Sustainable management of indigenous forests in Mwanza East, Malawi: an innovative approach to community-based natural resource management projects

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SUMMARY

Sustainable management of indigenous forests continues to be a growing challenge in Malawi. Rural communities overexploit forest resources. The root causes of this are poverty, ignorance and rapid population growth. Most poor rural communities live close to rich forest resources, but most of these resources are mismanaged, overexploited or underexploited. The forests of Malawi contain a wealth of biological diversity that offers an opportunity to develop income-generating activities based on non-timber forest products (NTFPs). However, innovative approaches need to be developed to assist rural communities in managing their forest resources in a sustainable manner.

A community-based natural resource management approach being applied in Mwanza East, Malawi, has shown that income from NTFPs and related activities can build up household livelihood strategies by increasing incomes and food sources of local people, and can provide for general sustainable development. This in turn can encourage communities to conserve and manage their natural resources in a sustainable manner because of the inherent direct value that NTFPs have.

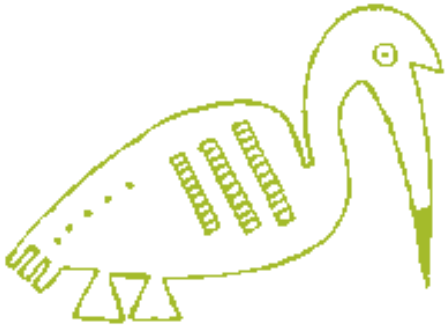
The community-based natural resource management approach adopted is encouraging innovative ideas and activities that are less destructive, sustainable and give better returns. Another advantage of the approach is that the technologies being encouraged are simple and cheap. Simplicity and low cost are critical factors for sustainability and extension to other communities that have access to similar resources. Further, the benefits accruing from sustainable management of natural resources are going to the needy, assisting them to escape the vicious circle of human poverty.

However, proper NTFP harvesting methods and mitigation measures need to be put in place by communities once these products have been commercialized to minimize mismanagement or overexploitation of such resources. Above all, public awareness of the exhaustion of natural resources needs to be part and parcel of the whole process of NTFP extraction and forest management. The full support and commitment of the government is needed to assist communities and non-governmental organizations (NGOs) in this valuable work if community forestry using the community-based natural resource management approach is to succeed in Malawi.

Introduction

Malawi is 118 000 km^2 in size, has a population of about 10 million that is growing at a rate of 3.2 percent per annum and has a population density of 215 per km^2 of arable land. It is mainly rural (86 percent), agro-based and still a very poor country with a gross domestic product of about US$200 per capita. Forests cover about 40 percent of total land area, while the average deforestation rate (about 2 percent per annum) is the highest in the Southern African Development Community (SADC) region. With such a scenario, natural resources and the environment are, in general, under heavy pressure from poor exploitation practices and overutilization. For example, wildlife and forest resources are increasingly being overexploited to meet daily basic household needs. The causes of this are multiple – poverty, urbanization, agricultural expansion, heavy dependency on wood for energy, illiteracy and overpopulation are some of them. All too often it occurs that, where a few years ago there used to be green and beautiful hills that continued to mountains, now there are brown, gullied and unsightly hills that can damage other resources. The Wildlife Society of Malawi and other partner organizations recognize the need to implement creative or innovative schemes to conserve the remaining areas of natural woodland on customary land, contain any further woodland loss and provide model examples for alternative systems.

This paper outlines some of the innovative approaches that the Wildlife Society of Malawi has created in implementing a forestry project aiming at sustainable management and utilization of forest resources in Malawi.



Project description

The Sustainable Management of Indigenous Forest Project under SADC started in October 1996. The project is funded by the German Agency for Technical Cooperation (GTZ) and coordinated by the SADC Forestry Sector Technical Coordination Unit (SADC-FSTCU). To ensure sustainable management of the available natural woodlands, a community-based natural resource management programme, which allows local people to participate, was designed. Local people are the major stakeholders in utilizing the forest resource by virtue of being custodians of the forests. The project is under way in Malawi, Mozambique, Botswana and Namibia.

The Wildlife Society of Malawi is the implementing agency for the Malawi component of the project, in collaboration with the Department of Forestry of the Ministry of Forestry, Fisheries and Environmental Affairs.

The Malawi project is located approximately 60 km northeast of Mwanza Boma in Traditional Authority Symon's area, and involves the villages of Kam'mwamba, Gobede, George, Manyenje and Chikwekwe in Mwanza District, Southern Region. The population of the project area was estimated at 4 000 in 1998, with a total land area of 6 150 ha, of which 3 020 ha was under forest cover (as of 1995).

The construction of a new road (Blantyre to Zalewa) through the area in the late 1980s led to increased settlement. This resulted in clearing of forests for gardens. Easy access to the nearest commercial city of Blantyre stimulated illegal trade in charcoal and fuelwood. These factors help explain why the area has been experiencing deforestation at an annual rate of 1.6 percent.

Project goal and aims

The project was instituted with a development goal of managing natural resources sustainably to ensure better living standards for the local community. This was to be achieved through the capacity building of local communities.

The project aims are to:

- reduce deforestation;
- integrate women and marginalized groups in natural resource management;

- empower local communities to manage natural resources sustainably;
- control the illegal timber and fuelwood/charcoal trade;
- harvest and market NTFPs; and
- install efficient project management systems.

The process

Participatory project planning

The project started with a Participatory Rural Appraisal (PRA) study conducted in September 1996. The study results revealed that the area was experiencing natural resource degradation chiefly because of poverty, population pressure and lack of environmental education (Mataya and Mauambeta, 1997; Mauambeta and Kachigwali, 1996). People were cutting down trees for charcoal and fuelwood to earn income. The villagers were largely ignorant of the consequences of such acts and the increase in population resulted in the felling of trees in forest areas to clear land for farming. During the PRA, communities prioritized their concerns and developed action plans for implementation.

Awareness campaigns

Awareness campaigns are conducted regularly to arouse awareness in, and stimulate action by, the local community on environmental issues, mostly on the dangers of uncontrolled tree cutting. These campaigns usually take the following forms:

- drama performances by both local and professional artists;
- songs and dances composed and performed by local environmental bands;
- video shows; and
- direct meetings with communities.

The performances are heavily laden with environmental messages and provide local people with some much-appreciated entertainment.

Community mobilization

Communities are mobilized to play a role in natural resource management. This is done through the formation of village natural resource management committees (VNRMCs). These committees oversee natural resource management activities in each village. Within each village there are interest groups or clubs carrying out various activities such as beekeeping, guinea-fowl rearing, tree nursery establishment and management. The committees coordinate the various activities in each village.

Community empowerment and capacity building

The mobilization is strengthened by training in leadership skills, developing by-laws for the management of the community's natural resources and training in various activities organized by the interest groups. The project provides free capital inputs during the first year for local communities to get started. These include tree seeds, planting pots and other project materials.

Monitoring and evaluation

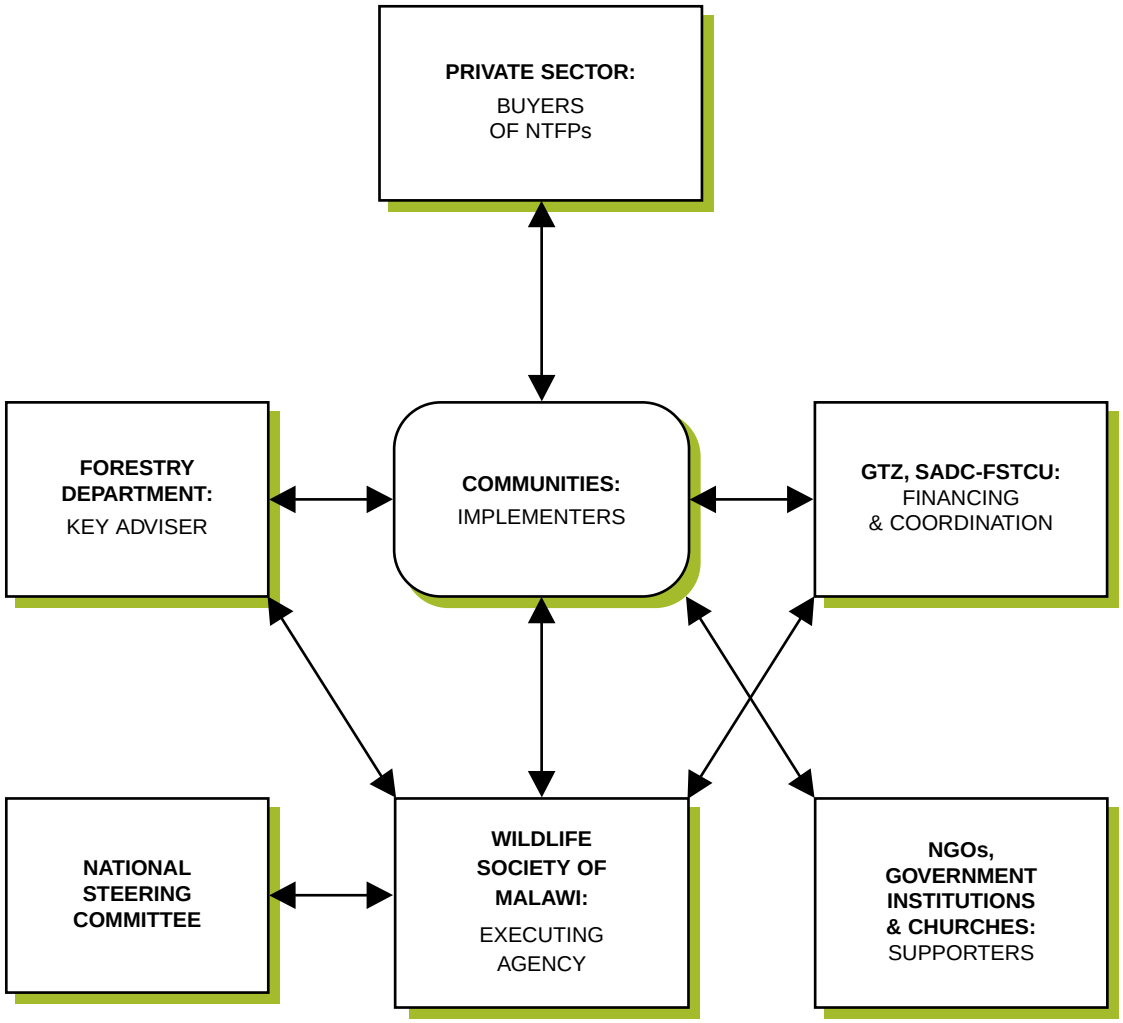
Most monitoring of the community activities is done by village-based workers (VBWs), who are assisted from time to time by a Project Assistant (PA), an Assistant Country Project Manager (ACPM) and a Country Project Manager (CPM). It is done through club or farm visits where meetings are regularly held with the people. The VBW's role is mostly advisory. At another level, communities monitor their activities from time to time and can obtain assistance and advice from the project office.

Institutional structure

Stakeholder analysis

In implementing the project, several stakeholders are involved in co-managing the natural resources. The most prominent are the communities themselves, with the Wildlife Society of Malawi as the leading executing agency and the Forestry Department as the key adviser. Additional stakeholders are churches, education and research institutions, government departments, NGOs and the business sector (see Figure 1).

FIGURE 1 • Stakeholders involved in co-managing forest resources in Mwanza East, Malawi



Project management structure

To ensure the effective and smooth running of the project, it was felt important to put in place an institutional structure from the national level down to grassroots level. A diagrammatic representation of the project structure is shown in the Appendix to this case study.

National level

At national level, there is the National Steering Committee, composed of 15 members drawn from a wide spectrum of people and institutions, including traditional and political leaders, government departments, the donor community, academicians and research institutions, NGOs and the beneficiary community. The committee guides project management at national level and meets biannually.

Local level

At local level there is the Local Steering Committee, composed of ten members drawn from the five villages. This committee guides the project at community level.

Still at local level are VNRMCs, each one drawing its membership from a particular village. These committees were put in place to oversee natural resource management activities in each village.

Immediately below these committees are interest groups and clubs carrying out various project activities, such as beekeeping and guinea-fowl rearing.

Project activities

The project is promoting a basketful of activities, depending on community needs. However, much emphasis is put on sustainable management of indigenous forest resources to ensure continued availability of benefits for the communities. Broadly the activities are divided into two groups.

Natural resource management activities

Communities and individuals are being encouraged to manage and protect forests and trees in woodlots, around homesteads, on farms and in other areas.

Natural regeneration of indigenous trees

The project area has numerous small shrubs and saplings. If these are given a chance to grow for some years, the area will gain its forest cover.

Encouraging restocking and replanting

Apart from relying on natural regeneration, communities have embarked on tree planting in areas devoid of trees. Tree species being planted include fast-growing multipurpose, exotic and indigenous species, agroforestry tree species for soil improvement, and fruit- and non-fruit-trees for different functions and services. To encourage families to plant more fruit-trees, women in the area have developed a motto: “A fruit-tree planted for every child every year.”

Tree planting and management are carried out at three levels.

1. Individual household level: a household establishes its own woodlot near the home for easy access, or establishes its own individual forest area.
2. Community (village) level: a village establishes a village forest area for communal use.
3. Institutional level: an institution such as a school or a church establishes its own forest area for the use of that institution.

Conducting research on NTFPs

Research is being conducted on NTFPs available in the area, local use of such products and possible ways of improving or marketing them for income generation. Inventories are being carried out, together with other related activities.

Assisting communities

Communities are assisted to develop by-laws, land use plans and forest management plans for the effective management of natural resources.

Natural resource-based income-generating activities

The project is encouraging off-farm activities to generate household income and supplementary food sources. Some of these are described below.

Beekeeping

Beekeeping is a traditional activity in the area (Simons and Chilimampunga, 1997). It is being encouraged because bees can only survive in a healthy, peaceful environment with enough water and the right tree species for sufficient honey production. Communities are encouraged to plant and conserve tree species that produce large quantities of good quality nectar for maximum honey production.

The project area has 22 beekeeping clubs with a total of over 70 beehives. The clubs are trained in modern methods of beekeeping using the Malawi standard beehive (a modified Kenyan top-bar hive) instead of the traditional and tree-unfriendly tree-bark hives. Once mature, the honey is harvested, processed and packed for sale and consumption.

The market value for honey in Malawi is estimated at US$1 per 500 g. A beehive can produce up to 20 kg of honey, translating into cash of up to US$40 per hive at harvest. An individual hive can be harvested up to three times a year.

Guinea-fowl rearing

Traditionally, guinea-fowl are wild birds. Their domestication is being encouraged because they are resistant to common poultry diseases, require very easy management practices, have delicious meat, are economically more attractive than chickens and are beautiful to keep at home.

At the start of the project in 1996, there were no guinea-fowl in the project area. At present, there are 25 guinea-fowl-rearing clubs keeping over 700 birds. The communities have been trained in guinea-fowl rearing and supplied with start-up parent stock birds.

Guinea-fowl fetch up to US$8, or around 300 kwacha (MK) per bird, depending on size and demand, compared with an average price of US$2.50 for chickens. Guinea-fowl eggs sell for US$0.33 (MK15) each. There is potential for the demand for guinea-fowl to exceed that for chickens, and they may become a delicacy in resort areas and public places.

One major problem at present is the high death rate of guinea-fowl chicks because of poor management, especially during the first three weeks after hatching.

Indigenous fruit processing

A survey conducted in the area in 1997 identified 18 wild fruit-tree species from which communities could harvest fruits for local consumption and sale (Simons and Chilimampunga, 1997). Of these, villagers noted that *Adansonia digitata* and *Tamarindus indica* were the most important, because during periods of famine the fruits are ground and made into porridge. The fruits can also be made into a local drink. About 40 percent of the villagers were also selling the raw fruits, mainly to school pupils, though very cheaply. Similar experiences have been reported in Burkina Faso (Lamien, Sidibe and Bayala, 1996).

The project has made some improvements on the traditional drink made from the fruits of *Adansonia digitata* and *Tamarindus indica.* These fruits are now processed into *malambe* (baobab) and *bwemba* (tamarind) fruit juices respectively. The malambe and bwemba fruits are bought from the local communities who harvest them from the forests. The processing method involves removing the fruit shell, soaking the pulp together with the seeds, sieving the contents, heating, and adding sugar and preservatives. The equipment used is locally made and cheap.

The market value of *Adansonia digitata* fruits is at present US$0.05 per fruit. After adding value, an average fruit can be made into a 500-ml bottle selling at US$0.50 (MK20). Similarly, 0.5 kg of raw *Tamarindus indica* fruits sells at US$0.10. After processing, a 500-ml bottle sells for US$0.50.

A benefit-sharing mechanism has been put in place so that all communities can profit. At community level, a bank account has been opened by the Local Steering Committee so that the proceeds can be saved. They are divided as follows: two-fifths finances village development activities such as borehole maintenance and the establishment of a drug-revolving fund; two-fifths is banked for sustainability of the production process; and one-fifth is paid to communities processing the fruit juices.

Apart from the income, the fruits have been found to have very high nutritional value compared with other fruits. For example, *Adansonia digitata* is rich in calcium, iron, vitamin C and phosphorus, while *Tamarindus indica* has a high energy value and is rich in phosphorus and calcium (Lamien, Sidibe and Bayala, 1996; Saka and Msothi, 1994).

Bamboo furniture making

Communities have been trained in cane furniture making using fast-growing bamboos and creepers. Such furniture commands good prices on both local and international markets. Currently demand for Malawian furniture is high in Germany and South Africa.

Fire briquette making

Women are being trained to make fire briquettes as an alternative to fuelwood. They can sell the briquettes or use them themselves. The briquettes utilize raw materials that are otherwise waste matter.

Achievements

Since its inception in October 1997, the project has achieved some remarkable results. These include the following.

- Community members (men, women and youths) increasingly participate in project activities.
- More areas are being set aside as forest areas/woodlots by local communities.
- Illegal charcoal and fuelwood production is decreasing in areas where this was a major activity.
- A well-defined institutional structure for sustainable project management has been put in place and is working successfully.
- There has been a change in the way communities perceive natural forests. They know that natural forests were provided by nature, but are now coming to realize that the continued availability of natural forests depends entirely on their attitude and conduct towards them. Most villagers are now refraining from careless tree cutting and are planting their own trees instead.
- Several alternative income-generating activities have been identified and are currently operational.
  - There are 25 guinea-fowl clubs currently rearing over 700 birds.
  - There are 22 beekeeping clubs with over 70 beehives installed.
  - The project is processing bwemba and malambe fruit juices. Only recently US$1 200 (MK50 000), the proceeds for 1998 malambe fruit juice sales, was injected back into the community. A legal mechanism has already been put in place to protect the communities from unscrupulous and greedy business people who may harbour thoughts of making a fortune from these activities.
  - The communities have skill in cane furniture making and other activities.
  - The communities have raised about 31 500 tree seedlings, some of which have been sold to earn income.
  - The communities have been mobilized and empowered to look after their natural forest resource themselves. Over 70 percent of the 4 000 people in the area are taking part in project activities.
  - The project has successfully carried out research activities to identify NTFPs, identify culprits involved in the charcoal and fuelwood trade, process fruit juices from indigenous fruits (which culminated in the processing of malambe and bwemba fruit juices) and quantify karaya gum yield from *Sterculia quinqueloba* trees.

In summary, the approach being advocated has successfully demonstrated that producing and selling charcoal and fuelwood can be stopped in favour of beekeeping, guinea-fowl rearing and fruit juice production.

Problems encountered

Despite the remarkable achievements of the project activities, some problems remain.

Laggards

A minority group still shows inadequate understanding and continues to cut down trees illegally. Positive attitude change takes time.

Inappropriate harvesting methods of some NTFPs

This is a result of inadequate training and extension messages, especially to communities outside the project area. For instance, some villagers, when harvesting tamarind fruits, cut down the whole tree. Similar experiences have been reported in Iquitos area, Peru (Vasquez and Gentry, 1989). Mechanisms are being put in place to determine quotas and proper harvesting methods such as those recommended by Ros-Tonen *et al*. (1998) and Ros-Tonen, Dijkman and Lammerts van Bueren (1995).

Logistical problems

There have been some difficulties in acquiring some project materials.

Inadequate community empowerment

No clear mechanism has been put in place by the government to empower communities to confiscate or dispose of forest products, especially charcoal and firewood.

Technical problems

Because of certain climatic conditions, such as high temperatures, most of the beehives installed have not been colonized. Similarly, some guinea-fowl chicks have died during the first two critical weeks after hatching.

Recommendations

To ensure success in the battle against deforestation and environmental degradation in general and the success of the Sustainable Management of Indigenous Forest Project in particular, and indeed other environmental projects, several areas need to be revisited. The World Conservation Union (IUCN) in 1996 listed a number of these, which the author and others involved in the Malawi project have found to be realistic. The group's recommendations are as follows.

Legalization of charcoal and fuelwood

We must not pretend that we are winning the battle against the charcoal and fuelwood trade, or that this trade will come to an end. It is here to stay. All efforts by government and NGOs to tackle this issue will therefore be in vain. The government must look at ways to legalize the charcoal and fuelwood trade but must also find ways to regulate it. NGOs such as the Wildlife Society of Malawi are ready and willing to provide advisory services on how to utilize trees sustainably for fuelwood and charcoal.

Reduction of electricity tariffs

There is need to reconsider reducing electricity tariffs, duty on electrical appliances used for cooking and the price of paraffin. This could be done through subsidies to make electricity accessible and affordable to as many people as possible. Consequently, the pressure resulting from the overdependence on trees for fuel would be eased, saving some trees from the axe.

Community empowerment and legal protection for NGOs

Clearer mechanisms should be put in place to empower the communities to confiscate and dispose of forest products obtained illegally. This empowerment would ensure the enforcement of by-laws enacted by the community to govern the utilization of forest products.

The current forestry policy encourages the participation of all stakeholders in the management of forest resources. However, only VNRMCs are legally protected by the Forest Act. There is therefore a need to amend the 1997 Forest Act to extend this protection to NGOs and other stakeholders.

Removal of duty or tax on project materials

The government's concern about environmental degradation must be shown more through action than through its pronouncements. One way is to render help in every way possible to all those addressing environmental issues. One form of assistance is to facilitate the fast and smooth acquisition of materials they require to carry out their activities effectively. This can be done by waiving duty or tax on such materials.

Conclusion

Deforestation in Malawi has reached serious proportions. Trees do not have a chance to regenerate and the situation will worsen if the corrective measures that have been put in place prove ineffective. It is also apparent that local communities are forced by necessity or poverty to engage in destructive activities. Unfortunately, the more trees and natural resources are destroyed, the deeper the people slide into poverty. At present, the main policy of the Malawi Government is poverty alleviation, with the long-term goal of poverty eradication. The community-based natural resource management approach therefore links the poverty alleviation objectives with those of sustainable management of natural resources. The approach is providing local people with income-generating activities, ensuring a supply of forest products and providing jobs. In addition, communities are improving their natural resources and the environment.

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Appendix

FIGURE 2 • The Sustainable Management of Indigenous Forest Project in Malawi – the project structure