RESEARCH NOTES

Attitudes of local communities towards forest management practices in Uganda: the case of Budongo forest reserve

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SUMMARY

Positive attitudes of local communities towards forest management practices are an essential prerequisite for local participation in forest management. In Budongo forest reserve, local communities have negative attitudes towards forest management practices because of the strict rules on forest resource utilisation. For a long time local people have had restricted access to extract traditional non-timber forest products from Budongo Forest Reserve and were not given timber felling licences. This denied them the benefits of timber business and resulted in mistrust, antagonism and conflicts with the Forest Department. A study of 200 households showed the associations between socio-economic features of people living close to the forest and their use of forest resources and demonstrated the basis of attitudes towards those managing the forest. Since Uganda is going through the process of democratic reform and decentralisation of public administration, it is felt that local communities could be empowered to co-manage and benefit from forest resources in their vicinity.

Keywords: forest management practices, conflicts, local community participation, attitudes.

INTRODUCTION

Gazetted forests in Uganda are managed and protected by the state. In many parts of the world, state management of forest reserves has been criticised for ignoring local community participation in forest management and failing to recognise local communities' needs for forest products (Wily 1994). In such a situation, local people lose the feeling of owning the forests and develop negative attitudes towards them (Tewari 1996). This in turn leads to indiscriminate exploitation of forests, degradation and deforestation.

Historically, restrictions on forest resource use have been practised by some traditional African societies, for example, in the sacred forest groves of Ghana and the former royal hunting areas in Zambia (Ntiamda-Baiud *et al.* 1992). While most forest management policies may reflect genuine concern for the preservation of natural forests, it is also evident that little regard has been given to the subsistence needs of local people, thus causing local resentment. Given the historical antecedents of today's gazetted forests in Africa, it is not surprising that the attitudes of local people living adjacent to forest reserves reflect suspicion and mistrust of forest management policies.

Management of forest reserves for the sustainable supply of forest products and provision of environmental benefits is a key aspect of Uganda's forest management policy. Over the past 30 years, inadequate funding and human resources have severely constrained the government's capacity to manage the forest estate effectively. Furthermore, lack of effective monitoring, rule enforcement and a mechanism to coordinate formal government forest management and community use activities resulted in uncontrolled exploitation and degradation of natural forests. In order to achieve efficient management of forest resources, local community participation is essential, but this is largely governed by local people's attitudes towards forest resource protection.

Before a collaborative forest management programme can be introduced, there is a need to clearly understand the nature of forest resource use by local communities, their socio-economic characteristics and attitudes towards forest management practices. In addition, the programme needs to be included in the forest management plan. Optimum forest management planning requires sufficient information collected from the field and this study has attempted to provide information about local communities that could be incorporated in Budongo's management plan by seeking answers to the following questions: To what extent do local communities living adjacent to Budongo forest reserve make use of the forest? How does forest resource exploitation fit into the current forest management practice? Is there a relationship between local communities' socio-economic characteristics and their attitudes towards forest management practices? It is clear

from social science literature that one's attitudes determine his/her behaviour and this study was carried out on such a premise.

BACKGROUND TO FOREST POLICY AND MANAGEMENT IN UGANDA

Formal management of Uganda's forests started in 1900 with rules and regulations but without a policy. The Forest Department was very small and much of its effort was put into direct forest exploitation, rather than into long term planning, acquisition and development of a national forest estate. The first attempt to formulate a national forest policy was made in 1929. The policy stressed the management of forests for timber production and afforestation of more land (Forest Department 1951). At that time the present Forest Department was established (Kamugisha 1993). The 1929 policy has since been revised in 1938, 1970 and 1987 with much emphasis on the role of forestry in environmental protection (Howard 1991). The 1987 Forest Policy calls for community participation in forest management although it does not state how to institutionalise sustainable community participation in forest management. This has hindered the integration of community-based forest management initiatives in the forest policy guidelines.

According to Kiss (1990), new approaches to forest management that emphasise local community participation need to be introduced as a measure for reducing mistrust and conflict between local communities and forest managers. In Uganda, community forestry is a recent concept and there is a need to develop mechanisms for involving local people in forest management.

DESCRIPTION OF THE STUDY AREA

Budongo forest reserve is a medium altitude moist semi-deciduous forest. It is located between 1^0 35' - 1^0 55'N and 31^0 18' - 31^0 42' E on the edge of the western rift valley in western Uganda. Budongo Forest Reserve was gazetted as a Central Forest Reserve in 1932. The reserve, which is a mixture of tropical high forest with a large population of mahoganies, woodlands and savanna grasslands thought to be capable of supporting forest, covers 825 km^2, making it Uganda's biggest forest reserve (Hamilton 1984). It has one of the longest continuous research records of any tropical high forest in Africa (Langoya and Long 1997) with permanent plots dating back to the beginning of this century. Budongo forest is of exceptional biodiversity importance, ranking third in overall importance in the country (Howard *et al.* 1996). There are about 465 species of trees and shrubs and about half of the forest reserve is dominated by *Celtis*, *Khaya* and *Cynometra* spp.

The forest is surrounded by several agro-pastoral ethnic groups of Sudanic and Congo origin. Crop production is the major economic activity. The main cash crop grown is tobacco and the major food crops are maize, beans, cassava, potatoes, millet, groundnuts and bananas. According to Langoya and Long (1997), the local population has changed in composition during this century. The traditional inhabitants, the Banyoro, were joined by peoples from other parts of Uganda, Sudan and Congo, who settled in the villages surrounding the forest. As a result, the local community today is very heterogenous in terms of culture, language and nationality.

METHODOLOGY

Survey procedure

Methods of assessing people's attitudes and behaviour are well documented in the social science literature (*e.g.* Lindberg 1929, Young 1949, Atkinson 1979 and Lloyd *et al.*1984). Generally, the manner in which local communities use forest resources and react to forest rules determines their social behaviour and attitudes towards the forest. According to Gross (1987), there is a relationship between one's attitude and behaviour. Therefore if one's attitude is known, it is possible to predict his/her behaviour. But attitudes can only be used to predict behaviour when appropriate measurement techniques are used. In this study, it was felt that in order to predict whether local communities living adjacent to Budongo forest reserve would participate in a collaborative forest management programme, their use of forest resources and attitudes towards forest management practices need to be known.

Sampling technique

The target population was the local communities living in the villages adjacent to the Budongo Forest Reserve. A village was defined by boundaries of Local Council 1 (LC1). An LC 1 is the smallest political and administrative unit in the current system of government in Uganda. In planning the study, a household was considered to be a family of people who lived in one homestead, shared the same food and were registered under one name with the village local council. Two hundred households were randomly selected from eight villages for the interviews based on two criteria: first the level of forest resource use by local communities, and second proximity to the forest boundary. According to Obua (1996), local communities living within a range of five kilometres from the forest boundary directly affect or are affected by the presence of a forest. Consequently, state control of the forest affects their attitudes towards management of the forest resource.

Questionnaire administration

Standard structured questionnaires were used to interview the household heads between November 1996 and March

1997. The questionnaire was designed to collect information on the demographic and socio-economic characteristics of the households, forest resource use and local attitudes towards forest management practices. Open ended questions were especially used to solicit information on forest resource use and forest management practices. The interviews were carried out between 9.00 am and 3.00 pm either at home or in the crop fields where people were working. Discussions were also held with key informants such as Local Council Chairmen, women leaders, youth representatives, village elders, Forest Officers and staff of the Budongo Forest Project.

Data analysis

Answers recorded during the interviews were coded and entered for computer analysis using Lotus 1-2-3. A variable description file was prepared and data were analysed using SPSS computer software. Chi-square tests were used to show the relationship between forest resource use by the households and their demographic and socio-economic characteristics. Knowledge of such a relationship is important because socio-economic factors such as education, employment and income determine the extent to which local people depend on the forest for their livelihood. Moreover, forest resource use is often a source of conflicts and can influence people's attitudes towards forest management practices. The logistic regression model (Koutsoyiannis 1977) was also used for two main reasons. Firstly, to show whether demographic and socio-economic characteristics of the households can affect their willingness to participate in forest management. Secondly, to show whether the opinions of respondents on forest management practices were influenced by factors such as sex, age, education, income, occupation and ethnicity. The model is represented as:

$$P = \frac{e'}{1+e'}$$

where

P = probability of an individual saying 'no' (0=unwilling) or 'yes' (1=willing) to participatory forest management. In using the model, it is assumed that the probability that an individual supports participatory forest management is independent of their demographic and socio-economic characteristics, i.e.

$P_i(0,1) = a_0 + a_1\ \text{sex}_i + a_2\ \text{age}_i + a_3\ \text{education}_i + a_4\ \text{income}_i + a_5\ \text{occupation}_i + a_6\ \text{ethnicity}_i$,
$a_0 \ldots a_6$ are coefficients,

e = the base of natural logarithms,

z = linear combination of demographic and socio-economic factors $(B_0+B_1X_1+B_2X_2+\ldots B_6X_6)$,
$B_0 \ldots B_6$ are coefficients, and
X is a demographic/socio-economic variable, namely X_1 sex, X_2 age, X_3 education, X_4 income, X_5 occupation and X_6 ethnicity.

RESULTS AND DISCUSSION

Demographic and socio-economic characteristics

The demographic and socio-economic characteristics of the households are presented in Table 1. More than half of the households were peasant farmers engaged in economic activities such as carpentry and joinery, brick making, fishing and brewing of the local drink (waragi). About one third were aged between 30 and 50 years and had primary education only.

TABLE 1 *Demographic and socio-economic characteristics of households living near Budongo Forest Reserve (n=200)*

Household characteristics	n	%
Sex		
Male	135	67.5
Female	65	32.5
Age		
<30	96	48
31-50	80	40
>51	24	12
Educational background		
No formal education	29	14.5
Primary education	113	56.5
Secondary education	51	25.5
Tertiary education	7	3.5
Family size (number of people)		
1-5	94	47
5-10	87	43.5
11-15	16	8
>15	3	1.5
Occupation		
Peasant farmer	113	56.5
Pitsawyer	24	12
Civil servant	21	10.5
Trader	17	8.5
Other	25	12.5
Ethnicity		
Banyoro	63	31.5
West Nile tribes	124	62.0
Others	13	6.5

Forest resource utilisation

Table 2 shows the various forest products harvested by local communities living around Budongo Forest Reserve and the percentage of respondents who harvest them. It is clear that the local population depends on forest resources for their livelihood. Forest products harvested by the majority of respondents were firewood, building poles, rattan, water, timber, wild vegetables, mushrooms and medicinal plants. As expected, respondents were reluctant to talk about charcoal production for fear of being apprehended. Similarly, the use of traditional medicine

could be higher than reported considering that there are no clinics and hospitals in the area. The use of forest plant materials for handicrafts is still widespread and this study has shown that 77% of the respondents harvest rattan canes to manufacture a wide range of handicrafts.

TABLE 2 *Use of forest products by local communities living around Budongo Forest Reserve*

N=200

Product	Number of respondents	%
Firewood	197	98.5
Building poles	194	97.0
Rattan	154	77.0
Water	152	76.0
Timber	137	68.5
Wild vegetables	133	66.5
Mushrooms	123	61.5
Medicinal plants	119	69.5
Bush meat	111	55.5
Clay	80	40.0
Fruits	56	28.0
Honey	46	23.0
Charcoal	10	5.0

About two thirds said they harvested wild vegetables from the forest to supplement their family diet. The importance of forest foods and other products to the economic well-being of local communities is well documented, for example, by Falconer and Arnold (1988), Saowakontha *et al.* (1994), Fox (1995) and Banana and Turiho-Habwe (1997). They reported that forest foods contribute substantially to the food security of rural households.

The chi-square statistics presented in Table 3 shows that there is a significant relationship between the demographic/socio-economic characteristics of the households and their use of forest resources. For instance, younger men harvested timber and produced charcoal (without permit) whilst women harvested clay (to make pots for cooking and storing drinking water), firewood, and wild vegetables. The results further suggest that people with higher education tend to be employed and do not use many forest products.

Generally, local community are allowed to extract traditional non-timber forest products for subsistence (Langoya and Long 1997). However, they require a permit to harvest these products in commercial quantities. The harvesting of timber and charcoal is severely restricted. This restriction has created mistrust between the local people and the Forest Department and resulted in negative attitudes towards forest officials and forest management. Local people living closest to the forest claim that the forest is being managed for timber production, which provides a large income, but they do not see the benefits from the timber business. The mistrust was exacerbated in the 1970s and 1980s by corruption on the part of some Forest Department officials, who were perceived as lining their own pockets with benefits whilst denying them to the local people.

TABLE 3 *Chi square statistic of the relationship between demographic/socio-economic factors and forest resource use around Budongo*

Demographic/ socio-economic factor	Forest product	X^2	df	Probability	Significance
Age	Timber	9.45	2	0.009	**
	Charcoal	5.03	2	0.08	*
Educational	Timber	8.81	2	0.01	**
	Honey	7.39	2	0.02	*
	Charcoal	7.16	2	0.03	*
	Medicine	4.73	2	0.09	ns
	Firewood	7.46	2	0.02	*
Sex	Timber	12.84	1	0.0003	***
	Charcoal	3.64	1	0.06	ns
	Clay	6.86	1	0.008	**
	Vegetables	7.01	1	0.008	**
Occupation	Timber	7.48	1	0.006	**
	Honey	12.64	1	0.0004	***
	Charcoal	10.44	1	0.001	***
Income	Timber	16.08	2	0.0003	***
	Charcoal	6.40	2	0.04	*
Ethnic group	Timber	4.58	2	0.10	ns
	Honey	8.58	2	0.01	**
	Clay	11.51	2	0.003	**
	Water	34.69	2	0.000	***
	Charcoal	5.31	2	0.007	**

Notes: ns = not significant,**significant at p 0.05, ** significant at p 0.01, *** significant at p 0.001

Attitudes and willingness to participate in forest management

About 75% of the respondents claimed that the forest officials in Budongo are harsh and do not give them the opportunity to discuss problems of forest resource use. Despite this and other problems such as crop damage by forest wildlife, the majority (85%) of the households said Budongo forest reserve should still be managed under the Forest Department. They suggested that local involvement in forest management should first be introduced in the form of forest patrol and participation in other activities could then be gradually increased. About 60% indicated that they would participate in forest management, but their roles must be clearly defined to avoid conflicts in future. Those who were unwilling to participate argued that they did not have sufficient knowledge of forest management although others felt that this would not be a major

problem if collaborative forest management was introduced and local people were adequately educated about their roles. The logistic regression analysis shows that apart from educational background (significant at $P \leq 0.05$), all the other demographic and socio-economic characteristics of the households did not significantly influence their decisions to participate in the management of Budongo Forest Reserve as well as their attitudes towards forest management practices (Table 4). Generally, education tends to increase one's awareness of the importance of the environment and natural resources. Based on the findings of this study, it can be said that educated people (who are usually younger) are more informed and confident about participatory forest management than the elderly and uneducated.

TABLE 4 *Logistic regression analysis of the relationship between demographic and socio-economic factors and willingness to participate in the management of Budongo Forest Reserve*

Demographic/ socio-economic factor	B	R^2	Probability	Significance
Sex	-0.062	0.06	0.08	ns
Age	0.23	0.00	0.70	ns
Education	0.99	0.63	0.008	*
Income	0.41	0.06	0.06	ns
Occupation	0.71	0.05	0.09	ns
Ethnicity	-1.04	0.09	0.06	ns

Notes: ns = not significant, * significant at $p \leq 0.05$

CONCLUSIONS AND RECOMMENDATIONS

This Note has attempted to explore how local communities' use of forest resources, user rights and demographic/socio-economic characteristics can influence their attitudes towards forest management practices. There is a need to promote active, organised and self-governed involvement of local communities in forest management. Moreover, there is a strong case for a shift from state forest management to a more participatory approach in which indigenous communities living close to forest reserves are involved in forest management. Lack of communication between forest officials and local people creates resentment and negative attitudes towards forest management. According to Infield (1988) and Hough (1988), forest officials need to understand the needs of local communities for forest products and must consider them as partners in forest management rather than violaters of forest rules.

Uganda's Forest Policy has in the past concentrated state control over forest resources and paid little attention to local participation in forest management. Failure to recognise indigenous systems of forest management and local community's rights to economically valuable forest resources will lead to excessive reliance on punitive measures by the state to enforce forest rules and regulations. This, in turn, will result in loss of incentives by the local communities to engage in afforestation, tree planting and management of forest resources.

Since 1988, the Forest Department has adjusted its policy so as to include local community involvement in forest management. Reports of pilot studies carried out around Mabira and Butto-Buvuma forest reserves in southern Uganda indicate that not all communities will succeed in managing forest resources in their vicinity (Gombya-Ssembajjwe1996). Determining local communities' attitudes towards forest management practices and their commitment to participate is therefore crucial to the success of any collaborative forest management.

Genuine local involvement in the decision making process and management of forest resources has several advantages. Firstly, it serves to promote public interest and confidence in forest activities. Secondly, it helps to build credibility and transparency in forest management. Thirdly, it reduces management costs and forest degradation and increases benefit flow to local communities. In Budongo Forest Reserve, planning and negotiating resource use will improve the relations between the forest managers and the local people and reduce the risk of deliberate forest destruction. The experiences from Bwindi Impenetrable and Mgahinga forests in south western Uganda suggest that co-management has great potential for effectively resolving forest resource use conflicts (Cunningham 1996, Wild and Mutebi 1996). Ultimately, forest managers and the state stand to benefit substantially from local involvement in forest management. As stated earlier, younger and educated people are more likely to participate in forest management than the elderly and uneducated. The Forest Department could, therefore, collaborate with them to raise awareness among the local communities about the importance of joint forest management.

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