent soil erosion and damage to trees/ fences).
- In the event of fire outbreak, all able-bodied members of the community will participate in extinguishing it.

Any person who carries out burning of grass not authorised in accordance with these byelaws or fails to take possible steps to prevent burning of grass commits an offence and on conviction shall be liable to a fine not exceeding UShs. 1,000/= or imprisonment not exceeding three months or to both such fine and imprisonment. For the second or subsequent offence such person shall be liable to a fine not exceeding UShs. 3,000/= or to imprisonment not exceeding six months or to both such fine and imprisonment (KDAD, 1989).

5.1.5 *Byelaw on controlled grazing*

- Any farmer who owns livestock shall:
  - ensure that livestock are only grazed when herded
  - are grazed in own piece of land or where the owner of the land has consented
  - ensure the animals do not take water from the same point used by people for domestic use
  - watering points should be demarcated
- Pigs are not allowed to graze where other animals graze
- All animals shall be vaccinated against immunisable diseases as per programme drawn by district veterinary staff
- All cattle owners shall ensure consistent control of tick infestation by regular use of acaricides
- In cases of disease outbreak there shall be no movement of livestock and livestock products

- No livestock shall be allowed to graze in crops, people whose crops are destroyed by such livestock shall be appropriately compensated.

Any person who contravenes any of the provisions of this byelaw shall be guilty of an offence and on first conviction shall be liable a fine not exceeding fifteen hundred Uganda shillings (1500/=) or to imprisonment for a period not exceeding 21 days. On second and subsequent convictions shall be liable to a fine not exceeding UShs. 3000/= or to imprisonment not exceeding 42 days or to both such fine and imprisonment (KDAD, 1989).

5.1.6 *The swamp reclamation byelaw*

The details of the byelaw as of 1989 were as follows:

- There shall be a restriction on what crops can be grown and advice from the department of agriculture shall be sought by land holders at the beginning of each cropping season
- Plot boundaries shall be demarcated with posts or trees but not enclosed hedges that may interfere with smooth water flow and drainage operations
- A 3 ft. and a 2 ft. strip of land planted with grass must be left on each side of the main and subsidiary channels respectively to facilitate access and drainage operations
- The depth of the subsidiary channels shall not exceed 50 cm or go below the peat layer
- The land holder shall ensure that water channels bordering on or passing through the land allocated to him/her are kept clear of earth, rubbish and other obstruction in order to prevent flooding

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 UShs. 3000/= or imprisonment for 15 days or both and shall on any subsequent conviction be liable to a fine not exceeding UShs. 5000/= or to imprisonment not exceeding 30 days or both such a fine and imprisonment.

5.2 Informal Byelaws

Examples of informal rules and regulations developed by local communities and used in natural resource management include:

5.2.1 *Rweene 2-Wings Agroforestry Group*

Rweene village is found in Buhara sub-county, Ndorwa county 5 km off Kabale-Katuna road. Mrs. Peace Turyatemba is the group's Chairperson and in the presence of two other members of the group provided the account of the group below.

Rweene 2-Wings Agroforestry Group has a membership of 20 farmers. This is a village group where membership is acquired after paying UShs. 5000/=.

The objective of the group is to increase soil productivity by controlling soil erosion and restoring soil fertility. Their activities include tree planting for fruit and firewood production, manure composting, cultivation by terracing (kati-ka-nkingo) and digging horizontal trenches for controlling runoff water. It was noted that the group never had documented regulations, rather the regulations were known to the members as requirements for retaining membership (Turyatemba, *pers com*). The regulations were translated from the activities and objectives of the group and they included the following:

- Each member is expected to own a home garden for household food production and security.
- Each member is expected to use compost manure and cultivate along terraces.
- Cultivation must be done on double-dug beds i.e. the garden plot is ploughed up to the hard sub soil, one basin of compost manure is added and covered with fresh soil, another basin of compost manure is added and finally covered with fresh soil.
- Every member is expected to construct horizontal trenches for controlling soil loss and runoff from the gardens.
- Every member is expected to practice Agroforestry and own trees

The members enforced the regulations. They are subdivided into smaller groups of five with a leader. The group agrees on a programme for regular visits to share experiences and advice. This eases follow up and monitoring among the members and by extension workers. Poor-performing members are more frequently visited during which visits they are given advice and challenged to improve. The group had no punishments for poor performance. The members mentioned lack of agricultural inputs, pests and disease as their main problems.

It was reported (Turyatemba, *pers com*) that non-members had noted the achievements of the Rweene 2-Wings group in soil productivity and erosion control and had mobilised themselves into separate groups and were also working together.

5.2.2 *'MUGURI TURWANIISE OBWOORO' group of farmers*

Muguri parish is found in Rubaya sub-county, Ndorwa county. Mr. Geoffrey Habarwaasha is the chairperson of the group.

'Muguri Turwaniise Obwooro' is a farmers group formed on realising the dangers of soil loss, the related poor harvests and reduced income.

The objective of the group was to alleviate poverty among the members. The members are engaged in cultivation and poultry production for food production and income generation. Other activities include controlling soil erosion, coffee farming and tree planting.

The group started with 40 members in 2000 but had dropped to 25 by 2002, because inactive members voluntarily terminated their membership. The regulations to be followed by members were not documented (except as minutes of meetings) but known to the members as requirements for active participation and retaining membership.

They included the following:

- Construction of horizontal trenches on the upper and lower boundaries. The trenches must be 2 ft deep and 2 ft wide for effective control of runoff
- *Calliandra* trees must be planted 1 ft apart, in lines and regularly weeded to control pests
- Pyrethrum, beans and Irish potatoes must be planted in rows 2 ft., 20 cm and 1 ft. apart respectively

The regulations were enforced by members who constituted a monitoring committee of six members amongst themselves, to follow up on trenching and farmers' compliance. The group owns a demonstration garden where all members meet once a week to work and learn new ideas (interventions brought in by research institutions and extension workers) hands-

on. Participation is voluntary but there was strict enforcement on punctuality when working on the group garden.

The activities of members 'Muguri Turwaniise Obwooro' are affected by non-members who were reluctant to cooperate in constructing trenches for controlling soil erosion, which then required the intervention from local administration. At the request of members of 'Muguri Turwaniise Obwooro' Rubaya sub-county local council permitted the recognition of a regulation on use of trenches for controlling soil erosion. Consequently the people of Muguri parish are now bound by the regulation, and offenders can be administratively handled.

5.2.3 *Rushebeya-Kanyabaaha Wetland Management Committee*

Kitanga wetland is a swampy area in Kashambya sub-county, Rukiga county off Muhanga trading centre. Mr. Deezi Kamugyeragyere is the chairperson of the committee and provided the following information in an interview.

The management of Kitanga swamp dates back to 1994 when Kitanga Wetland Fish Farmers Association was started in order to protect the swamp and ensure sustainable fish farming around it. Later in 2000 the Rushebeya Kanyabaaha Wetland Management Committee was also formed. The Kitanga swamp crosses several parishes in Kashambya, Rwamucucu and Bukinda sub-counties in Rukiga county and is managed through community based organisations.
The management of Kitanga swamp is effected by use of uniform regulations and guidelines for sustainable harvesting of mudfish, grass-thatch, papyrus stems, medicinal herbs and water.

The regulations include the following:

- No draining and cultivation in the swamp (and this is recognised by the administration at sub-counties).
- No setting fire onto the swamp vegetation. The Local Councils are mandated to arrest any person who disobeys this regulation.
- No indiscriminate harvesting of the wetland resources. The Rushebeya Kanyabaaha Wetland Management Committee who formulated the regulation recommended only harvesting for domestic use or sale within the villages neighbouring the swamp.
- Fish harvesting from fishponds can only be done when all fish farmers are present or represented - the ponds are registered.

Fish farmers must meet every Thursday to maintain pond cleanliness. Absentees must pay fine of UShs. 1000/= the equivalent of a day's work. At the time of the interview, Kitanga Wetland Fish Farmers Association had 22 active members.

The regulations were generated by members of the associations and forwarded to sub-counties, the district council and the Wetlands Management Project of Uganda. Community members felt that government enforcement of regulations was less effective and not closer to them. The area local councils now enforce the wetland management regulations. Community-based organisations and members of the community are sensitised and can report any offenders.

It was mentioned (Kamugyeragyere, *pers com*) that there was active participation and collective will of members of the community (for example in formulating the regulations)

and the local councils were effective. It was also mentioned that lack of transport hindered the effective patrol of the entire swamp sometimes enabling offenders to go un-detected. As an example the swamp was set on fire during the August2002 dry season and no suspect was arrested.

5.2.4 *Nyamabaare Bwindi Beekeepers Association*

Nyamabaare is found in Ikumba sub-county, Rubanda county on the Kabale-Ruhija road. Mr. Silverio Zimbehire is the Treasurer to the association and gave this information in an interview.

The association was started in 1992 soon after the Bwindi forest reserve was gazetted as a national park. The association was formed to serve as a collective voice of beekeepers with the new protected area management. Under the multiple use concept, the local community was allowed to keep bees in Bwindi Impenetrable National Park. Regulations were formulated to provide guidelines for forest-based bee keeping and reduce conflict and illegal activity in the national park. Beekeepers were invited to meetings with park management where agreeable guidelines were adopted as regulations binding all beekeepers who owned hives in the national park.

The following (edited from the local language Rukiga) constituted regulations for keeping beehives in Bwindi Impenetrable National Park:

- Bee hives will be deposited only in selected ridges allowed by park management
- Any person who wants to do bee keeping in the park will be required to register with the bee keepers association recognised by park management
- Every member of the beekeepers association shall be issued with an authentic identity card from park management and the card will not be transferable
- Every beekeeper is required to have water while in the park and must ensure that the park is not set on fire in the process of harvesting honey
- It is the responsibility of the beekeepers to ensure their hives are well protected against fire and vermin like chimpanzees and certain bird species
- Permission to do bee keeping inside the park that has been granted by park management can be withdrawn from the local communities if they do any of the following illegal activities:
  - cutting down trees or converting them without permission
  - illegal hunting of wild animals
  - setting fire to the national park
  - gold and other mineral prospecting
  - cultivating in the national park
- Other people can accompany any registered beekeeper in possession of a valid identity card to assist him in his work, but such people should never enter the park unaccompanied

Only two ridges: Mukibungo to Mpuuro and Kamiira Hakihotora were demarcated for bee keeping activities. It was noted (Zimbehire *pers com*) that the regulations were effective because the community was compliant since they never wanted to lose their access to the park. There was regular monitoring by park rangers, the Institute of Tropical Forest Conservation ecological monitoring unit and the association members. However foot patrolling cannot eradicate illegal activities and sometimes the rangers cannot be easily contacted whenever there is an emergency (e.g. fire outbreak). Non-members of the

association for example in Mushanje parish had been forced to operate under the Nyamabaare group until they register their own group.

6.0 Knowledge, effectiveness and enforcement of byelaws

6.1 Farmers' knowledge and assessment of the effectiveness of byelaws

Documented formal byelaws were assessed by farmers for knowledge and effectiveness and the foregoing are the results.

6.1.1 *The soil and water conservation byelaw*

Details of regulations under this byelaw as by 1989 are given in Section 5.1.1 and Table 3 below presents results of farmers' knowledge and assessment of effectiveness of this byelaw.

Table 3: Knowledge and assessment of the effectiveness of soil and water conservation byelaw

Details of the regulation	Percentage response	
	Known and effective	Known and 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

Constructing bunds/barriers across a slope parallel to the contour was very popular. It was known and effective to over 70% respondents. Of these 62% were males and 38% females. It was known but not believed to be effective to only 19% of respondents who included 9 males and 3 females. Only 3% did not know and could not judge the effectiveness of the regulation. This was due to the strict enforcement at the time the regulation was established and the current awareness about the dangers of soil erosion. On two occasions, the research team was able to observe sites where bunds and barriers had been dismantled; the local chiefs claimed not to have seen before. Farmers mentioned that bunds were being dismantled to cultivate the lower fertile portions that have been under fallow for years and are thought to be more fertile than other portions on the upper part of the terrace. This suggests that bunds were being dismantled to address the problem of declining soil fertility and poor harvests and not disobeying the regulation per se, indicating that any intervention to improve soil productivity may restore compliance to the regulation.

About two thirds (63.5%) of the respondents admitted that planting appropriate grasses or Agroforestry trees on the bunds was known and effective whereas 27% knew it but said it was not effective. About 10% did not know the regulation. Generally the establishment of bunds and subsequent management were known to the people and popularly referred to as "Kati-kaa nkingo" literally meaning working for the bunds using a stick measured to the

length hoe-handle. The popular plant species in use were the elephant grass and *Calliandra sp.* that are being distributed by AFRENA-Kabale and AFRICARE, both non-governmental organisations.

For farmers in Kyantobi village Bubaale sub-county, bund management was very popular (85%) because it was being practised on a communal scale as a means of controlling soil erosion and floods. Technical assistance is being provided by AFRENA Agroforestry project. The situation in Kyantobi demonstrates the importance of communal participation in formulation of regulations and compliance to the regulation on planting appropriate grasses or Agroforestry trees on bunds.

The construction of barriers as determined by technical agricultural extension worker was known and effective to only 30% and known but not effective to over 50% respondents. About 16% did not know about the regulation. Of the 21 females who responded to this question, 15 said it was not effective. Most farmers (about 70%) have relied on their own knowledge and preferences in constructing soil barriers across gardens, a challenge to the extension officers. This was because in most cases government extension staff rarely visited farmers except where farmers had got advice from NARO, AFRENA and CIAT researchers. The people in Kyantobi have interacted with AFRENA staff especially on flood control and slope management. In Kyantobi parish, over 80% respondents knew and were planting appropriate grasses and trees on bunds because they had been trained by AFRENA. About 50% of the respondents in Rubaya said the regulation was not effective - few of them had practised it. Farmers lacked training in Agroforestry and multi-purpose trees /shrubs.

The regulation that requires the planting of trees and not annual crops on steep slopes was known and effective to about a third of the respondents including 12 males and six females. About a third (28.6%) of the respondents said the regulation against planting annual crops on steep slopes was effective. They mentioned that usually such slopes are not productive but the increasing land shortage prompts people to try any available land irrespective of slope. About 45% did not know about the regulation.

Planting of crops along contours was known and effective to about 35% and known but not effective to 49% respondents, who included 19 males and 12 females. About a third (31%) respondents said that the regulation is more technical than practical because it is never easy to follow and would take more time than farmers are willing to spend especially where a day's work is judged from the size of land planted with seed. More than 15% did not know about the regulation. Besides, the regulation was left to individual discretion in the absence of regular monitoring and administrative enforcement.

The regulation requiring that any person demarcating two plots shall not use furrow nor gullies but mark stones, live hedges or shrubs was known and effective to over 80% because this is a native practice known to almost every body. It was not effective to 20% of the people who responded to the question. People use *Euphorbia* spp. (*Oruyenje, Enkukuru), Dracaena* spp. *(Omugorora, Omugorogoro)* and any woody perennial that can be accepted by the community. Mark stones were not very popular because they would be expensive for most people in villages.

The regulation requiring all paths, cattle tracks and access roads shall to be protected against erosion was known and effective to less than 20% and not known nor effective to nearly half (49.2%) of all the respondents; 59% of the people who responded to this question. The regulation that all paths, cattle tracks and access roads shall be protected against erosion by

run -off channels and soak away pits was the least effective because it was not known to about 56% of the people who answered the question. Whereas respondents mentioned the presence of runoff channels, there were no soak away pits that would help water infiltration. In the present situation, it is not easy to divert village paths and provide an alternative route because there is no more public land and this is where collective decision-making would be crucial as was the case in Kyantobi village. Community leaders may not be in position to divert footpaths to any body's land without peoples' input. The regulation was effective before the 1980s when village cleaning (*Bulungi bwansi*) had strict enforcement and regulations equalled to orders which is no longer the case.

It is important to note that compliance to soil and water conservation byelaw was affected by poor soil fertility and consequent low productivity, which determine land-use priorities especially with limited available alternatives to restoring fertility. In such circumstances rational utilisation of natural resources is almost ignored by individual farmers because they struggle for immediate survival as pointed out by Taylor and Mackenzie, (1992).

The level of education was another important factor determining farmers' judgement of the effectiveness of byelaws. In all the regulations in soil and water conservation byelaw, majority of the respondents who had never got formal education said the regulations were known but not effective. The fact that the results were largely dependent on the distribution of respondents according to education levels could provide guidance on the quality of clientele that extension workers would expect to meet. In addition, the technical requirements and associated costs limited compliance to the regulations especially as farmers would opt for easy-to-understand-and-follow and cheap alternatives.

It was observed that political changes in Uganda greatly interfered with service delivery as extension workers were poorly paid thinly deployed and consequently less available to farmers, thus leaving farmers on their own who consequently abandoned the byelaws. These can be entry points for subsequent efforts in reactivating byelaws.

The influence of location of settlements and plots was tested. Settlements and location of cultivated plots were categorised to include valley and lower slope, mid-slope and hilltops. Cross tabulation of people who lived on hilltops in reference to regulations, and Results of a chi-square test of location of settlements and cultivated plots in reference to regulations are detailed in Appendix 2.

(i) Hilltop settlements:

The chi-square test showed a relationship between hilltop settlements and constructing bunds across the slope parallel to contours (x^2 = 37.588, df = 16, P value = 0.02). The majority of respondents (80%) said the regulation was known and effective. It was expected that farmers were aware of the dangers of soil erosion. On erecting barriers with technical staff the relationship can be attributed to the fact that the respondents in Bubaale sub-county affirmed to getting technical assistance from AFRENA. On not planting annual crops on steep slopes, the majority (60%) of respondents said the regulation was not being effected and this calls for more sensitisation (x^2 = 40.858, df = 24, P = 0.017). About 80% respondents said the demarcation of two plots using live hedges, mark stones or shrubs was known and being effected. In effect people were mostly using live hedges or shrubs (x^2 = 38.785, df = 16, P = 0.001). This placement can be utilised for promoting Agroforestry practices, taking into account the associated social factors. Planting appropriate tree species not less than 3m on both sides of feeder roads was largely not known and not being effected. There was relationship between settling on hilltop and planting trees on feeder

roads (x^2 = 27.684, df = 16, P = 0.034). Generally farmers settled and cultivating on hilltops were aware of soil and water conservation practices.

(ii) Mid-slope settlements

The soil and water conservation byelaw had regulations with strong relationship to settlements on mid-slope. Majority respondents (80%) affirmed to the construction of bunds parallel to the contour (x^2 = 34.043, df = 12, P = 0.001) and about 48% respondents knew the regulation on constructing barriers as determined by technical agricultural extension workers (x^2 = 36.739, df = 18, P = 0.006). The regulation on demarcating plots using live hedges and mark stones had a strong relationship with mid-slope settlements as almost all respondents knew it and said it was effective (x^2 = 34.870, df = 12, P = 0.0). The explanation for this relationship could be consistent with that given for hilltop settlements.

(iii) Valley and lower slope settlements

Settlements in valleys had strong relationship to constructing bunds across the slope parallel to the contour (x^2 = 30.940, df = 12, P = 0.002). On planting appropriate grasses or agroforestry trees on bunds the relationship was (x^2 = 25.842, df = 12, P = 0.011). In both cases majority respondents knew and said the regulations were effective. Again the regulation requiring the construction of barriers as determined by technical agricultural extension workers was known but not effective to about 48% respondents. The regulation pertaining to paths, cattle tracks and access roads was not known and not effective to about 55% respondents living in valleys (x^2 = 36.823, df = 18, P = 0.006). Again this suggests more sensitisation such unknown regulations.

6.1.2 The food security byelaw

Details of regulations under this byelaw are given in Section 5.1.2 and Table 4 below presents results of farmers' knowledge and assessment of effectiveness of this byelaw.

Table 4: Knowledge and assessment of the effectiveness of the food security byelaw

Detailed regulations in food security by-law	Percentage response (n=63)		
	Known and effective	**Known but not effective**	**Not known**
Households shall have food stores/ granaries kept in rat-free and waterproof condition	09.5	90.5	-
Households shall not sell all food harvests without precaution to ensure enough food reserves	60.3	36.5	03.2
Households shall have at least ¼ acre potatoes, 50 Kg beans or peas and 100 Kg of sorghum	31.7	41.3	27.0
No person shall gather in trading centres and bars to consume alcohol before 2pm and after 10pm	49.2	42.9	07.9
Adults of sound mind shall not behave as idle, disorderly and unproductive on regular basis	34.9	60.3	-

The regulation that requires all households to have or plan to save enough food by having food stores/granaries kept in water proof conditions and guarded against rats was known and effective to less than 10% whereas 90% knew but were not effecting it. This according

to the respondents was because soil productivity had gone down; crop failure due to disease and harsh weather changes were frequent such that most times there was not enough harvest to be stored as a food security measure. Furthermore, in that kind of scarcity and famine in the community, farmers found it risky to store food outside the main house (in a granary). The little that is available for storage can be kept in sacks inside houses. Waterproof conditions and protection against rats in houses depended on individual capability to manage the two problems, some respondents admitted having leaking roofs and presence of rats in their houses.

To ensure sufficient food reserves by not selling all the food harvests. This was known and effective to over 60% and known but not effective to 36%. Respondents agreed that in principle this would be everybody's wish, but they never realise it. In situations where the season's produce is also the only source of income for the entire family, the household head must sell part of the produce to meet domestic expenses like graduated tax, school dues and clothing. They added that it is up to the families to have a way of meeting their expenses and food needs and that it would be unfortunate for any family not to have a single meal in a day; sometimes families miss their lunches.

To maintain at least one-quarter acre garden of sweet potatoes and stock 50 Kg of beans or peas and 100 Kg of sorghum or maize for an average family of seven people was known and effective to only 31% respondents; known and not effective to 41% and not known to 27%; 68% were not effecting the regulation. The majority knew the regulation but could not meet its requirements because of shortage of cultivatable land and reduced land productivity. Farmers with enough land could meet the requirements but many did not have land that can produce such quantities but relied on buying from weekly markets.

The regulation prohibiting people are not allowed to gather in bars and trading centres with intent to consume alcoholic drinks before 2pm (14 00hrs) and after 10pm (22 00hrs). This regulation was known and effective to 49% and known but not effective to 42%. Male respondents mentioned that in circumstances where there is not enough land to be cultivated the whole day nor any other serious work to be done at home, they are prompted to gather in trading centres not necessarily to take alcohol, but it comes as an addition to relaxation. There were cases where the research team got people already taking alcohol before mid day and they said their drinking pattern has nothing to do with time. This is compounded with the fact that selling local gin is a lucrative business in the two sub-counties of Rubaya and Bubaale. This portrays redundancy as one of the problems and any interventions that could occupy the men with productive activities would reduce poverty levels and contribute to peoples' livelihoods.

The regulation requiring adults of sound mind and able-bodied are to behave as idle, disorderly and unproductive on regular basis was known and effective to only 34% and known but not effective to 60%. This supports opinion leaders' view that there was a lot of redundant youths in villages. They attribute this to land shortage but also relates to the birth rates and population increase. Unemployment is a national problem but a challenge to local leaders and development agents because the communities may come to them with expectation which when not met may discourage their participation in natural resource management interventions. Where possible development partners can initiate income-generating projects alongside the national Poverty Alleviation Programme.

6.1.3 The tree planting byelaw

Details of regulations under this byelaw are given in Section 5.1.3 and Table 5 below presents results of farmers' knowledge and assessment of effectiveness of this byelaw.

Table 5: Knowledge and assessment of the effectiveness of the tree planting byelaw

Detailed regulation	Responses in percentage		
	Effective and known	**Effective not known**	**Not known**
Any person who cuts a live tree shall plant two and ensure they are protected and looked after	68.3	25.4	06.3
Owner of private woodlots on hills must seek advice from foresters or chiefs before clear felling	04.8	23.8	71.4
Appropriate tree species shall be planted at 3m on both sides of feeder roads	25.4	38.1	36.5
Only agroforestry trees shall be planted at boundary or terraces of neighbouring plots	52.4	31.7	15.9
Local committees helped by chiefs shall ensure road reserves are planted with trees on both sides	03.2	46.0	50.8

The regulation that requires that any person who cuts a tree plants two and ensures they are protected was known and effective to 68%, including 28 (67%) males and 15 (33%) females. The regulation was known but not effective to 25% who included 14 males and six females. About two thirds of those who were ignorant of the regulation were females who should therefore be encouraged to participate in tree farming. The practice was popular mainly because in most cases the trees to be cut are Eucalyptus spp. (*kalitunsi*) and Acacia sp. (*burikooti*), which have natural capacity to regenerate. The regulation was not effective because farther tree planting depends on available land and land-use priorities; sometimes the woodlots are cleared for crop (millet) production and/or expand pastures.

The regulation that requires all persons who own woodlots on hills and want to clear fell them to first seek advice from Forest Department, local councils and chiefs was known and effective to less than 5% of the respondents with close to 70% saying it was not known. Respondents felt the regulation was incompetent and wondered what would happen if the chiefs refused to give the so-called advice. It is important to note that advice could mean permission, thus creating confusion but should be limited to advice on how to effectively harvest while minimising potential disaster. Again they felt it was difficult to enforce the regulation because of the fragmented land and the fact that the regulation cuts across jurisdictions (from extension to council and to chiefs). This is in agreement with Kamugisha's observation that policies that cut across government departments cause interfere with enforcement (Kamugisha, 1993).

Regulation requiring that appropriate tree species be planted not less than 3 metres on both sides of feeder roads was known and effective to 25%, at least a third of them females; known but not effective to 38%, including 20 males and four females; and not known to 36%, half of them females. Eleven male respondents were aware of the regulation and said it was effective compared to five females. The responses were male-dominated because females would not be called upon to participate in planting trees on roadsides except in cases where their spouses were away. Generally both sexes said the regulation was not effective. Farmers were aware some space should be left on either side of the road but were

not keen on what the distance should be. With the increasing land shortage, such space was ploughed for agricultural crops consequently there is no more free land left on either side of the roads. This goes with regulation requiring local committees with the help of chiefs to make sure all road reserves are planted with rows of trees. This was seen to be working for roads situated on steep slopes and especially public works roads managed by district government. Otherwise road reserves have been cultivated in some cases as if the requirement never existed at all or as a result of weak enforcement. The two regulations were being ignored by both males and females; more sensitisation is required if they are to be effected.

As for planting agroforestry trees on the boundary or terraces of neighbouring plots while other tree species should be planted at a distance not less than 3 meters away on any other boundary, it was known and effective to 25%; known but not effective to 38%; and not known to 36% females. Agroforestry extension was still being introduced to the farmers, and only two respondents effected the regulation without knowing it existed. Slightly over half the women were not effecting the regulation, one third of them were not aware of it. So farmers may not know what the appropriate species are and their specific uses. Farmers had taken to tree planting in Kyantobi village-Bubaale because the residents had formally welcomed the activities of AFRENA-Kabale and looked to it as a way of fighting floods in their valley. Meanwhile farmers in Rubaya lacked Agroforestry inputs like tree seed. One respondent in Karujanga–Rubaya reported that he was having a conflict with his neighbour over the tree-crop interface because the neighbour had planted eucalyptus to the boundary mark yet the former had planted *matooke* before. Though this looks an isolated problem, it demonstrates the fact that there is a need for more extension and advice on tree planting, within the related tree-planting byelaw.

On the tree planting byelaw, there was a relationship between valley-based respondents and the regulation that local committees with help of chiefs make sure all road reserves are planted with rows of trees on both sides. Majority (52%) respondents were not aware of the regulation and did not believe it was effective. About 40% respondents said it was known but not effective. This again calls for more sensitisation and enforcement of the tree-planting byelaw. It is expected that in case of any environmental hazard befalling Kigezi highlands, residents would be affected to almost the same level irrespective of their location because they own many land fragments and whereas farmers on hilltops would lose soil, farmers in valleys would suffer flooding.

6.1.4 The bush burning byelaw

Details of regulations under this byelaw are given in Section 5.1.4 and Table 6 below presents results of farmers' knowledge and assessment of effectiveness of this byelaw.

Table 6: Knowledge and assessment of the effectiveness of the bush burning byelaw

Detailed regulations	Responses in percentage	
	Known effective	Known and not effective
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

The regulations on bush burning were very popular with over 80% respondents saying they were known and effective. Only 6.3% did not know about the regulation. This was because almost the entire landscape is dominated by cultivated gardens. Farmers have been sensitised against slash and burn practices in preference to ploughing over as a way of enhancing soil fertility. In effect there may not be any more bushes to burn and if any fire broke out, then it would be on the cultivated fields. Where there are bushes, the interspersing green cultivated plots act as fire breaks, thereby ensuring that the fires do not go beyond control.

There were 28% female respondents among those who rated the regulation as known and effective. Only three male and two female respondents rated the regulation against starting bush fires as not known and not effective and another four did not know about the regulation males were mostly involved in the byelaw. The enforcement of the byelaw was weak because it is considered the responsibility of the entire community and identifying offenders is difficult. The penalty of U.Shs 1000/= was not deterrent enough and was liable to abuse.

6.1.5 Byelaw on controlled grazing

Details of regulations under this byelaw are given in Section 5.1.5 and Table 7 below presents results of farmers' knowledge and assessment of effectiveness of this byelaw.

Table 7: Knowledge and assessment of the effectiveness of the grazing byelaw

Detailed regulations	Responses in percentage		
	Known and effective	**Known not effective**	**Not known**
Farmer shall ensure livestock graze only when herded	92.1	01.6	06.4
Livestock shall graze in own piece of land except with consent of land owner	74.6	19.0	06.4
Animals shall not take water from same point used to draw water for domestic uses	92.1	04.8	03.2
Watering points shall be demarcated	38.1	49.2	12.7
Pigs shall not graze where other animals graze	79.4	14.3	06.3
All animals shall be immunised against disease as per programme drawn by veterinary staff	20.6	76.2	03.2
Cattle owners shall ensure consistent control of ticks using acaricides regularly	38.1	58.7	03.2
In case of livestock disease outbreaks there shall not be any movement of livestock and products	66.7	25.4	07.9
No grazing in crops and farmers whose crops are destroyed shall be compensated	96.8	03.2	-

There are not as many livestock farmers in both sub-counties of Rubaya and Bubaale as cultivators. The grazing byelaw requiring that any person who owns livestock shall ensure that livestock graze when they are herded was known and effective to over 90% of the respondents. According to the respondents, this was because of the prevalence of cultivated

fields, which necessitates herding if one must avoid destroying peoples' crops. Where there are no herdsmen, grazing fields must be fenced off. For fragmented plots, it is obvious there ought to be somebody to look after animals, even if the byelaw did not exist. About three quarters (74%) of respondents said they were grazing on their own pieces of land and only 19% said it was not effective. Many farmers do not own cattle and they said trampled plots are hard and difficult to plough. Grazing cattle can destroy bunds thus encouraging run-off. As a result in most villages of Rubaya sub-county there was a community byelaw prohibiting, especially cattle keepers, from grazing on other peoples' fields without the permission of the respective land owner.

About 90% of the respondents where aware of the regulation that required that animals do not take water from the same water point used for domestic purposes and effected it. This was because in some cases there are protected spring points, which can't be used by animals; and with fenced farms, the water points are enclosed within the fences. This regulation was not effective for about 10% respondents, especially where water is got from streams and liable to contamination with livestock filth. Demarcated watering points were known and effective to 38% and not effective to about 60%. This was because communal watering points for cattle are no longer effective because such points were on public land, which has now been put to private use. In addition, the upcoming informal byelaws restricting grazing to personal land may further eliminate it, because people are reluctant to devote their land to communal purposes, when there are no returns expected. If such regulations were to be reinstated, there would be a need for more sensitisation and calling for collective action because it requires new commitments, which could require different approaches. It was known and effective to about 80% respondents that pigs should not graze with other livestock because it was felt that "pigs could affect other livestock". Therefore in most cases pigs were zero grazed, though many farmers were not aware of the purpose for this regulation. Therefore there should be an effort to explain to farmers the rationale of the byelaw.

The vaccination of domestic animals against immunisable diseases by veterinary staff was known and effective to 20% and known but not effective to 76% because such arrangements are no longer offered. The byelaw used to be effective about 10 years ago and respondents attributed this to their small herds being ignored by veterinary staff while others said they pay for such professional service. About 38% respondents said the control of ticks by regular use of acaricides was known and effective. These were the farmers with either crossed breed cows or zero-grazed cows, which are believed to be very "delicate" (vulnerable to ticks). Three respondents mentioned that indigenous cows might not need treatment with acaricides adding that ticks were not many in the area. One farmer expressed a view that ticks can only attack poorly fed animals, adding that his animals had enough pasture thus ticks cannot attack them. This line of reasoning suggests need for agricultural extension and emphasis on tick control since community dip-tanks were no longer available. Livestock disease outbreaks were not common in the area and their management by restricting movement of animals and products was known and effective to 66%. Byelaws in animal husbandry for the two sub-counties were weak judging from primitive beliefs. The fact that livestock diseases are rare should not allow lax situations, which would endanger all the animals. Farmers should be reminded of byelaws as guiding principles in farming.

The regulation prohibiting grazing livestock in crops and requiring people whose crops are destroyed by such livestock to be appropriately compensated was very effective in both sub-counties for almost everybody (96%). Where people have agricultural crops as major source of income, any form of abuse to their crops would not be tolerated. Where it happens

accidentally and the offender is apologetic then the two can agree on how to go over it either by giving a warning or softening the punishment. But of course this is not to say there are never any abuse of the regulation; sometimes it is not possible to identify the offender who then gets away without any form of prosecution or punishment.

6.1.6 The swamp reclamation byelaw

Details of regulations under this byelaw are given in Section 5.1.4 and Table 6 below presents results of farmers' knowledge and assessment of effectiveness of this byelaw.

There were farmers' groups in Rubaya sub-county who have land registration certificates for owning swamp areas whereas in Bubaale individual farmers had bought swamp areas. The management of such swamps may then be out of the jurisdiction of byelaws. This is in an agreement with observations by NEMA (2001) and Kamugisha (1993) that there are different tenure and property management arrangements over wetlands, which creates confusion and laxity in policy enforcement.

The restriction of what crops can be grown in a swamp in accordance with technical advice and guidance from the Department of Agriculture was known and effective to 31%. These could have got advice from NARO researchers and NGO workers. On the other hand it was known but not effective to 39% and not known to 28% respondents who had not got contact with any technical personnel. Most times farmers copied from what they had seen others do. Where farmers' groups were communally cultivating in a swamp, they got advice from either NARO and/or non-government organisations.

Table 8: Knowledge and assessment of the effectiveness of the swamp reclamation byelaw

Detailed regulations	Responses in percentage		
	Known and effective	Known not effective	Not known
Restriction on what crops can be grown on advice sought by farmers from Department of Agriculture	31.7	39.7	28.6
Plot boundaries shall be demarcated with posts/ trees but not enclosed hedges that interfere the water flow	50.8	11.1	38.1
A strip of 3 ft grass must be left on sides of main channel and 1 ft at subsidiary channels	61.9	15.9	22.0
Depth of subsidiary channels shall not exceed 50 cm or go beyond the peat layer	54.0	17.4	28.5
Land holder must ensure water channels are kept clear of earth, rubbish and other obstruction	76.2	11.1	12.6

The regulation requiring that plot boundaries shall be demarcated with posts or trees but not enclosed hedges which may interfere with smooth water flow and drainage operations was known and effective to 50% respondents and not known to about 38%. The respondents knew it was important not to interfere with water flow and enclosed hedges were not regularly used in the villages but were either using trenches or live multipurpose trees or shrubs for demarcation. A strip of 3 ft. of grass must be left on each side of the main channel and one foot left on each side of the subsidiary channel to facilitate access and drainage operations. This regulation was known and effective to only 61% respondents,

especially those working within farmers' groups. Otherwise farmers did not follow the details of measurements, as what was important to them was water flow.

On the depth of subsidiary channels not exceeding 50 cm or not going below the peat layer, it was effective to 54% respondents and not known to 28%. Measurements are not easy to enforce because this would take more time to effect and usually there is nobody monitoring it. This confirms Raussen *et al.*, (2001) that any interventions extended to farmers should be cost and time efficient. About 20% of the respondents did not follow the requirement to ensure that water channels bordering on or passing through the land allocated are kept clear of earth, rubbish and other obstruction in order to prevent flooding.

On the other hand, 76% of respondents said the regulation was known and effective and this was being communally monitored as one's neighbour can report to the local chiefs or supervisors if the requirement is not observed. Any member offending this regulation would be summoned to a community meeting, warned or requested to correct the offence or risk forfeiting membership and its benefits. The farmers' efforts in managing wetlands collectively, instituting and respecting their own rules almost shadowed the existence of the byelaws. The successes of such local arrangements suggest that a deliberate program to enforce byelaws was necessary and would require more inclusiveness in decision-making.

6.2 Factors that undermine effectiveness of byelaws

For the byelaws that were reported not effective, the reasons as perceived by respondents are presented in Table 9 below.

Table 9: Reasons for weak and ineffective byelaws (n=63)

Reason for weak byelaw	% Response
Weak enforcement	52.4
Farmers not sensitised	28.6
Outdated regulations	34.9
Legislative conflicts	23.8
Small fragmented lands	22.2
Lack of extension facilities	15.9
Others	17.4

Respondents mentioned that enforcement was very weak and this came with changes in national governance. Up to around 1977, there was strict and regular enforcement of byelaws by extension workers and chiefs and offenders often got arrested (Bitarabeho, *pers com*). This strict administration faded in the 1980s and the coming into force of the 1995 national constitution seems to have given more power to the people than their administrators.

Different categories of respondents gave different reasons undermining effectiveness of byelaws (Box 3).

Box 3: Reasons for weaknesses in byelaws

For the byelaws that you think are not effective, why are they not?

Forest officer:

There are not enough resources to enforce such byelaws. For example there are not enough officers to do forest management, research and extension into tree farming. The available staff are restricted to managing the forest crop.

Animal Husbandry officer:

There is not enough personnel to visit each farmer and monitor the use of acaricides for example. We may not have the facilities to solve all farmers' problems so we can only advise them on what course of action to take.

Former administrator:

Byelaw enforcement has weakened with the politicisation of local councils. They are the administrators now yet they are not accountable to the chief administrative officer.

Farmer:

Colonial law treated all Africans as the same. All of us were supposed to store grain and the punishment for not storing was imprisonment, but today it is only the poor who go to prison because they may not afford to pay the fine.

Opinion leaders and former chiefs mentioned that the local chiefs are not so empowered to arrest and prosecute offenders and in some cases it is not clear whose role it would be because local councils seem to have taken over village administration and chiefs are rarely seen. In some cases prescribed sanctions do not seem to be sufficiently punitive and can easily be abused. Most times the enforcers are resident within the communities and elected to such positions, which compromises their methods of work because they would want to be elected next time round.

The byelaw on food security was difficult to enforce where it requires households to have granaries and food stores because farm production has drastically gone down and needs to be revisited. The requirement could now be regarded as a target to be achieved over a specified period of time in future. Instead better post harvest handling and processing procedures should be emphasised. The respondents said there was no more need for a store instead people could use sacks, which are easy to keep in the main houses where they cannot be stolen. Likewise it is not easy to monitor whether someone has enough food in the house or stop one from selling ones' produce because it is up to the individual households to reserve food items.

Weak enforcement was also associated with changes in local leadership where byelaws would come and go with chiefs at local administration level. Citizens were experiencing a

resource-crisis, which undermines some byelaws like one on tree planting along feeder roads. Further there should be clear and secure profit opportunities accruing from application of byelaws as regulations are bound to fail where benefits are not clear. Respondents were of the view that there was no more land for road reserves and enforcers may not be able to reverse this scenario. In some cases it is never easy to identify the offenders because the offence is committed secretly as in bush burning and grazing in neighbours' land especially on distant land fragments.

6.3 Factors that sustain the effectiveness of byelaws

For the byelaws considered effective and still working, the respondents gave several reasons as presented in Table 10.

Table 10: Reasons for effective byelaws still working (n=63)

Reasons for effective byelaw	% Response
Strong enforcement	44.3
Involved communities	36.5
Sensitised farmers	36.5
Have quantifiable outputs	33.3
Clear enforcement structure	14.3
Others	06.3

Respondents mentioned that in the 1970s, byelaws were strongly enforced and it seemed like they were an indicator/measure for chiefs' performance. There used to be competition among villages for the best performance, in line with Kigezi District Plan (1952) a strong mobilisation tool. Most of the byelaws gave quantifiable outputs like tree planting as indicated by availability/quantity of tree products; food storage as indicated by security against famine; etc. Where communities have been involved in formulation and implementation of byelaws like in Kyantobi Agroforestry Farmers Group (Bubaale) and in Kihiira-Bulamba Bahingi Kurinda Itaka Ryaabo (two parishes for soil protection), every member is involved in monitoring. They hold regular meetings to keep updated on performance and participation is voluntary although membership is by subscription. Constant breach of the regulations leads to loss of membership. Effective byelaws support each other and are not mutually exclusive.

There was evidence of some opportunities that could be useful in the enforcement of byelaws today, for example the existence of structures like the community based organisations such as Bahingi-Bariisa Kurinda Itaka ryaabo and other self-help groups. Such groups can be useful in mobilising for action planning and collective action. Decentralised administration is a challenge to community leaders to think hard and initiate projects for their communities. However local leaders have traditionally been used to top-down delivery of interventions and the problem solving approach. This may require assistance from development partners like the AHI to train leaders in some development aspects especially given that there was fresh administration after local government elections of 2002.

6.3 Enforcement of byelaws

6.3.1 Sanctions used in enforcing byelaws

61.9% respondents mentioned imprisonment as a widely known sanction against offenders, followed by fines in monetary values (50.8%), Compensation (28.6), caning (31.7% -

especially for children) and verbal warning (33%). Sometimes the sanctions are combined and other times they are used in series as a process. For example in the Kabale Grazing byelaw (1989), any person who contravened any of the provisions of the same byelaw would be guilty of an offence and on the first conviction would be liable to a fine not exceeding fifteen hundred Uganda shillings (1500/=) or to imprisonment for a period not exceeding 21 days. On the second and subsequent convictions s/he would be liable to fine not exceeding Ushs. 3000/= or imprisonment not exceeding 42 days or to both such a fine and imprisonment.

Majority of respondents (68%) were not aware of the resource budget for monitoring byelaws. This could be attributed to the District Councils' Ordinance (1955) providing for penalty and expenses incurred in consequence to the cost of any byelaw. One farmers group (Kihiira-Buramba) had around UShs 500.000/= in their treasury in case they got problems that would require money. Twenty two percent said that the offenders usually meet the cost of prosecution as part of compensation and punishment. Voluntary administration accounted for 8%, and was mentioned as a discouragement to the enforcement process, because enforcers would be un-willing to devote much of their time to an encounter whose economic benefits are not assured.

6.3.2 Problems enforcing byelaws

Several problems encountered in enforcing byelaws as given by respondents are given in Table 11. The problems were generalised for all the byelaws in natural resource management.

Table 11: Problems in enforcing byelaws (n=62)

Problem in enforcement	% Response
Peoples attitudes	47.6
Public not sensitised	30.2
Relationships in communities	23.8
Conflict in policies	19.0
Local politics	15.9
Others	15.9

Peoples' negative attitude towards byelaws was the most prevalent problem. Such attitudes included laxity, expectations, prejudices and biases among members of the communities. On laxity, the respondents recommended a strong enforcement policy in terms of fines as in the case with their informal groups because, according to two of them, "Abakiga nibategyekwa kifuba" (local people must be compelled to comply). They noted that sometimes the entire public (including would-be enforcers) is not aware of the regulations.

The relationships between members of the community that seem to interfere with byelaw enforcement for fear of stigmatisation included: marriage (where it would be difficult for in-laws to prosecute or report each other as offenders), friendships and neighbourliness. A conflict of policy was reported on the divested wetlands and the 1998 wetlands management policy with which respondents felt insecure. They felt government would soon or later stop them from cultivating in swamps yet people were allowed to cultivate in swamps as early as 1943 (Bakora, *pers com*). Local and elected politicians for want of political capital were sometimes silent on the enforcement of byelaws and/or ignored the entire subject. Other problems included corrupt leadership and voluntary service of the enforcers, which is

laborious and discouraging especially among the village chiefs. Reduced soil productivity and redundancy among the village folk were also seen as problems beyond the management capacity of village councils. Development partners like the AHI can intervene in problems like soil fertility and productivity management.

6.3.3 Manpower/byelaws enforcers

Over forty percent (41.3%) of the respondents reported that local chiefs were supposed to enforce the byelaws. Another 38% said the byelaws were supposed to be enforced by agricultural officers who would report to chiefs for prosecution of offenders. Close to 16% said extension workers were supposed to enforce the byelaws and the rest (4.8%) said enforcement was the duty of members of the community but this was relevant to only members of farmers' groups working with NARO and NGOs operating in Rubaya and Bubaale sub-counties at the time of this study.

In reality, Circular Standing Instruction No.7 of 1956 of the Ministry of Natural Resources suggests that extension and advisory staff should not be directly responsible for the enforcement of byelaws (MNR, 1956). Bisamunyu (pers com) confirmed that byelaws were enforced through the government administrative structure and observed that district commissioners and sub-county chiefs used to make inspection visits to villages mobilising people on sanitation and grain storage against periodic food shortages.

7.0 Making Byelaws More Effective: Challenges and Opportunities

7.1 How to make byelaws more effective: Farmers' perspectives

The respondents gave several recommendations as presented in Table 12

Table 12: Recommendations for making byelaws more effective (n=63)

Means of improvement	% Response
Train communities	63.5
Strengthen monitoring	46.0
Formulate with communities	36.5
Strengthen sanctions	34.9
Train enforcers	25.4
Avail inputs	09.5
Separate politics from byelaws	07.9

Over 60% felt that communities should be trained about the byelaws but 36.5% mentioned that communities should be involved in formulating byelaws because their views would then be part of the byelaws. In Rubaya sub-county, the regulation restricting grazing to individual land is now popular because it was formulated by the community (Soil protection groups) and accepted by the sub county council. Rubaya communal grazing byelaw is presented in the Box 4.

Box 4 A case of communal grazing byelaw in Rubaya sub-county

Local people with one voice through their farmers' associations like '*Kihiira-Buramba Bahingi Bariisa Kurinda Itaka Ryaabo*' presented complaints on communal grazing and soil management to the sub-county council. Farmers complained that free ranging cattle were trampling and compacting soil in fallow plots which left bare ground that was liable to soil erosion and difficult to cultivate. The grazing animals would also destroy terrace structure locally called *kati-kaa-nkingo*.

The sub-county council therefore passed a byelaw restricting communal grazing (1999) and recommending that any person who owns livestock shall graze on his/ her own piece of land unless there was prior agreement among different land owners. They also instituted sanctions against offenders. For example if any person would be liable to a fine of 5000/= if his/ her cattle destroyed another person's terraces in addition to 10,000/= or 2,000/= for grazing on somebody's land.

The respondents felt that politics should be separated from byelaw enforcement because elected leaders were seen to be shy in prosecuting offenders. There was another view that enforcers should come from outside of the parishes like in olden days when chiefs would come from outside the district. This would look like a shift from decentralised leadership which empowers local people to develop themselves. Besides there was evidence of the fact that activity groups, which had their members as leaders, were very active, respected and successful.

Sixty eight percent of respondents admitted to the existence of informal byelaws in communities, of which 46% said they are enforced through community involvement. Informal byelaws are those which exist outside the formal legislative structure but are basically communal and restricted to specific groups of people for example in village farmers groups. In Kyantobi village (Bubaale sub-county), the community members have the ICRAF farmers group with their own byelaws and agreed upon by the members. In village ambulance groups all members are bound to participate or pay a cash fine, equivalent to money payable for a man-day's work They administer sanctions against offenders and worst offenders lose membership. The rules of membership and sanctions are clearly laid out. The same with Wetlands' Management groups and Soil protection groups.

The respondents suggested possible areas for formulating byelaws pointing out primary education by-law against stopping children from attending school for other domestic chores and in soil fertility restoration which is still left to individual farmers. One respondent mentioned regulating livestock breeding because sometimes an un wanted strange animal can mount one's animals thus tampering the expectations.

Generally the existence of byelaws provided guidelines on what should be done in agriculture and natural resource management despite the weaknesses. It was noted that the prevailing level of education and gender roles (Table 3) were important in obeying byelaws (tree planting, soil and water conservation) and should therefore be considered in programme planning. It was also noted that the declining soil productivity was contributing to the redundant labour in villages which worsens the food insecurity problem and lack of income. There was a level of irrational behaviour (when people abandon farming and gather in trading centres) that required a holistic approach and is a challenge to the local leadership.
Despite the fact that the soil and water conservation byelaw had succeeded about two decades ago, it was being abandoned because of poor soil productivity. Some technical aspects like planting crops along the contour were labour intensive and enforcement was not possible. Some farmers' beliefs that indigenous livestock do not need acaricides show the need for extension officers in villages or at least a reorganisation of approach. Some regulations were based on private property yet they were meant for communal benefit which interfered compliance e.g farmers were not willing to ask for permission to clear-fell their own woodlot.

7.2 Classical methods/approaches

- Creating awareness of existing byelaws
- Building ownership and participation
- Building local capacity

Building capacity for poor people's participation in policy reform:
It was evident there is need to harmonise the actions of all stakeholders involved in administering byelaws and ensuring they are integrated in area development plans as shown by the successful cases of Kyantobi and Kihiira-Bulamba farmers' groups. It is also important to develop the required capacity for implementing the byelaws and enhancing community level participation in formulating and monitoring byelaws.

The voice of poor people and their demands for policy reform are often mediated through government agencies or other secondary stakeholders. Many such agencies are ill prepared to adopt more participatory, client-focused consultations. Participatory policy formulation needs to be accompanied by programmes that aim at building the capacity of local leaders by for promoting participation in policy and institutional reform is critical. However, capacity building alone is unlikely to improve participation in the longer term. This often requires new institutional arrangements (or sets of rules)

Institutional arrangements that promote pro-poor policy influence include:

- The decentralisation of decision-making powers to local authorities or communities as a means of bringing policy-mediating organisations closer to the voice of their constituents.
- Making public organisations accountable to civil society, so creating incentives for public organisations to listen to, and act upon, the needs of poor people.
- At a higher level, constitutional changes may be required to legitimise civil society groups, to permit freedom of speech (including the liberalisation of media) and to allow civil society to sanction the actions of government (by, for example, ensuring regular open and free election of government).

- Strengthening social capital

Social capital, strengthening social relationships, strengthening existing organisations and local institutions, and creating new organisations and networks. The focus should be on promoting shared values, collective action, information dissemination networks, and linking local communities to service providers.

- Strengthening Decentralisation and Governance
- Building Political Capital
- Minimizing Conflicts
- Participatory Policy Analysis and Monitoring:

To help systematise participatory policy analysis process, the project is adapting and refining the IISD sustainable development framework to analyse policies and practices (IISD 1997). The framework has the following eight steps:

- Identify policies (byelaws- micro and macro) and key stakeholders and determine whether they are enabling or hindering efforts to build sustainable livelihoods and NRM practices.
- Bring together all of the stakeholders and begin to analyse the issues. This step involves meetings with all the relevant categories of stakeholders to begin to anlayse the policies and byelaws and related issues, adopt an appropriate scope and focus for the analysis.
- Prioritise policies and byelaws for analysis
- Develop criteria and indicators by which progress will be assessed and measure
- Analyse whether the policies and byelaws are consistent with sustainable NRM in broader rural livelihoods context
- Assess the capacity for implementing policies and byelaws to identify potential problems
- Develop action plans to revise policies and to build capacity for policy formulation and implementation. This step involves full stakeholder participation in developing policy reforms options, allocating responsibilities and resources, and undertake additional activities to build the necessary local capacity for successful policy formulation and implementation
- Review and monitor the implementation of policies and byelaws on a regular basis

Periodic meetings, workshops and consultations are organized to assist local communities and local government councils to identify issues and policies that affect NRM, and to analyse the effects of different policies to determine whether they are enabling or hindering efforts and better natural management practices. These consultations are meant to create an effective dialogue between communities, local government councils and research and development organizations on the analysis of NRM issues and local byelaws. At the district level, a "Policy Task force" was formed with representatives of district and local councils, local governments, technical services, research and development organisations as well as farmers representatives. The Task Force meets regularly to monitor and facilitate the process.

- Promoting policy dialogue and negotiation

Participatory policy formulation is a process of negotiation and discussion and/or decision-making among different parties with different interests and values at stake in a particular situation. Stakeholder negotiation is one way of balancing the influence of powerful interest groups with that of less powerful groups. It does not on its own address the fundamental

imbalances in power that allow some groups to have more influence on the reform process than others; reform initiatives may therefore need to be accompanied by programmes to promote poor people's contributions to, and influence over, the reform process.

There is need to investigate ways and strategies in which poor people can be empowered to participate in and influence policy and institutional reform processes. Developing effective channels of communication between poor households and the central policy network is one of the biggest challenges to policy reform. This is where stakeholder negotiation – also known as stakeholder engagement or consensus building – is required.

Principles of consensus building

- A full stakeholder analysis (including those who may contribute to resolving or exacerbating disputes);
- Accommodation of cultural differences in the design of capacity building and negotiation strategies;
- Acknowledging and transforming perceptions;
- Opening communication channels;
- Developing a level playing field for genuine collaborative negotiations;
- Building rapport;
- Focus on underlying needs and motivations;
- Identifying and exploiting the common ground;
- Brainstorming creative options and widening field of potential solutions;
- Facilitation of mutual gains;
- Testing agreements for financial, technical and democratic feasibility.

Conroy *et al* after Warner, M., 1998.

A key part of the consensus-building approach is to identify appropriate capacity building options. These may include:

- building upon customary approaches to dispute resolution (e.g. by providing training in negotiation skills);
- training community leaders in ways of mediating conflicts between their community and external organisations;
- training legal representatives in facilitation and mediation to find 'win-win' solutions (e.g. local land mediators);
- involving powerful stakeholders in the process, otherwise they will block negotiations and attempts at implementation. Attitudinal change can be facilitated by involving decision-makers from the beginning;
- identifying the incentives that can motivate people to co-operate and support the reform process. In many cases, a compensation package may need to be negotiated to secure the support of potential 'losers' to a particular reform programme.

- Participatory integrated watershed management Research and Development

Expanded research efforts are needed to better understand the status of natural resources and to solve the very specific problems caused by lack of knowledge of local responses to the adoption of improved NRM technologies.
Blackie (1993) observed that Africa urgently needs technologies that can markedly raise the productivity of resource-poor small holders. Integrated watershed management requires appropriate technologies and innovations. Cooper and Denning (2000) and Garrity (2000) noted that successful and sustainable community-based approaches to managing watershed resources share a number of requirements including:

- available set of suitable innovations such as Agroforestry practices and their key inputs such germplasm;
- management approaches as well as the propose innovations should be demand driven;
- efficient community organisations facilitate working together and resolving conflicts;
- a minimum external input strategy needs to be put in place.

Fortunately several technologies are available locally and are being promoted by research and development organisations such as AFRENA, AFRICARE, NARO, AHI, CIAT, AFRICA 2000 Network and many others. Many farmers and communities are increasingly involved in developing and fine-tuning Agroforestry innovations but could greatly benefit from being exposed to a range of options, approaches and technologies. By inclusion of an explicit participatory research and development component for watershed management, a great deal can be learned about collective action processes, technology adoption, and opportunities for sustainable natural resource management technologies at the landscape or watershed level.

For collective action to be effective, byelaws are necessary, but they need to be formulated around clear needs and technologies to be promoted.

Government organisations and institutions need to be actively linked to this process of dissemination and adoption of NRM innovations to facilitate collective action and provide incentives for their adoption.

Similarly, expansion of extension efforts is needed to help farmers learn new production practices and more economic use of their resources. Some international agricultural research centers (IARCs) are dominated by agronomists and physical scientists, but research on soils often ends up far down on the list of priorities. The truth of the matter is, very little is known about soils in most places in the world. We tend to think that increased agricultural output comes from the introduction of improved varieties.

More long-term investment in agricultural research and extension systems is also recommended. The stock of location-specific knowledge about agriculture in Uganda is very, very limited.

- Finding and promoting Policy Incentives

Results of empirical studies in Ethiopia (Shiferaw and Holden 2000) showed that policies that link production subsidies with soil conservation can provide opportunities for combating erosion-induced productivity declines without adverse effects on marketed surplus of food and the welfare of the poor. Seed subsidies and a mix of seed and fertilizer subsidies for example, were found to be more efficient in reducing erosion damage at low cost. The same study found that when conservation leaves short tem objectives unchanged,

cross compliance policies for fertilizer, and a mix of seed and fertilizer subsidies linked with conservation were able to create sufficient incentives for sustainable land management and reduce erosion-induced productivity loss efficiently. When unlinked input subsidies are provided, the enhanced profitability of farming discourages the need to conserve the soil, thus conservation disappears as the subsidies increase. The cost-sharing policy (labour subsidy), like food-for-work programme in Ethiopia, was found to be an effective approach for soil conservation.

Raussen et al (2001) also recommended a "minimum input strategies" to facilitate widespread the adoption of Agroforestry technologies in Kabale. Most NRM innovations indeed require minimum inputs in terms of labour, seedling and cash. Often, farmers will not have the initial capital outlet for investing in NRM because of their limited income which is often allocated to other high priorities such as school, health, food.

There is need to explore what incentive system might work in the context of Kabale. With programmes such as NAADS and PMA, there might be opportunities to link such programmes with soil conservation and land management objectives. A land management fund could be created and rewards given to farmers who are found to comply with given byelaws. Such incentives may take the form of subsidies of improved varieties of seeds linked to soil conservation measures, such as hedgerows planting, trenches making etc.

- Identifying entry points for policy and byelaws reform

DFID provides an overview of the processes by which policies and institutions change, and the likely conditions under which reform typically takes place. Policy formulation has traditionally been viewed as a linear process; civil servants, who report to a designated head or body of people, set formal policy and institutions through a rational decision-making process. The processes of reform should be the products of rational decision making, and negotiation by different stakeholders.

Policy and institutional reform processes are commonly:

- Incremental, in that small improvements are made to existing policy.
- Influenced by previous policy practice. New policy typically reflects the norms and standards established by previous policy.
- Shaped by a wide range of stakeholders. Policy and institutions define the opportunities for organisations and for wider society, and organisations of all sizes desiring favourable outcomes for themselves or their constituents will seek to influence them. A combination of lobbying, persuasion or influence may be employed in an attempt to shape policy. Organisations may form 'actor networks' with other organisations sharing a similar vision to reinforce policy norms or narratives.
- Incremental changes to existing policy are an option when seeking to restore fundamental distortions in policy and institutions.
- Create new opportunities for poor people and the organisations that serve their needs

That said, substantive policy and institutional reform continues to take place. Lessons from successful reform programmes provide useful insights into the likely conditions under which change may occur.

The following factors have been observed to be important for creating policy and institutional change:

- **Crisis:** Windows of opportunity for change can present themselves at times of crises, such as occurred in the floods and land sliding that regularly hit the district
- **Leadership** consistently plays an important role in reform situations. It is generally leaders who put reform on political agendas, who provide a vision, who are actively involved in shaping the content of proposals for change and who spearhead the process of generating support and managing opposition to change. The emergence of strong champions of change provides an opportunity for promoting policy reforms.
- **Ideas** – particularly ideas about the design of appropriate policies and bylwas are important in defining new rules of the game. Most commonly, ideas are understood as political resources, a form of capital that is used to promote particular positions or to influence the outcome of decision.
- Initiatives for reform are likely to be sponsored by political elites challenging existing institutions. They may be helped in doing this by crisis or by particular conditions such as supportive public opinion.
- The **social organisation of the poor** is very important in a reform process (sometimes referred to the **demand** side of policy reform). Experience indicates that reform initiatives are frequently contested, even after they have been decided upon and put into practice, particularly by those whose power they may reduce. This can cause failures in sustaining reform or in its impact. One implication is that beneficiaries of the altered rules of the game need to be supported to protect the new institutional arrangements.

Reform therefore requires investment in the **management of change**, a strategy that focuses on the process, or the means by which pro-poor policy and institutional reforms can be brought about. A management of change strategy will entail:

- Planning for change – reflecting, developing a vision and building concepts.
- Identifying 'change agents' – individuals or groups who will lead change.
- Recognising and managing barriers to change – predicting the reaction of individuals and groups to the proposed changes.
- Building support for reform – explaining the need for change and the ways in which people will benefit.
- Reforming organisational structures – to accommodate new ways of working.
- Mobilising resources – political, financial, managerial and technical resources are needed to sustain reform.
- Consolidating change – ensuring that the motivation for change is maintained and, later, mainstreaming the new way of working so that becomes part of normal procedure.
- Targeting people and institutions who make, influence or implement policy through:
- Policy learning events. These are tailor-made specific learning activities (workshops, seminars, study tours) to support policy reform in NRM. Such activities take place early in the policy reform process, disseminate best practices and current thinking on cutting-edge issues, and share lessons of experiences;
- Support to networks and outreach activities. This may entail promoting exchanges of people and knowledge, which strengthens networks. Outreach improves and expands public awareness and understanding of water issues and their potential solutions.
- Exposing partners to existing successful byelaws and policy reviews may help to build relationships for policy and institutional change. Lessons learned can be extrapolated to the policy level.

- Building ownership and participation

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 focused on increasing local participation in policy review and formulation.

The following questions may help in the design of participatory policy reform processes:

- Who are the key stakeholders who might participate in policy and institutional review processes, and what are their potential interests and contributions?
- What mechanisms and opportunities for meaningful participation exist, and to what extent are important stakeholders able to make use of them?
- What scope is there for participation in the policy and institutional reform process, and how can the participation of stakeholders, particularly primary stakeholders, be brought to light?
- What indicators suggest that participation actually resulted in influence and shared control over reform decisions?

Participation can be promoted by holding workshops and events where participants can engage in debate.

New kinds of communication and dialogue are required for broader stakeholder participation

The intensive process of facilitating representation can incur considerable costs. However, these should be compared to the costs and risks that would be incurred as a consequence of developing inappropriate policies (DFID 2000).

In practice, most citizens influence policy by working through some collective action or civil society organisation commonly called community-based organisations. CBOs can represent their members' interests in a number of ways, including lobbying, representation on public bodies, and participation in consultative processes. However, lobbying requires resources and specific skills.

Strengthening the capacity of community local groups to lobby for, and negotiate in, policy reform processes is an important way of promoting pro-poor policy and institutional reform. Such civil society organisations might include community-based organisations, producer associations, unions or NGOs concerned with civil rights.

8.0 Conclusions and Policy Implications

Land Degradation is a Public Good. Land degradation on smallholder farms is the fundamental biophysical root cause of declining per-capita food production in Africa. Society as well as farmers must invest in soil fertility as a form of natural capital. Land degradation has both private, on-farm costs (e.g., decreased crop production, increased soil erosion) and public, national, even global costs. These include: decreased national food security, exacerbated rural poverty, increased migration to urban areas, increased urban unemployment and social unrest. Public costs also include: increased stream sedimentation, decreased water quality, loss of soil carbon to the atmosphere, loss of adjacent forests, and decreasing biodiversity (as land extensification occurs (Gladwin *et al.*, 2000). Because there are national and global benefits to farmers' use of natural resources, national and global institutions should also share the costs.

Expanded research efforts are needed to better understand semi-arid soils and to solve the very specific problems caused by lack of knowledge of local responses to the application of fertilizer. Similarly, expansion of extension efforts is needed in most semi-arid African countries, to help farmers learn new production practices and more economic use of their resources. Some international agricultural research centers (IARCs) are dominated by agronomists and physical scientists, but research on soils often ends up far down on the list of priorities. The truth of the matter is, very little is known about soils in most places in the world. We tend to think that increased agricultural output comes from the introduction of improved varieties. But underdevelopment can be caused by a soil problem and the solution can be a technological innovation produced by soil scientists who know the local soils. This is very applicable to large areas of Africa.

It was concluded from historical records that ordinances and byelaws evolved during the colonial administration to guide agricultural practices and produce cash crops, enhance proper utilisation of natural resources while preventing soil erosion and famine.

The process of formulating byelaws and policies never involved ordinary citizens but was done by committees and communicated to the lower levels as orders which provided ground for poor administration, suspicion and poor compliance especially with political changes. Apparently this is still practised except under the National Agricultural Advisory services which is not yet on village levels.

There are outdated regulations and others not enforceable for example on watering points for livestock, diverting footpaths and cattle tracks, building food granaries and management of road reserves on village paths, which if they were to be reinforced would involve consulting the communities. Some regulations were not known like one on asking for administrative advice before clear felling a private woodlot. The byelaw on tree planting is generalised and shallow on today's Agroforestry which is motivated by commercial factors besides environmental management.

Almost all the respondents acknowledged a gradual decline in enforcement capacity and compliance to the byelaws and appreciated that some popular byelaws e.g. soil conservation should be strengthened, un-popular ones revisited and where possible others introduced for the betterment of communities.

Farmers were aware of the dangers of soil degradation, threatened with declining soil productivity, increasing levels of food insecurity and poverty which provide an opportunity

for mobilisation in case of any intervention (like policy and byelaw formulation) that can alleviate such community problems.

There were activity groups and community organisations in most villages. Together with village leadership structures provide entry points for collective action on such interventions like policy formulation.

The main problems in enforcing byelaws were weak local administrative enforcement, which left individual capacity and attitudes to prevail. There was little sensitisation and monitoring coupled with local politics where local leaders do not want to appear harsh to the electorate in implementing byelaws. Other problems included the increasing need for land, declining soil productivity and redundant youths in villages.

The enforcement and monitoring of byelaws was voluntary to local committees and its funding left to the capability of the offending party, which gives leeway to corrupt tendencies.

The respondents wanted policies, regulations and byelaws to be reinforced by training communities and enforcers, and regular monitoring.

Community participation in ANRM-byelaw formulation was very successful in Kihiira-Buramba Bahingi Kurinda Itaka Ryaabo and with Kyantobi Agroforestry Farmers Group who initiated and formulated their own byelaw on soil and water conservation and was seen to be working.

Recommendations

Agricultural and natural resource management byelaws and policy should be strengthened in order to guide agricultural practices, prevent famine, provide employment to redundant labour in villages and address poverty. This requires a holistic approach.

The process of formulating byelaws/ policies should involve communities at every stage to maintain peoples' participation and identification with the policies/ byelaws.
There should be community action planning and collective action in implementation.

The existing tree planting byelaw should be revised and rephrased to suit the present circumstances that are economically motivated. The policy on livestock management and tick control, should be re-examined and new regulations on soil fertility should be formulated. The byelaws formulated should reflect farmers needs and expectations.
AHI can intervene in policy and byelaw process by providing training and technical advice, facilitation through networking, strategic leadership and establishment of structure.

AHI should build on the existing community structures like farmers' organisations, local leadership and knowledge in order to retain access and acceptability to farmers.

There should be an improvement of regulations on controlling ticks in livestock, and ensuring that livestock do not take water or get access to water points used for domestic use, Agroforestry, food storage and road reserves as the existing ones are very weak.

All regulations that require the intervention of technical agricultural extension workers are not enforceable in the present circumstances with shortage of staff. AHI can intervene and train community assistants within the communities.

List of References

Barrow, E., Gichohi, H. and Infield, M., (2000). Rhetoric or Reality? A review of community conservation policy and practise in East Africa. Evaluating Eden series No:5 London U.K.

Blackie M., (1993). Getting serious: Thoughts on agricultural research and increased small-holder productivity in sub-saharan Africa. African crop science Journal Vol.1 No 2 Makerere University Kampala.

Critchley, W., (1999). Promoting Farmer Innovation. Harnessing local environmental knowledge in East Africa. RELMA/UNDP Workshop Report 2.

DFID (Department For International Development) Sustainable Livelihoods Guidance Sheets. Section 5: POLICY REFORM. www.livelihoods.org

District Administration (District Councils') Ordinance (1955): Uganda Protectorate, Ordinance No:1:1955 Entebbe Uganda

Egulu, B. and Ebanyat, P., (2000) Policy processes in Uganda and their impact on soil fertility. Managing Africa's soils No.16 Edinburgh, U.K

Fleay, M., (1956). Circular Standing Instruction No.7 of 1956. Ministry of Natural Resources; Government of Uganda, Entebbe.

Hardi, P and Zdan, T. (1997) Steps in using the International Institute for Sustainable Development, sustainable analysis framework IISD policy analysis Framework users' guide. Winnipeg.

ICRAF, (2000). Trees for change. Corporate Report 2000. Nairobi-Kenya.
Kabale District Local Government 2002. Three Year Development Plan 2002/2003. Volume 1

Christina H. Gladwin, Alan Randall, Andrew Schmitz, and G. Edward Schuh 2000, Is Fertilizer a Public Or Private Good in Africa? An Opinion Piece

Kamugisha R.J., 1993 Management of Natural resources and environment in Uganda. Policy and legislation landmarks in Uganda 1890-1990RSCU/SIDA N'bi.

Kigezi District Council Constitutional Regulation (1955)

Kigezi District Plan (1952) Kigezi District Western Province Uganda

Kisamba-Mugerwa, W. (2001). Social Background. In: Agriculture in Uganda: General Information Vol:1 NARO/CTA/Fountain Publishers, Kampala.

Ministry of Natural Resources, (1956). Standing instruction No: 7:1956 Entebbe Uganda

MISR, (1998). Proceedings of symposium on Common property management in East Africa. Makerere Institute of Social Research/ FORD Foundation & UN University.

NARO, (2001). Agriculture in Uganda: General information. Vol. 1. Naro/CTA/ Fountain Publishers. Kampala.

National Policy for Conservation and Management of Wetland Resources, (1995) Ministry of Natural Resources. GOU-PPC Entebbe.

NEMA (2001) State of the environment report of Uganda 2000/2001 Kampala

Ojacor, F.A (2001). National Environment policy. In: NARO, (2001). Agriculture in Uganda: General information. Vol. 1. NARO/CTA/ Fountain Publishers. Kampala

Okoth-Ogendo H. W. O and Tumushabe G., (1999). Governing the Environment: political change and natural resource management in East and Southern Africa. ACTS-Press Nairobi Kenya.

Raussen T., Ebong G. and Musiime J., (2001). More effective natural resource management through democratically elected, decentralised government structures in Uganda. In:Development practice Volume 11 No:4:2001 OXFAM.

Rwabwoogo, M. O., (1998). Uganda districts Information Handbook. Fountain Publishers, Kampala.

Shiferaw, B and Holden, S.T. 2000. Policy Instruments for sustainable land management: the case of highland smallholders in Ethiopia. Agricultural Economics 22: 217-232

Statutory Instruments Supplement N° 1. The National Environment Hilly and Mountainous Areas Management Regulations 2000. UPPC Entebbe, Uganda.

Stockdale, F.A., (1937). Soil erosion in the colonial empire. Journal of Experimental Agriculture 5 (20)

Taylor, F.D.R. and Mackenzie, F., (1992). Development from within: Survival in rural Africa. Routledge London.

Appendices

Appendix 1: List of leaders interviewed in this study

1	Bitarabeho F	Chairman Farmers Group
2	Bisamunyu F	Former Member of Parliament
2	Bataringaya Dr.	Veterinary Officer Kabale
3	Onzima O.	DFO Kabale
4	Ndyareeba M	Ndorwa West Women's Association
5	Musabiiro D	Ex Sub-county chief/ NRM parish chairman
6	Byimaana S	Lc 2 Chairman Kibuga
7	Komujuni J	Headteacher
8	Bakora M	Ex Sub-county councillor Rubaya
9	Tibemanya M	Secretary for women Butoboore Lc 2
10	Worinawe A	Chairman, Kyantobi ICRAF Farmers group
11	Bikwasizehi T	Chairman Kyantobi Lc 1
12	Sanyu Joy	Chairman Rugarama farmers group
13	Rutanga Y	Ex- Headmaster
14	Karusigarira L	Women councillor Lc 3
15	Rwanga K	Ex-parish chief
16	Nyamusheeka F	Omunyaasi/ Community mobiliser
18	Mpiriirwe J	Former LC 3 Chair/ Rubaya S/c
19	Kazororero	Chaiperson Rubaya S/c council