



From Conflict to Collaboration



People and Forests at Mount Elgon, Uganda

Penny Scott

July 1998

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Elgon, Uganda

IUCN's Forest Conservation Programme

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Preface

Shifts in global strategies for the management and conservation of natural resources have given increasing consideration to the needs and opinions of neighbouring populations. Sustainable utilisation of resources within the boundaries of protected areas is appearing as a key component on management agendas worldwide. Paramilitary approaches are being replaced by initiatives which encourage the cooperation and involvement of local communities. Within Uganda, the institutions responsible for the management of protected areas have demonstrated a very positive attitude towards this shift in strategy, and formalised utilisation of resources and community-based management are being initiated in a number of national parks.

Mount Elgon straddles Uganda's border with Kenya. The protected area on the Uganda side covers approximately 1145 sq. km of the mountain's uppermost slopes. The administration of this area has recently been transferred from the Forest Department to Uganda National Parks (UNP). High human population densities and a reliance on subsistence agriculture are reflected in the heavy dependence of the neighbouring population on the park's resources. Such high levels of dependence in combination with the former paramilitary approach to management have bred a relationship between management and the people that is grounded in hostility and conflict.

The Mount Elgon Conservation and Development Project – implemented by the Government of Uganda with technical assistance from IUCN and financial assistance from the Norwegian Agency for International Development (NORAD) – has been assisting the protected area management authority with both in-forest and community issues since 1988. In anticipation of the need to incorporate sustainable utilisation into the future management regime, park and project management recognised the need to undertake an assessment of the nature and extent of forest use. Consequently, a resource-use assessment was carried out between November, 1993 and March, 1994.

This book emanates from that resource-use assessment. The main objectives are to present the approach taken in investigating the people/forest connection, and to document the importance of the forest to the locally resident population. The book also outlines the application of the results to various levels of the decision-making process, with particular emphasis on how the information is useful as a foundation for embarking on a collaborative approach to management of the park.

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The key to the success of the research lies with the communities of Bumwambu, Buwundu, Ulukusi, Kapkwai, Benet and Mutushet parishes. It is to these people that I extend my deepest thanks. We could not have wished for greater cooperation and hospitality than that which was offered during our field work. I sincerely hope that their effort and enthusiasm will be rewarded in the near future.

Finally, I wish to thank IUCN for making this publication possible.



Part 1:

Background

1. Introduction

Conservation today: emphasising the human element

A new global philosophy

In the past couple of decades, there has been a general shift in global opinion regarding the management and conservation of natural resources. Particularly with respect to countries within the tropical realm, it is now widely accepted that paramilitary, preservationist management strategies – commonly a legacy of colonial rule – are ineffective given the socio-economic and cultural climate in which they operate. In many cases, centralised institutional bodies, mandated to manage natural resources, have not been effective (Bartlett et al., 1993). Rather than securing the protection of biodiversity and ecological processes, “paper parks abound and deforestation rates have increased” (Alcorn, 1993).

It is widely recognised that in many areas it is conflicts between interest groups, most commonly “resource users” and “resource conservers”, that are crippling conservation efforts. One of these interest groups is the locally resident population, who are often the most dependent on the utilisation of the resource, and who consequently suffer the most negative impacts of its degradation. In the past, the needs of conservation – or, more accurately, preservation – have taken precedence over those of the neighbouring population, and natural resource management decisions have often been made without consulting the people whose lives were most directly affected. Local communities have generally been either disregarded or actively agitated by institutions mandated to manage protected areas.

Recently, conservation strategies have moved towards addressing and ameliorating these conflicts. A revised definition of conservation, brought forth in the 1980 World Conservation Strategy (IUCN/WWF/UNEP, 1980), encompasses a new emphasis on the human element:

“... the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. Thus conservation is positive, embracing preservation, maintenance, sustainable utilisation, restoration and enhancement of the natural environment.”

An evolution from paternalism to collaboration

“Local participation” is a term which has been appearing in the literature for several decades now. It is only recently, however, that the distinction has been made between “beneficiary participation” and “participatory participation”. The former is a familiar scenario for many internationally designed and implemented conservation initiatives. Efforts are made to create an awareness of conservation and disseminate social and economic benefits in an attempt to gain

the support of neighbouring populations for local conservation activities. Decision-making power remains totally in the hands of external bodies, commonly centralised governments.

Ideally, participatory participation focuses on involving people directly and actively in all stages of the management and decision-making process:

“...empowering people to mobilize their own capacities, be social actors rather than passive subjects, manage the resources, make decisions and control the acts that affect their lives.”

(Cernea, quoted in Wells and Brandon, 1992: p. 42; emphasis added).

Thus the community-friendly philosophy towards conservation has evolved from a paternalistic consideration of the concerns of local people and attempts to mitigate the negative impacts of conservation, to offering resource users decision-making rights and devolving varying degrees of power from centralised administrative units to the local level. The emphasis is transferred from assisting and educating the perceived ‘ignorant’ masses, to giving them the opportunity to effectively and meaningfully use the knowledge and capacity they already possess.

In this way, conflict management is achieved through collaborative management of resources; in essence the people are no longer viewed as the problem, but rather as the solution (Bartlett, 1992; Gilmour, 1994). The underlying principle behind this philosophy is that benefits, responsibilities and decision-making powers are shared, to varying degrees, and through a range of approaches, among some or all of the stakeholders in the resource. The experiences under the umbrella of this philosophy differ considerably. Terms such as “joint forest management”, “community forestry” and “co-management” have been used to describe different approaches towards involving local people in natural resource management around the world. Fisher (1995; p. 6) uses “collaborative management” as a broad term to refer to all resource-management approaches which encompass three elements:

- recognition of the legitimacy of values of development and conservation;
- a view that development and conservation goals are not necessarily antagonistic; and
- a commitment to some level of participation or collaboration in environmental management by local people.

The degree to which communities are brought into the management and decision-making process varies considerably, with all conservation initiatives falling somewhere along the management continuum extending from absolutely no community involvement at one extreme, to the devolution of all control over the natural resources at the other (Borrini-Feyerabend, 1996). There is no “right” place to be on this continuum; where a conservation initiative is situated is highly dependent on what is appropriate and feasible within the institutional, ecological, ecological and social environments in which it operates.

An abundance of literature has been generated on the principles and experiences of working with communities in the management of natural resources, in particular forests (Bartlett et al., 1993; Gilmour and Fisher, 1991; Bartlett and Malla, 1992; Gronow, 1990; Richards, n.d.; Moench, n.d.; Poffenberger, 1990; Wily, 1995). Fisher (1995) offers a thorough analytical review of the history and experiences of collaborative management approaches. He concludes that where local use of natural resources is intensive, efforts at management through a centralised body have not been successful in meeting either conservation goals or the needs of local people; it is too often a “lose-lose” situation.

Collaborative management approaches in many countries have demonstrated some success in moving towards a “win-win” situation; however, these approaches have not been problem-free and many lessons have been learned. Experience has shown that it is particularly important that attempts to address local people’s needs and involve them in management are genuine and that the people who are expected to pay the costs of the conservation of natural resources can reap a fair share of the benefits, either through secure access to resources or through some form of compensation. Political and institutional climates must be open to such fundamental changes in approach.

A shift in conservation thinking within Uganda

Since the restoration of civil stability in Uganda in 1986, there has been an increasing awareness of, and willingness to address, conservation issues on the part of government, and a concerted effort has been made to reassess policies and facilitate capacity building within the agencies responsible for natural resource management. The re-emphasis on this sector has been backed up by extensive international donor involvement. The World Bank and the European Community have provided institutional capacity-building support to the Forest Department (FD), and externally financed projects operate around and within almost all the national parks in the country. Despite this, however, resources are limited and the conservation areas generate little in the way of income at present. Both the Forest Department and the Uganda Wildlife Authority (UWA) are struggling to maintain the integrity of the protected areas they are mandated to manage. The struggle is largely due to the long-standing conflicts between protected area managers and locally resident populations.

Within both UWA and the FD, there has been a growing appreciation of the validity of the community-friendly philosophy towards protected area management. It is recognised that the conflicts which exist between management authorities and locally resident populations can neither be ignored nor effectively challenged with paramilitary force. There appears to be a genuine recognition of the local-use values of natural

resources, and efforts are being made to develop mechanisms by which local user interests can be meaningfully considered. Support for offering utilisation rights and some decision-making power and management authority to communities at the local level parallels a recent national move towards decentralisation in all sectors of government.

Uganda Wildlife Authority

Since the early 1990s the institution responsible for Uganda's national parks (formerly known as Uganda National Parks, or UNP, now merged with the Game Department into the Uganda Wildlife Authority, or UWA)¹ has taken over the management and administration of a number of natural forests (Bwindi Impenetrable, Kibale, Semliki, Mgahinga, Rwenzori Mountains and Mount Elgon) which were formerly under the authority of the Forest Department. With little experience in the management of forest ecosystems, and limited resources available to channel into the administration of these new estates, UWA is open to innovations that aim to reduce conflicts between the park authorities and the locally-resident populations, while simultaneously enhancing the conservation of the protected areas.

This variety of approaches towards developing closer links with local communities have recently been initiated within national parks in Uganda. There has been a steady evolution in the strategies employed to take local community interests into consideration. Pilot initiatives have progressed along the "management continuum", from opening up areas for controlled utilisation, where the community is granted a limited role in decision-making several stages into the process (e.g. Bwindi Impenetrable National Park; Wild, pers. comm., 1994), to approaching the community and offering them a more inclusive role in decision-making from the start (e.g. Rwenzori Mountains National Park; Scott, 1995). In all cases, the primary objective of initiating such approaches within Uganda to date is to enhance the capacity for the conservation and sustainable management of protected areas.

In line with the distinction made by Fisher (1995), the term "collaborative management" has been adopted by UWA to refer to all initiatives that are based on a community-friendly philosophy. Where used in this text, the term "collaborative management" refers to any of the approaches taken in Uganda which are moving towards bringing the locally-resident population into the protected area management process.

As part of the merger process between Uganda National Parks and the Game Department, revised legal and policy documents have been prepared, incorporating a stronger policy to address the needs of populations living adjacent to the country's national parks and game reserves. This is a positive step as it is imperative to have an effective and enabling policy framework as the foundation from which managers at park level can launch such initiatives.

2. Mount Elgon

Physical environment²

Location and topography

Mount Elgon is situated approximately 100 km northeast of Lake Victoria, around 1°N latitude and 34°30'E longitude, on the border between Kenya and Uganda (Figure 1). The mountain extends 80 km north-south and 50 km east-west, with the 20-km-long Nkokonjeru Arm to the west. The protected area of Mount Elgon covers approximately 2,045 sq. km, with 1,145 sq. km of this comprising Mount Elgon National Park on the Ugandan side. The Suam River (flowing north of the caldera), the Lwakaka (flowing south) and a beacon on the peak of Sudek mark the international border.

Figure 1. Location of Mount Elgon National Park



Mount Elgon is the oldest of the East African volcanoes. Extensive erosion has created a landscape with very gentle, long slopes. A special feature of the mountain is its eight-km-wide caldera, one of the largest in the world. The caldera is a flat-bottomed depression on the top of the mountain, surrounded by a virtually intact rim of serrated cliffs, topped with pinnacles and crags. It is on this rim that most of the peaks are located, with the highest, Wagagai, reaching 4,321 m above sea level. Suam Gorge and Uganda Pass are the main breaches in the caldera rim; two major rivers, the Suam and Simu, flow out of these breaches to supply water to thousands of people in both Uganda and Kenya.

From the caldera, the mountain descends to the plain in a series of precipitous cliffs which are separated by gently sloping 'shelves' and deeply dissecting streams. There is spectacular relief on the edges of the mountain; massive cliffs over 300 m high are found on the western and northern perimeters.

Climate

Mean annual rainfall in the Elgon region ranges from 1,500 mm on the eastern and northern slopes to 2,000 mm in the south and west. The climate is dominated by seasonally alternating moist southwesterly and dry northeasterly air streams and is characterised by a weak bimodal rainfall pattern. Major rains fall between April and October with a short dry spell often experienced around June. The driest months are December and January. At higher altitudes drizzling rain is more common than the downpours that are typical in the lower areas.

Geology (based on Robinson, 1994)

Mount Elgon is a solitary extinct volcano, the oldest of the Rift Valley volcanoes. The vast area of Mt. Elgon was built up from lava debris blown out from a greatly enlarged vent during the Miocene period (20-12 million years ago). The last major eruption dates back around 12 million years. There have been no eruptions for the last 3 million years.

Elgon erupted mainly fluid lava from its main vent, which has resulted in a 'shield' type of volcano, characterised by a low and convex profile. The bulk of Elgon is made up of tuffs, rocks, ash and coarse agglomerates. Lava and mud flows are present in much lower quantities. Nkokonjeru Arm was formed when a parasitic vent became active after the central vent was blocked.

Moraine ridges inside the caldera and tiny lakes in the rock basin are testimony to the glaciers that covered Elgon in the Pleistocene (1.5 million years ago) at elevations as low as 3,500 m above sea level. The two main breaches in the caldera wall, Suam Gorge and Uganda Pass, were formed when the weight of the meltwater in the caldera cut stream beds out of the weak volcanic ash and agglomerate walls.

Soils

The soils of the caldera are shallow, dark, humus loams that are permanently moist. On the higher, generally steep slopes in the high altitude moorlands, very shallow soils are found, but deep, humose, red-brown, clay loams have formed on the more gentle slopes. Soils in the Afromontane Forest Zone are shallow loams on level crests and deep red loams on the gently sloping areas. The steeply dissected terrain of the Afromontane Rain Forest Zone in the southern section of Elgon holds only shallow to moderately deep, brown, clay loams over the volcanic rock.

Biological environment

Phytogeography (based on White, 1983)

Approximately 4,000 species make up the vegetation of the higher mountains of Africa, about 3,000 of which are endemic to the region. It is therefore phytogeographically distinguished as a separate archipelago like the Afromontane Region. This region is very extensive, stretching from Sierra Leone to Somalia and from the Sudanese Red Sea Hills to the Cape Peninsula in South Africa. In the tropics, most Afromontane communities are limited to altitudes above 2,000 m.

The Afromontane Region of the tropical zone is not a continuous area, but a collection of mountain 'islands' in an 'ocean' of lower elevations. The Oliniaceae family is practically endemic to the region; one fifth of the tree genera of the region (e.g. *Afrocrania*, *Hagenia*, *Kiggelaria*, *Leucosidea* and *Xymalos*) are endemic. The percentage of endemic lower plants is believed to be lower.

There has been considerable debate about whether or not the vegetation of the higher peaks of the Afromontane Region, above the bamboo zone, should be distinguished as a separate Afroalpine Region. Although this term is used in the literature, it has not been widely accepted as a region in its own right due to its low species diversity (approximately 280 species) and limited number of endemic species.

Vegetation

Three major zones were distinguished on Elgon in the recent land unit mapping exercise: the Alpine and Ericaceous Zone (mainly above 3200 m) that occurs above the tree and bamboo limit; the Afromontane Forest Zone (2000-3200 m); and the Afromontane Rain Forest Zone, which is restricted to the wetter southwestern and southern slopes, mostly below 2500 m (van Heist, 1994). Figure 2 shows a generalised version of the land unit map, indicating the main vegetation zones.

Figure 2.
Vegetation zones,
Mount Elgon
National Park

Source: adapted from
M. van Heist (1994)



1. The Alpine and Ericaceous zone (23 per cent of the park's area) comprises an extensive moorland and heathland area. This is considered the most significant area of the mountain for species conservation due to the presence of a number of endemic shrub and herb species. In the caldera, a dwarf shrub version of Lady's Mantle (*Alchemilla elgonensis*) dominates, with smaller patches of moss and lichen vegetation on rock outcrops, and bogs with *Carex runssoroensis* in depressions. The most spectacular feature of the caldera, however, is probably the Giant Groundsel (*Senecio elgonensis*) woodlands. Outside of the caldera, this zone consists largely of tufted grasslands with scattered *Helichrysum spp.*

shrubs, *Lobelia elgonensis* and *L. telekii*. Heather occurs mainly as thickets on Elgon; only a few small pockets of heather woodland can be found. The prevalence of grasslands is a characteristic which is particular to Elgon, and is probably due to regular burning by hunters, cattle raiders and former forest dwellers.

2. In the Afromontane Forest zone, which is a transition from the heathlands to the forest proper, is the *Hagenia abyssinica-Rapanea melanophloeos* forest type. Afromontane forest communities are also found, composed of *Afrocrania volkensis*, *Rapanea melanophloeos* and *Podocarpus milanjanus*, interchanged with bamboo (*Arundinaria alpina*). Although bamboo covers an extensive area, it does not form a contiguous belt on Elgon, as it does on some of the other East African mountains. In the northern section of Elgon there are a series of semi-natural grasslands, where long-standing cattle grazing has maintained an open vegetation cover. These grasslands contribute to the park's habitat diversity.
3. On the wetter southern and western slopes, the Afromontane rain forest community comprises *Prunus africana*, *Aningeria adolfi-friedericii* and *Olea welwitschii*, while *Podocarpus gracilior*, *Juniperus procera* and *Ekebergia capensis* are found on the drier northern slopes. Extensive pitsawing and agricultural encroachment has destroyed around 20 per cent of the original forest cover, primarily on the periphery of the park; 64 per cent of the 15,632 ha of the Afromontane Rain Forest Zone has been deforested. Low-altitude forest, the most species-rich forest type on Elgon, is now only found in small pockets on Nkokonjeru Arm.

Fauna (based on Howard et al. 1997)

Over the past couple of decades, wildlife populations on the Ugandan side of Mount Elgon have been severely reduced, primarily due to hunting and cattle rustling. Most of the elephants (*Loxodonta africana*) and buffalo (*Syncerus caffer*) moved to the Kenyan side in the 1980s. In recent years, however, buffaloes have once again been seen grazing in the northern sector of the park. Leopard (*Panthera pardus*) was spotted during the mapping survey of 1994 and hyenas are often heard at night. The only two primates abundant on Elgon are black and white colobus (*Colobus guereza*) and blue monkey (*Cercopithecus mitis*). The red tailed monkey (*Cercopithecus ascanius*) was believed to be locally extinct, but has recently been spotted again. Apart from monkeys, antelope and duiker (thought to be *Sylvicapra grimmia*) are the most common mammals on the mountain. Giant forest hog (*Hylarcherus meinertzhageni*) are thought to have lived on the mountain in the past, but have not been seen recently. Potto and lesser galago may be encountered in forest at lower altitudes. Smaller mammals found on Mount Elgon include rats, shrews, hyrax and tree squirrels.

The current bird list, containing 144 species, is thought to include the majority of all occurring species. Elgon is the only Ugandan site where Jackson’s Francolin (*Francolinus jacksoni*) has been recorded, while bronze-naped Pigeon (*Colomba delegorguei*), Hartlaub’s Turaco (*Tauraco hartlaubi*) and Tacazze Sunbird (*Nectarinia tacazze*) are restricted to Elgon and a few other eastern Uganda mountains. Lammergeier (*Gypaetus barbatus*) is one of the threatened bird species of Elgon and the region.

A thorough inventory of butterflies was made by the Forest Department during a biodiversity study of Ugandan forests. Half of the total number of species found in Uganda were recorded on Elgon.

Social environment

Within Uganda the boundary of Mount Elgon National Park is shared by two districts: Mbale to the south and Kapchorwa to the north. These districts are divided into administrative units of county, sub-county, parish and village, in descending order of size. There are 58 parishes directly adjacent to the park boundary (Box 1). The protected area begins a considerable distance up the mountain, and most of the boundary is adjacent to land that is almost completely under agricultural production, reflecting the high population densities of the area. The average density of the forest-adjacent populations of Mbale and Kapchorwa Districts is 512 and 224 people per sq. km respectively³, with Mbale’s density among the highest in the country.

<p>Box 1. Smaller administrative units within Uganda (LC = local council)</p> <p><i>Village (LCI)</i> smallest administrative unit consisting of around 50-150 households</p> <p><i>Parish (LCII)</i> second smallest administrative unit consisting of around 10-20 villages</p>
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Most of the people living adjacent to the forest belong to one of two tribes. The Bagisu, of Mbale District, are primarily agriculturalists, while the Sabiny, of Kapchorwa District, were originally pastoralists who lived in the lower plains. Because of intensified cattle-rustling in the plains, most of the Sabiny have migrated up the mountain slopes, reducing their grazing levels and taking up domestic agriculture in addition to commercial cultivation of maize and wheat.

Until recently, the Kony, a forest-dwelling, pastoral people, resided in the grassland and moorland areas of the northern sector of the mountain. Their major

activities within the forest were grazing, honey collection, hunting and bamboo basketry. In 1983 they were evicted from the forest and resettled on excised land in the north of the protected area⁴.

Until the 1960s there were also a number of forest-dwelling people in the southern sector of the protected area, although they generally retained land outside the reserve. Increased cattle-raiding between Uganda and Kenya has made this area of the forest unsafe; this was the main impetus for the forest dwellers to move back onto lower land.

The forest-adjacent people face a number of difficulties. A combination of high population density and a strong dependence on agricultural activity has brought about a severe land shortage. With poor educational facilities and little in the way of job opportunities (external or local) the majority of the younger generation face a future of dependency on a small and usually inadequate share of their family's land. The lack of good all-weather roads leaves much of the forest-adjacent population with limited access to marketing facilities, particularly during the extensive wet seasons. People regularly walk for half a day to reach the nearest marketing centres, with the amount of produce they can transport for sale restricted to what they can carry on their heads. Crop raiding by forest-dwelling animals (particularly baboons) is a commonly mentioned problem. For households totally reliant on the produce from their limited land area, any loss through crop raiding can have disastrous consequences on food security and general economic well-being. The forest provides a hiding place for cattle rustlers who move stock between Kenya and Uganda. Frequently they will extend their raiding activities into the forest-adjacent villages, making a quick escape back into the security of their forest hideout.

These factors combine to produce a situation of spiralling marginalisation. By the time economic development 'trickles-down' to these areas, it is greatly diluted. Currently, iron roofing is a dream unlikely to be realised by the majority of the resident population. It should not be surprising that the natural resources contained within the protected area, which are essentially free and easily accessible, play an important role in daily survival.

Management history

Overview of indigenous management structures

It is difficult to piece together an accurate picture of forest management prior to the government assuming control of Mount Elgon in the 1920s. Any records are in the memories of the elders and the descendants of former indigenous managers. There are few people who have living memory of the situation of more than 60

years ago, let alone people who have been actively involved in forest management before the Forest Department assumed control. The following information is compiled primarily from discussions with elders within the communities in question, who have been told of past practices, or who were young when the forest was still under indigenous management. Generalisations have been made from these discussions and it is likely that some variation between areas has not been captured.

Naturally, population pressure in the pre-gazettement era was not the issue it is today. Much of the area below the present national park boundary was still forested. Nevertheless, people were using the area which was to be demarcated as reserved land. In addition to the forest-dwelling Kony, who were primarily living in the moorlands and upper grasslands, families based in the lower areas were also partially resident in upper reaches of the forest. In many cases, this was largely for purposes of cattle-raising, to avoid destruction of crops by livestock.

Although there were no official controls over use of the forest prior to gazette-ment, there were traditional usufruct systems in place in most areas. The mountain was divided into strips, generally corresponding to ridges and divided by rivers or streams. The upper forested areas were contiguous with the cultivated land down-slope. Families had traditionally-recognised ownership over these strips, including the forested area above where they farmed. These strips were sometimes split cross-wise (often by trails), with each piece occupied by different families, often of the same clan. The location of today's villages (the smallest administrative unit) often loosely coincides with this indigenous system.

Newcomers were able to take up "rights" to an unclaimed area by first seeking permission from the ridge/clan elder, then by setting hunting snares, and eventually by pursuing a process of increased protection of interests. Rights were usually recognised through residence in an area, and although most families retained their base in the lower lands, rough dwellings would often be constructed to alert neighbours and outsiders to the fact that an area was "occupied". Many of the local names within the forest refer to former forest residents.

Conflicts between the Kony and other people living within the forest were uncommon. The area of control rarely overlapped and on both sides there were vested interests in maintaining amicable relations. The Kony lived much higher in the forest and were the suppliers of bamboo shoots, stems and crafts such as baskets. They were, in turn, dependent on the residents of the lower areas for a regular and reliable supply of agricultural produce.

Although certain rights over an area were recognised after a family had established residence, there were very few restrictions on activities that could be carried out by others. Siting bee hives and setting snares were the only activities

which were prohibited in another family's region throughout the area surveyed during the resource use assessment. Grazing restrictions were not common as it was generally considered an activity that could be carried out in any area not under cultivation, regardless of who had "ownership" rights over the land. All other activities (such as harvesting vegetables, mushrooms, bamboo, building poles, etc.) were carried out freely. Disputes related to resource use were rare due to low population densities and the plenitude of forest. In the event of conflicts, respected elders were called upon to mediate and find solutions.

Despite the lack of prohibitions regarding who collected resources from where, there were strict regulations about the manner in which resources were harvested (Box 2). These regulations were often closely tied to the expectations of the ancestors and cultural values. They were generally in place to enhance conservation of the forest, and were strictly enforced by the elders of each area. Elders also had the responsibility of ensuring that respect for the forest and its resources was passed on to younger generations.

Box 2. Examples of traditionally enforced forest use regulations

Killing of young or pregnant animals was forbidden – if found in a trap they must be released

It was forbidden to harvest more bamboo shoots than a person could carry. Wasteful harvesting would be likely to insult and consequently anger the ancestors, and they would be sure that there weren't enough shoots the next season.

A similar restriction applied to bamboo stems and wood products. People were only allowed to cut the exact amount of firewood that could be carried. Leaving wood laying around to rot would anger the ancestors. A whole tree could not be cut for firewood unless it was carried away in its entirety.

Lighting fires was forbidden in areas outside people's compound. Fires could not be carried through the forest from one area to another.

Prior to gazettelement scarcity was not an issue. There were more than enough resources to satisfy the needs of the population. The systems in place were therefore not adapted to limiting and controlling access to the forest. It could be argued that they would be inadequate given the current level of land pressure. However, as Gilmour and Fisher (1991, p. 49) point out: "...indigenous systems of forest management are not mere remnants of old systems. They are dynamic responses to changing situations". If the indigenous systems of management had remained in place

until the present day, they might have evolved with increasing population pressure and been progressively modified to address the issues of a changing balance between supply and demand.

Post-gazettement management

Control over the forest of Mount Elgon was assumed by the Forest Department in 1929 when it became apparent that residents of the area were steadily advancing their agricultural activities up the slopes. Only part of the boundary was delineated before the economic depression halted activities, however. It was not until 1936-37 that the entire boundary was surveyed and demarcated. The area was gazetted as the Mount Elgon Crown Forest in 1940, and during the following years a number of excisions were made to accommodate families living in the forest. The moorland-dwelling Kony were permitted to remain in their home area. In 1951 the area was re-gazetted as the Mount Elgon Central Forest Reserve.

The period between 1951 and 1968 witnessed numerous boundary disputes, excisions and mapping exercises until the working plan for 1968-78 was finalised and most of the present-day boundaries were confirmed. This working plan put forward the primary objective of managing Mount Elgon as a protection forest, with a secondary objective in the extraction of both natural and exotic timber. In 1983 the area in the north (planned at 6,000 ha) was allocated to the resettlement of the Kony, on account of their increasing human and livestock populations and the fact that they had begun small-scale Irish potato cultivation inside the Forest Reserve.

During the period of civil unrest in Uganda (1972-86), there was a breakdown of management capabilities within the Forest Department. In 1988, however, the present government issued a new Forestry Policy which emphasised the importance of effectively managing the nation's forests, not only for the economic value of their timber products, but also for their environmental benefits. A Forest Department rehabilitation programme was initiated, which has helped the department develop the capacity to manage its estate. In 1992 an interim management plan for Mount Elgon was prepared, covering the years 1992-94. It was decided that Mount Elgon Forest Reserve would take up the newly devised status of Forest Park, the key objectives being management as a zoned, multiple-use system.

In September 1993, despite these initiatives, Cabinet moved that the administration of Mount Elgon be transferred to UNP. It was formally handed over in January, 1994. Since then, little in the way of management objectives has been formulated, although at the time of writing a management plan was in the process of being prepared.

Box 3. History of the Benet Resettlement Area (told by a former Yatui Chief)

Before 1970, there were four traditional community units within the forest of the northern slopes of Mount Elgon; Kwoti, Piswa, Benet and Yatui. The traditional boundaries of these communities extended from the forest reserve boundary up to and including the moorlands. Historically, the people of each community were of different clans, but shared the same ancestry. There was a tradition of hostility and warfare between the residents of the four areas, and loyalties to community units were very strong. Movement between areas was minimal.

When the issue of resettlement was first introduced (in the 1960s), a committee was formed; a representative from each forest community took part in the negotiations. The initial suggestion was that the land within the lowest part of the forest reserve, corresponding with the traditional boundaries, be excised for resettlement. People would then simply move from their home in the moorlands to the land in the lower reaches of the forest reserve corresponding with their traditional area. This idea was rejected by the official forest management body of the time, and the decision was taken to excise a smaller parcel of land (proposed as 6,000ha) which corresponded with the traditional forest community units of Benet, Piswa and Kwoti only. That land was divided into separate parishes under those names. Much of the area in the lower reaches of the Yatui forest community was under cypress plantation and was considered too economically valuable to the government to be opened for the resettlement of the Yatui. The Yatui refused to settle in areas corresponding with the territories of their age-old enemies, the Benet, Piswa and Kwoti.

The Yatui were offered a compromise by the Forest Department. They were to resettle in an area proposed for a new plantation which fell within the most easterly extreme of their traditional area (on the other side of the cypress plantation), for a period of five years. During this time they would clear and cultivate the land in preparation for future cypress planting. After the initial five years, they were to move to the allocated resettlement area (i.e. the new parishes of Benet, Piswa and Kwoti, which collectively became known as the Benet Resettlement Area). During these years, they retained their main base within the moorlands (as did the residents of the other forest parishes), where their families remained grazing the animals.

After 1975 they were instructed (but not forced) to move from the land they had struggled to clear and cultivate for the last five years. They resisted for a number of reasons:

- *having expended considerable energy in clearing the land, they were unhappy about having to move to another partially forested area to carry out the same work;*

- they hoped that eventually the government would allow them to remain in the area (which was the lower section of their traditional forest area), as they firmly believed they had the right to do; and
- perhaps most importantly, they were as unwilling as ever to move into an area occupied by their traditional enemies, and essentially to be seen as taking over land that would otherwise be available for the Benet, Piswa and Kwoti.

So they stayed on.

In 1989, still with the aim of establishing a plantation, the government launched an enforced eviction of the Yatui, both from the lower areas they had cleared and cultivated, and their moorland homes. Crops, maize stores and houses were destroyed. Benet, Piswa and Kwoti who still had families and residences in the moorlands also lost property there. Most of them, however, had already established homes in the resettlement area where they could transfer permanently.

The Yatui continued to argue their case and the authorities eventually decided to allocate an additional strip of land to them, above the established resettlement area (moving farther into the reserve). This became known as Yatui Parish. They were still not happy with the decision as maize cultivation is not very successful at such a high altitude. Nevertheless, a line (the 1989 forest reserve boundary line) was demarcated and they were forced to resettle.

In 1991 the forest boundary was officially surveyed and a line excising exactly 6,000 ha was marked. The original resettlement area, which was planned to be 6,000 ha, had not been surveyed accurately and it was discovered that the area officially allocated to the former forest dwellers was considerably larger. There are now three boundary lines:

- 1983 – the original, which exceeded 6,000 ha;
- 1989 – the original plus the additional strip for the Yatui; and
- 1991 – the officially surveyed area of 6,000 ha.

The atmosphere is understandably rife with tension. The Yatui do not want to move to the excised area, and those currently living there do not want them. The situation must be resolved as fairly and amicably as possible before any further attempts at negotiation and cooperation can be made.

Degradation of indigenous management systems

The Forest Department appropriated control of Mount Elgon without consultation with the local residents. Community members were not involved in decisions regarding the boundary or the activities that could continue beyond it. Many of the former residents migrated back down to their main base in the lower areas, but no compensation was offered for the foregone land and source of resources, over which people believed they had traditional rights. Land was still abundant, and, according to local elders, the Forest Department maintained that the area under their control would revert to the community if future generations required land. Thus there was minimal resistance.

Once control had been completely taken from local hands, the indigenous systems of forest resource management gradually disintegrated. With no authority over the forest, the elders were not in a position to enforce regulations that had previously been in place. A new generation of local residents grew up without instruction on the importance of maintaining sustainable use systems.

Most of the damaging activities that have left scars on Mount Elgon occurred during the period when the central government officially administered the forest as a protected area. This is due to a combination of factors, including escalating population pressure, local civil disruptions and outsiders taking advantage of limited Forest Department capacity and gradually increasing their activities within the forest. Over the past few decades, government capacity for controlling activities has degenerated even further, and increased illegal activities have resulted in the degradation of many resources, animals in particular. Pitsawing, primarily by external interests, reached its peak in the late 1980s. Agricultural encroachment has become a major issue in the area, due to population expansion, tribal upheavals between the residents of Kapchorwa and Mbale, and increasing insecurity within the lower plains. It was beyond the capacity of the Forest Department – crippled for several decades by civil unrest – to prevent these developments.

The power vacuum during the period of unrest did leave space for some local management initiatives to flourish, and by default increased the authority that the community could exercise over the forest. In Mutushet, one of the parishes surveyed during the resource use assessment, the community elders, former ‘managers’ of the forest, took a stand against the mounting pressure to expand agriculture into the forest. This is a clear example of the capacity of the community to effectively police their own, and others’ activities – of the fact that they can be motivated enough to act rationally if they are sufficiently empowered, either by default (as is the case when the official management body is no longer functional) or decree, (as would be the case under a collaborative management approach). The forest adjacent to their parish remained intact during the turbulent years.

One general conclusion can be drawn: for a combination of reasons, the management strategy that has been followed for the past couple of decades has not been effective in conserving the forest, and with growing population pressure and little hope of a substantial and sustainable increase in financial resources flowing to the official management body, it is very unlikely to work in the future.

The Mount Elgon Conservation and Development Project

The Mount Elgon Conservation and Development Project is implemented by the Department of Environment Protection of the Ministry of Natural Resources, with technical assistance from The World Conservation Union (IUCN) and funding from the Norwegian Agency for International Development (NORAD). The project (which was originally designed to begin in the three forest reserves of Mount Elgon, Kibale and Semliki) was initiated in 1987, with three major long-term objectives:

- to ensure the conservation of the biological diversity and ecological processes within the natural forest of Mount Elgon, Kibale and Semliki;
- to meet human needs on land surrounding the forest on a sustainable basis; and
- to safeguard the quality and rate of flow of water to all areas affected by the forest.

In the first two phases, the project focused on assisting the Government of Uganda in regaining control over the protected area of Mount Elgon. Re-establishment of the 1963 boundary was necessarily a major activity. In 1991 a social component was added, consisting of an environmental awareness programme and the promotion of sustainable agricultural activities. By increasing conservation awareness and providing a stronger basis for sustainable development outside the protected area, it was hoped that pressure on the resources of the forest would decrease.

As has been the case in conservation strategies globally, there has been a recognition by all parties involved in the project that the original strategy was too biased towards supporting protection activities. This contributed to heightened conflicts between the management authority and local residents. Furthermore, the rural development programme was not adequately linked to forest use and the issues of sustainable forest resource management. Although commendable work had been carried out in terms of improved agricultural practices, the inadequate link with forest use meant that such advances were not automatically leading to a reduced level of dependence on the resources of the forest, and thereby contributing to the conservation of the protected area. The need to rethink the future of the project was evident at the end of Phase II (1993-94).

A change in management approach

In keeping with the global view that protectionist management strategies are inappropriate and simply do not work, and in line with the evolution of thought in Uganda itself, the parties involved in the management of Mount Elgon National Park decided it was time for a change in management approach. In addition, there were a number of reasons, specific to Mount Elgon, that highlighted the need for improving relations between the park authorities and local residents.

1. The level of conflict between the various stakeholders. Mount Elgon has a history of all manner of conflict; between tribes, between residents and cattle rustlers and between locally resident populations and protected area authorities. All of these conflicts have some degree of impact – generally negative impact – on the forest, and are constraints to the effective management of the protected area. Cooperation between the park authorities and locally resident people may contribute to the resolution, or at least management, of some of these conflicts:

- The problem of cattle rustling cannot be solved by the park authorities alone. With limited resources for extensive patrolling, it is difficult to track the movement of rustlers and their animals within the forest. Neither does the community have the capacity to deal with this problem. If the local people and the park management work as a team, it is possible that the issue of cattle rustling, which is a problem for both of them, can be tackled.
- Tribal disputes will likely occur in the future as they have in the past (Box 4). If the park is in partnership with the local community, and presumably with both tribes, some level of mediation may be possible. Such mediation would be aimed at ameliorating the effects of these disputes on the park.
- If conflicts between the people and the institution are addressed, this can only lead to a deeper understanding of the needs and constraints of both parties and a more positive relationship. With the major stakeholders finding common ground and working together towards similar ends, there should be more effective management. Long-standing disputes and issues of contention between the people and the park can best be resolved through open-minded and rational dialogue between the two parties, and should be addressed as the first step towards collaboration.

2. The recognition of people's historical use of the park. Prior to the resource-use assessment, there was little understanding of the nature of resource use by the people living adjacent to the park. However, the authorities were aware that the park was important for the collection of some resources, and for cultural ceremo-

nies. With increasing population density and rural marginalisation in the area, there is unlikely to be a reduction in this dependency in the future. This was seen as a strong justification for investigating the extent and nature of forest use, and identifying alternative approaches to park planning and management that consider the needs of the people.

3. Area and topography of the park. Mount Elgon National Park covers over 1,000 sq. km, with a boundary on the Ugandan side more than 200 km long. This long border, coupled with the difficult terrain and limited access to the park boundary (particularly during the rainy season), makes the national park an extremely difficult area to control. The situation would be difficult enough with ample management resources, but is virtually impossible with the limitations under which UWA operates. Engaging the active cooperation of the local people, who are the most effectively situated caretakers, was viewed as having potential.

Summary

For these reasons, investigating the nature of forest resource use and the role the local population could play in management was identified as an important activity that should be carried out by the project. In addition, it was proposed that a key component of Phase III of the Mount Elgon Conservation and Development Project should be to offer support to the National Park staff in initiating community-based management activities.

Box 4. Long standing conflicts between the Bagisu and Sabiny

The history of integrated migration of both the Bagisu and Sabiny peoples into the areas around Mount Elgon is evidenced by the mixture of names (e.g. Gabisironi and Zema are Sabiny names found in the subcounty of Bulago, Mbale District). Integration was short-lived, however, as around the turn of the century, age-old tribal conflicts resulted in warring and division between the two tribes. The name Namisuni, the parish at the border between the districts of Mbale and Kapchorwa, means “I chase you with a stick” and refers to the Bagisu driving the Sabiny out of the area that is now Mbale District. The area occupied primarily by the Sabiny (north and north west of the mountain) remained under Bagisu control as a county of Mbale until it was declared the separate district of Kapchorwa in 1962. During these years, Sabiny resentment of the Bagisu escalated and tribal conflict prevailed.

Prior to 1962 the Sabiny area was also inhabited by Bagisu (since it remained a county of Mbale), although the Sabiny were the majority. In 1965 a civil war broke out between the two tribes, as the Sabiny attempted, without success, to force the Bagisu inhabitants out of their newly-acquired district. The Sabiny compromised

with the insistence that any Bagisu remaining in the area must adopt their Nilotic traditions (including female circumcision). Some Bagisu remained in Kapchorwa at this stage. In addition, since population pressure was increasing in Mbale District and there was little chance of securing a reasonable income from their home area, many Bagisu from the bordering parishes (although not those who were formerly banished) migrated to Kapchorwa to acquire land for maize cultivation or to earn cash working on the large farms there. The Bagisu immigrants were able to settle in the well-watered and fertile highlands of the mountain with relatively little conflict of interests, while the Sabiny remained on the plains grazing their cattle.

At around the same time, raiding by the aggressive and well-armed Karamajong pastoralists was forcing the Sabiny out of the lowlands. They moved progressively up the mountain slope. Cattle-raising became an increasingly dangerous pursuit and many of the Sabiny opted to supplement pastoralism with cultivation. However, the best land in their district was already occupied by the Bagisu.

During the Amin regime (1971-79), the Sabiny were the second largest tribe in the army. After the downfall of Amin, many deserted and returned to their home area, heavily armed. Long-standing resentment, centring around historical revenge and the more recent need for agricultural land, could now be physically manifested. Arms were used to expel the Bagisu farmers from their district. The eviction was bloody and thousands of Bagisu were killed. Others fled into the forest and made their way back to their home areas. At that time, no Bagisu remained among the Sabiny.

Having originally left because of land shortage, most Bagisu returning 'home' found no land to cultivate. Encroachment into the forest was an obvious and easy option. Patrolling activity was at a minimum and forestry staff were easily bribed. As well as cultivating within the forest reserve, many of the 'refugees' relied on the harvesting of forest resources, in particular bamboo, as a source of income. For many families, this dependency still remains. Those who were cultivating within the forest have been evicted and many are struggling on small parcels of land or relying on the support of family members.

3. The resource use assessment

The importance of information

Biological information

Understanding the key resource issues at stake is an important prerequisite for sound decision-making. At the pragmatic, park management level, it is vital to have reliable information about which resources are being used, by whom, from where and when, etc. before wise decisions about formalised use of the forest can be made. In addition, decision-makers are naturally cautious about making radical changes in management. To institutions such as Uganda National Parks, with a history of centralised militant control over natural resources and the world's scientific community watching them, involving local communities in management may appear somewhat risky. Most policy-makers are academics, invariably from the biological sciences. They will naturally seek scientific justification to support their decisions, in terms of potential sustainability and the impacts on the ecosystems of the protected area.

Social information

It is not only important to have an understanding of what resources are available for the local community and the levels of sustainable extraction from an ecological perspective. It is equally important to gain an understanding of the socio-economic, political and cultural context for conservation and the use of natural resources. However, it is very often natural scientists who are charged with the management of protected areas, including the compilation of information, and because of this the social factors at play are either neglected or inadequately considered. Too often, the human element in conservation is seen as something peripheral, revolving around a biological core. As Gilmour and Fisher (1991, p. 67-68) point out very clearly:

“The ‘social element’ is often treated as a barrier to be overcome in the essential endeavour of planting trees and managing forests... The type of social science involvement in projects has thus been largely concerned with providing the information that foresters, as primary implementers, regard as necessary... The fact that community forestry is a social process, concerned with the management of forest resources by complex and changing institutions and organisations is forgotten... The dominance of static service oriented approaches to social science reinforces the feeling among foresters that social sciences are easy and not really much use.”

In reality, natural resources are simply one component of a complex social web, and conservation, particularly in the tropical realm, is chiefly a social, not an

ecological, issue. Gaining clear insight into the social dynamics of natural resource use is therefore fundamental.

Information as a catalyst for policy change

Very often, decision-makers also need to be informed of, and brought closer to, the issues that really have an impact on day-to-day management, which are rarely ecological. It is vital that decision-makers are provided with information that does more than point out the source and level of conflict, the nature of dependence, and the social context in which conservation exists. It should also offer feasible options for more effective management that are grounded in reality rather than based on preconceived assumptions and habits.

Attitudes do not change overnight, particularly those that are well entrenched through years of academia followed by years of remote control management. Now is the perfect time to begin assembling case studies which demonstrate clearly that there is a substantial gap between policy and the reality of protected area management in the field. The fact that current policies are outdated was addressed in the formulation of more appropriate policies for the new management institution, the Uganda Wildlife Authority. In the future, ideal collaboration with local people should be an integral component of management, carried out within an enabling policy framework. Information is therefore more than simply a management tool at park level; it should also be the foundation for facilitating changes in management perspectives, and policy, at all levels.

Designing the assessment

Background

It was recognised that appropriate decisions could not be made until there was a greater understanding of the social context of the park and its resources. There wasn't enough information available on which to establish a programme of community-based forest use and management. In addition, there was limited technical capacity within the institution and the project for instigating a move in this direction. In order to capitalise on experiences elsewhere, an external consultant was asked to make recommendations on appropriate procedures for assessing local community utilisation and initiating a community-based forest management approach. The consultant was also to provide general advice on how to restructure Phase III of the Mount Elgon Conservation and Development Project to better address local user issues.

The consultancy report concluded that, on first impression, conditions appeared positive for moving towards a form of collaborative management with the

local population. It was recommended that, rather than following a “survey then action” approach, a participatory and integrated “information and action” process be embarked upon (Wily, 1993). Consequently, the resource-use assessment was originally planned to not only generate information on the use of the forest, but also as the first stage of an ongoing process of involving communities in management. The stages proposed by Wily (1993) for piloting such a process were as follows.

- a) **Initial consultation:** a parish-level meeting to introduce management’s new commitment to community involvement in forest management and to gain some initial insights into the use of the forest. A forest walk with key community members was also recommended for this stage.
- b) **Resource assessment exercise:** a series of profiles at parish and village levels with the option to carry out a small number of household interviews.
- c) **In-forest resource assessment:** forest walks with a number of selected resource users to collect additional information.
- d) **Forest management planning:** discussion of local-level organisational aspects and negotiating ‘dos and don’ts’.
- e) **Drafting** of trial Joint Management Agreement (JMA).

There were at the time, however, some constraints to the implementation of an “information and action” approach:

- Funding for Phase III of the project was not yet secured and project management therefore felt unable to commit to an initiative with a long-term perspective.
- At the time the administration of the forest was being transferred from the Forest Department to Uganda National Parks (UNP), and it was considered unwise to launch into a process of collaborative management without a sound appreciation of UNP’s objectives and management parameters.

Although it was made clear that it was not ideal to carry out a survey in isolation of the process of moving towards shared management with local populations, the resource-use assessment was embarked upon as an entity in itself. The primary reason for this was to maximise the technical expertise available in the area at the time, and to begin moving towards working with the local people, in the hope that a full process would eventually be approved by UNP/UWA. The assessment was therefore designed to address the first three stages of the process as fully as possible, in preparation for taking on some form of collaborative management in the future if institutional policies permitted. It was also hoped that the assessment would provide essential information for developing a long-term management plan for Mount Elgon National Park.

Objectives

Given these constraints, and the change in focus from the original recommendations, the assessment was designed according to the following objectives:

- to determine and assess specific forest resources currently used by local communities, quantity harvested, and location within the forest;
- to determine and assess the specific uses of forest resources by various segments of the community, i.e. to identify user groups based on gender, wealth and distance from the forest;
- to determine and assess the past and present controls and organisational structures affecting forest resource use, including lines of authority and distribution of power, wealth, and influence within the communities;
- to assess the total economic value of forest resource use, and where possible, to devise a monetary value for as many of the forest resources as possible; and
- to have full participation in the assessment by the different sections of the communities.

For maximum participation, it was vital that the local residents recognised their stake in the assessment and perceived some advantages in becoming actively involved. Consequently, one component of the assessment was to introduce the concept of community involvement in management to the participants, without going into detail about the future stages of such management. An added advantage of introducing the idea before beginning the official processes of negotiation was that community members would have time to reflect, discuss and develop their own ideas regarding their role in the future management process. A delicate balance had to be reached between engaging the interest of the people, and avoiding raising unrealistic expectations that could not immediately be met.

An additional objective was to evaluate the methodology and modify it for future application. The assessment was designed to identify the general factors affecting resource use. As the information was to be extrapolated to the forest-adjacent community at large it needed to be detailed. It was intended as a pilot methodology that could be abridged and modified for use in other forest-adjacent parishes as part of a future collaborative management approach.

Team composition

The full-time survey team consisted of the following members.

- The Team Leader (TL) designed the assessment (based on the recommendations and advice of the external consultant), supervised and participated in its implementation, and carried out data analysis and report production. Capacity-building was a key

element; all members of the team were to become fully versed in the methodology and be able to carry out similar activities in other parishes, or parks, in the future without further input from the Team Leader.

- The Social Researcher (SR) provided socio-economic input within the field and assisted the team leader with the implementation of the assessment and data analysis.
- The Forest Officer (FO) carried out the in-forest assessment, in addition to representing the official management body until Uganda National Parks assumed control.
- The Agricultural Extension Officers (AEOs: attached to the project) assisted with logistical arrangements and provided the link between the communities and the research team.

It was important to have staff from the official management body as full-time team members to maximise capacity-building and begin the process of relationship building. At the time of embarking on the assessment, the Forest Department was the official management body. A Forest Officer was included as a team member, and during the introductory discussions he confirmed the Forest Department's commitment to working with local people. UNP officially took over administration of the park midway through the assessment, but was unable to provide a staff member immediately to take the place of the Forest Officer. The Forest Officer continued as a member of the assessment team in an unofficial capacity, retaining responsibility for leading the in-forest assessment.

The areas of assessment

A preliminary estimate was made of the probable extent of the forest-dependent population. The project had previously worked with forest-adjacent parishes, based on the assumption that forest dependence beyond that point would be minimal. Since this assumption was to be tested during the survey, the parish was the administrative unit approached.

Of the 58 forest-adjacent parishes, six were selected, based on a number of criteria (Table 1):

- The sample was not to include any of the nine pilot parishes where the project had previously been working. This decision was based on the expectation that project activities would be extended into other parishes in the next phase, and that initiation of a collaborative management approach would be one of those activities.
- The six sample parishes should be geographically representative (i.e. well distributed around the forest), with three from each district.

- A number of specific issues to be addressed should be taken into consideration when selecting the sample parishes; e.g. grazing, former agricultural encroachment, timber extraction and history of eviction. Parishes in which such issues could be explored should be selected.

Table 1. The six parishes selected for assessment

Mbale District

- 1 Buwundu
 - extensive agricultural encroachment
 - charcoal production
 - minimal grazing/pitsawing
 - borders with Kenya
- 2 Ulukusi
 - long history of boundary disputes
 - pitsawing activity
- 3 Bunwambu
 - agricultural encroachment
 - grazing
 - large-scale bamboo harvesting
 - some pitsawing
 - some hunting

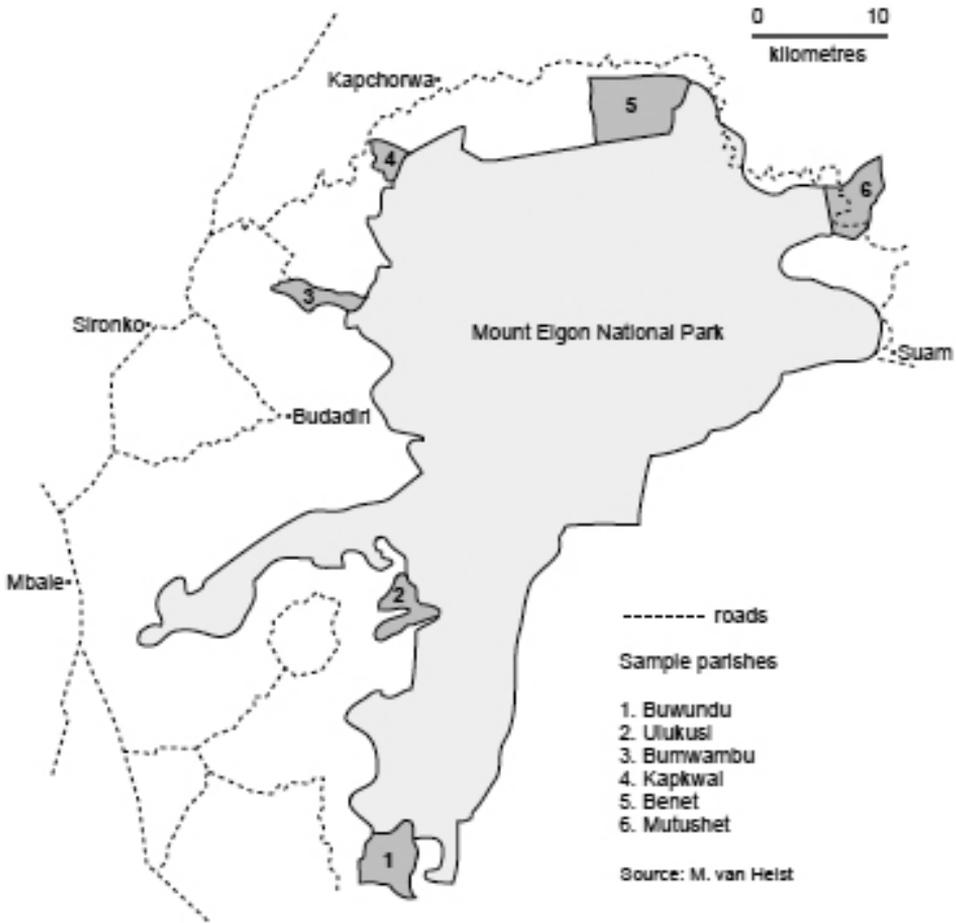
Kapchorwa District

- 4 Kapkwai
 - borders the Exploration Centre*
 - mixed tribal community (Bagisu and Sabinu)
- 5 Benet
 - former forest dwellers: the resettlement issue
 - in-forest grazing
- 6 Mutushet
 - grazing
 - minimal conflict between community and FD
 - forest virtually intact (no encroachment)

** The Exploration Centre is an educational and experiential facility, the development of which was supported by the Mount Elgon Conservation and Development Project.*

Within each of the six sample parishes, two villages were selected for more detailed assessment; one adjacent to the forest and one distant from it (up to three hours walk from the boundary).

Figure 3. Mount Elgon National Park, showing the location of the six sample parishes



The time-scale

The assessment was conducted between November, 1993 and February, 1994. A number of preparatory visits (including the introductory meeting) were made in advance by the agricultural extension officers. The assessment team then spent one week in each parish. Data analysis and report preparation were carried out between March and July, 1994.

Methods

Research was conducted at various levels (parish, village, household, in-forest), in order to obtain a comprehensive picture of the overall resource use situation, and to crosscheck data among a variety of sources. A number of variables, including forest proximity, wealth, generation and gender, were suggested as being likely to have an influence on the nature and extent of forest dependence, and the survey focused on identifying their roles. The survey consisted of the following:

- Stage 1: Introductory meeting
- Stage 2: Parish level profile
 - Village level profile
 - Household interviews
 - Specialist interviews
 - In-forest assessment

A summary of the components of Stage 2 is presented in Table 2, with the team and community members involved, and the expected outputs. A more detailed description of the activities is presented in Appendix 1, and an evaluation of each of the survey components is found in Appendix 2.

Table 2. Summary of survey activities

Day 1: Parish profile	
team members	• all
community members	• knowledgeable elder/representative from each village
	• parish level leader/s; secretaries for information and youth
	• some additional key resource users
	• minimum of 3 women (if not included in above)
activity	output
introduction	no specific output – rapport building, clarification
resource discussion	list of key resources with information on the collector according to gender, wealth, proximity to the forest, specialist groups, commercial or domestic collection
village listing	information on approximate proportions of users/collectors/sellers within each village for each resource
resource ranking	opinion data regarding which resources are most/least important generally, culturally, for income generation, availability of alternatives, level of damage from harvesting and need for controls
mapping exercise	overview of forest, rivers, landmarks, cultural sites, user trails, zones, where each resource is collected from.

At the end of the parish meeting, two villages were selected for the village meetings, one adjacent to the forest boundary, and the other as far from the forest as possible, to capture the extremes of forest dependency according to distance. This selection was done together with the parish meeting participants.

Day 2: general forest walk

- | | |
|-------------------|--|
| team members | • all |
| community members | • knowledgeable, preferably with a variety of skills and interest, |
| | • at least one or two women included in the above |

<u>activity</u>	<u>output</u>
-----------------	---------------

- | | |
|---------------------|---|
| discussion | general information about the forest, including historical aspects of forest use and management. |
| mapping | team familiarisation with the forest, and the areas of the forest that had been mapped during the parish meeting. Mapping of user trails, forest types, special sites, utilisation areas |
| specimen collection | collection of species mentioned in meetings (and for more specific walks also from interviews), the local name, information on their use, method of collection, cultural values, habitat etc. |
| scoring | scoring of the relative values of each area of the forest for resource use |

During this time, the AEO moved within the selected sample villages, together with the LCI chairman, or selected village representative, to prepare for the village meeting to be held the following day

Day 3: Village profile (in both villages simultaneously)

- | | |
|-------------------|--|
| team members | • all: half working in the near village; half in the distant village |
| community members | • village leaders (LCI and traditional leaders/elders) |
| | • several key resource users |
| | • at least 3 youths, if not included in the above |
| | • at least 3 women, if not included in the above |

<u>activity</u>	<u>output</u>
-----------------	---------------

- | | |
|---------------------|--|
| introduction | no specific output – rapport building, clarification; as with parish meeting |
| household listing | preparation of a full list of households, in order of distance from the park boundary. In addition, information regarding the relative wealth of each household, and whether or not they are buying, collecting, selling each of the forest resources listed during the parish meeting |
| resource discussion | general information about each resource, including how it is collected, from where, seasonality, preferred species, etc. |
| resource ranking | ranking of each resource (most important, important, least important) by small groups; elders, youth, women. |
| seasonal calendar | if time permits, a calendar to be made with seasonal information on agricultural activities, harvesting of forest resources and ceremonial practices |

At the end of the village meeting, 10 households are selected for interviews. To achieve broad representation, the selection was stratified according to distance from the forest and wealth.

Days 4 -6 : Household interviews/specialist interviews, more specific forest walks

- | | |
|-------------------|--|
| team members | <ul style="list-style-type: none">• all, except the FO who conducts the forest walks• representatives from each village move with the interview team• approximately six of the most knowledgeable participants of the general forest walk; preferably at least one woman in this group |
| community members | |

activity	output
general household	general information about the household including origins, size and interviews composition, land and livestock, education of the household head; quantitative information on the use, collection, sale of each resource (broken down into species if appropriate); labour used on in-forest activities, by gender; additional information as appropriate
specialist interviews	general information about specialist activities such as hunting, basketry, traditional medicine; some discussions with elders about the history of the forest, past systems of management, etc.



Part 2:
Investigating the
people-forest
connection

4. Dependence on the forest

Within the traditional natural resource management sector, placing a value on natural forests has focused on timber and pulp, and more recently fuel in the form of both wood and charcoal. All other resources were commonly referred to as 'minor', and were treated as such. In recent years, a greater understanding and respect for the value of non-timber forest products has emerged, particularly their role in the lives of rural populations living in and around protected areas. A considerable number of case studies have been documented over the last decade or so, emphasising the range of forest resources that are utilised by locally-resident people, particularly in the tropical realm. Building a solid base of knowledge about the value of forest resources is essential for decision-making regarding the future use and management of protected areas (FAO 1990). Very often, non-timber forest resources are critical to many aspects of the daily lives of forest-neighbouring populations, including house construction, food security, health and cultural ceremonies. This is particularly so in remote areas, where people are distant from major marketing centres, educational facilities and income-earning opportunities.

With extremely high rural population densities and limited access to any type of communications, it should not be surprising that the communities abutting Mount Elgon National Park are highly dependent on a variety of resources from within the protected area. The results of the assessment confirmed this, demonstrating that forest use is:

- *extensive*, both in terms of the number of resources that are harvested from the park (many of the most important being 'minor' forest resources) and the proportion of the population involved in forest use;
- *intensive*, in that most people are frequent forest users, dedicating a considerable amount of their household labour to in-forest activities;
- *culturally linked*, with the forest representing a vital connection to the ancestors, and resources playing a central role in cultural ceremonies;
- important for income generation for some members of the park-adjacent population;
- *unlikely to decrease* significantly in the next decade; and
- *of substantial economic value* to the community, when translated into monetary terms.

Extensive dependence on the forest

As with many rural populations bordering large forest areas in the tropical realm, the number of uses made of Mount Elgon National Park is considerable (Box 5). The forest supports many aspects of daily life, including house construction, food security, health and cultural requirements.

Box 5. Current uses of the forest (extractive and non-extractive)		
construction materials	food	other
bamboostems	bambooshoots	firewood
polewood	honey	medicine
thatching grass	vegetables	cropstakes
ropes	mushrooms	grazing
timber	caterpillars	fertiliser
withers	fruit	cultural use
	wild meat	carving materials
	white ants	sand
		transit across mountain

Although many of these resources are usually considered ‘minor’ forest products, in the Mount Elgon context, they are very important. Categorising exercises (see Appendix 1) at both parish and village levels demonstrate that many resources considered to have the highest value are so-called ‘minor’ forest products (Table 3).

Table 3. General results of opinion ranking at parish and village levels⁵

resource	*** most important	** important	* least important	
	general (parish)	older men (village)	younger men (village)	women (village)
bamboo shoots	***	***	***	***
bamboo stems	***	***	***	***
traditional sites	***	***	***	***
honey	***	**	***	**
medicine	***	**	**	***
firewood	***	**	**	***
polewood	***	***	**	**
timber	***	**	**	**
grazing	**	**	**	**
crop stakes	**	**	**	**
crafts	**	**	*	***
vegetables	**	*	*	**
ropes	**	*	*	*
saltlick	**	*	*	*
mushrooms	*	*	*	**
hunting	*	*	*	*

The resources with the highest value from both the parish and village rankings include bamboo (shoots and stems), honey and medicine. Access to traditional sites (a non-extractive use of the park) is also very important. Polewood, timber and firewood were also ranked highly. Although these resources are among the most controversial, substitutes for them can be developed.

This assessment was more nuanced than many of its type, in that within the category of forest users, a distinction was made between user households which were buying and those which were collecting (Box 6). Each household was accordingly assigned a category for each of the resources.

Box 6. Categories of resource use

non-user ●
user ● buyer
 ● collector — collects for domestic use only
 ● — collects for both domestic use and sale to others

The assessment investigated various categories of resource use. Non-user refers to households which are not using a particular resource at all. User refers to all households using the resource and is made up of those buying and those collecting. This category represents the total demand placed on the resources by the forest-adjacent parish residents. The categories of buyer and collector are consequently sub-groups of the user group. Within the category of collectors, there are those who collect for domestic use only, and those who collect for domestic use but also collect for sale to others. The categories of collector for domestic use only and collector seller are therefore sub-groups of the collectors. N.B. a household which is a buyer for one resource may be a collector for another. Each household is categorised separately for each resource.

In the villages directly adjacent to the park boundary, households interviewed were using an average of ten resources from the park (Table 4). Although some of these resources (e.g. honey, medicine, bamboo baskets and carved crafts) are collected by specialists for sale to households, the majority (on average, seven) are collected by the households using them. In the villages at the far extreme of the parish adjacent to the park, most of the resources used are bought from people living closer to the park (average of 6.6 resources used, and only 1.7 actually collected). Nevertheless, the level of use reflects a dependence on a large number of resources from the forest, particularly those such as bamboo stems and shoots, medicines and mushrooms, which are not easily substituted on-farm or with commercial goods.

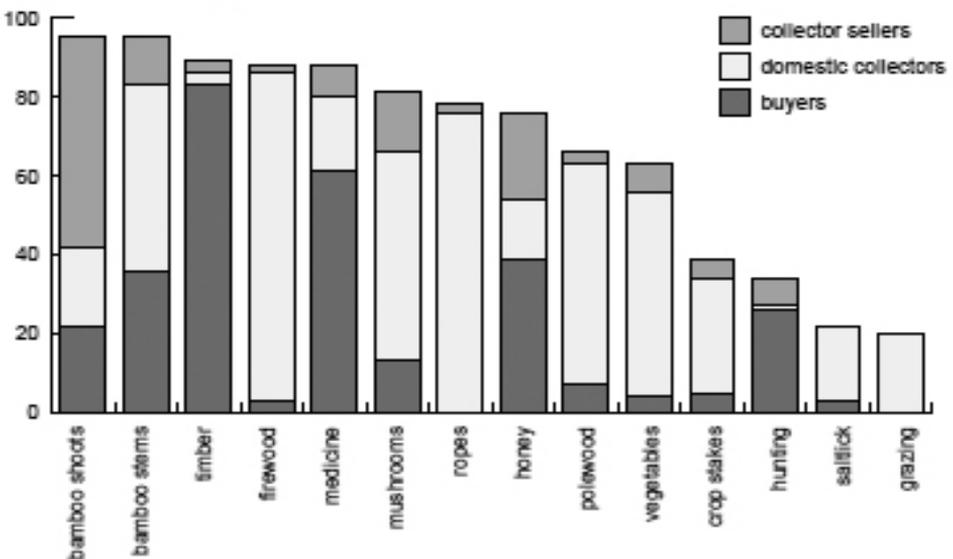
Table 4. Average number of resources used

Resources used (either bought or collected), collected (for domestic use and/or sale) and sold by households in villages adjacent to the park (near) and distant from the park (far).

proximity of village	average number of resources/household (range)		
	used	collected	sold
near (N = 59 HHs)	10.0 (6-13)	6.9 (1-12)	1.4 (0-5)
far (N = 60 HHs)	6.6 (3-13)	1.7 (0-9)	0.4 (0-6)

Dependence on the forest is extensive not only in terms of the number of resources used, but in the number of households using them. The results show that a large proportion of households use a large proportion of the resources listed in Table 3. As demonstrated in Table 4, not a single household in the sample did not use forest resources; in the near villages all households were recorded as visiting the forest to collect at least one resource. Figure 4 illustrates that, in the villages directly adjacent to the boundary, the main resources are used by the majority of households interviewed. For eight of the resources listed, more than 75 per cent of households sampled in the villages nearest the forest are users (either buyers or collectors). Seven of the resources listed are actually collected by more than half the households (for domestic use or sale).

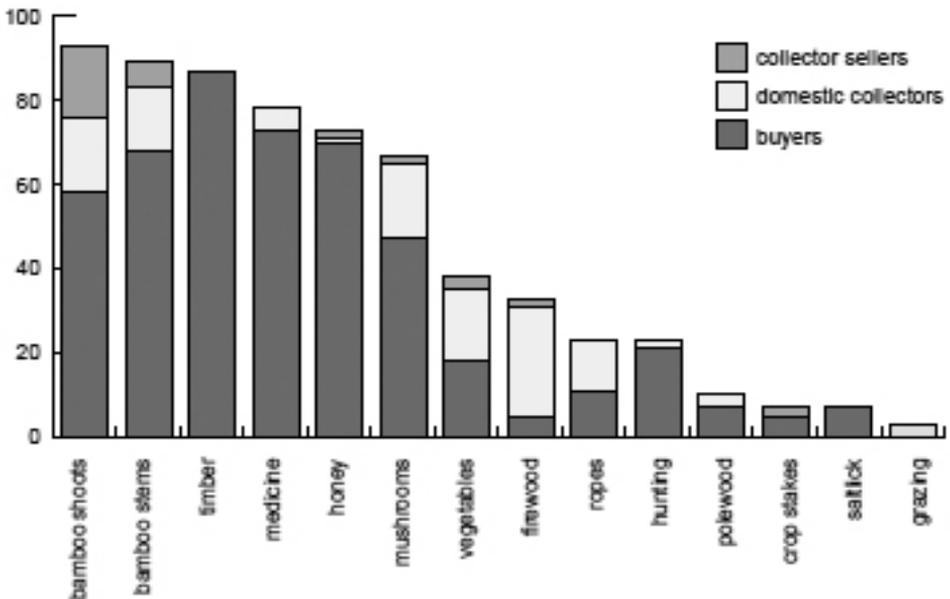
Figure 4. Percentage of households in the near villages using major resources



In Figure 4, vegetables were omitted in the village profile exercise in Bumwambu. It is expected that most of the households actually collect and/or use vegetables, and that the missing numbers have lowered the total percentage.

Figure 5 demonstrates that, even in those villages farthest from the forest, a considerable proportion of households were recorded as users of many of the forest resources, although they were mainly buying them from people living closer to the forest.

Figure 5. Percentage of households in the far villages using major resources



Intensive dependence on the forest

Although it is apparent that a large proportion of the community (particularly those living closest to the park) are dependent on the forest for a considerable variety of resources, this says little about the intensity of dependence. It is possible that, even though almost everybody visits the forest, resource collection is infrequent, and therefore does not constitute a major component of household survival. The intensity of dependency was demonstrated by investigating the amount of time used for in-forest activities. Human labour is one of the most valuable assets to most rural households. The manner in which it is used is critical, and can indicate something about economic realities. Although it is often most lucrative to utilise labour in activities such as commercial crop production or

cash labour work, more often than not land shortage and limited employment opportunities render these options nonexistent in rural areas. A decision to spend a lot of time on low-return in-forest activities indicates that there is limited access to alternative sources of income, and a correspondingly high dependence on forest resources.

During the household interviews, information was collected on labour used in the forest per household for each of the in-forest activities. The totals include travel time to and from the forest and harvesting time within the forest for all members of the household, including children. Travel time was not included if resources were collected while in the forest to harvest something else (as is often the case for vegetables and mushrooms). Table 5 shows the average number of hours spent annually on in-forest activities by respondents from both near and far villages. The total is itemized according to resource, collection for domestic consumption and collection for sale.

For some resources (i.e. timber, medicinal plants, crafts and hunting) inadequate data were available to calculate the labour involved. This was often due to the fact that, because of the special skills required, there were very few collectors and they may not have been captured within the ten households selected per village. Such resources have been listed as I/D (insufficient data). Therefore the final totals do not represent a complete labour analysis and are consequently underestimates.

It is evident from the data that a substantial amount of time is spent on in-forest activities by households within the forest-adjacent villages (an average of 1,211 hours/household/year for the sample households, which is equivalent to approximately two to three full working days of eight hours each per week). The majority of this time (85 per cent) is spent collecting resources for domestic consumption, suggesting that forest resource collection is primarily a subsistence concern. Even households within the far villages (in some areas up to three hours' walk from the park boundary) are, on average, spending close to one full working day per week on in-forest activities.

Although these figures are revealing in their own right, they can be placed in context by estimating the proportion of the annual household labour economy used on in-forest activities. It was not feasible to conduct a comprehensive household labour assessment as a component of this study, and data were not available from other sources. Consequently, a 'guestimate' was made, based on discussions with respondents, that a household used in total approximately ten hours per day (among all members) on economically productive activities, not including purely domestic work such as cooking and child-minding. This guestimate works out to approximately 3,000 hours per year based on a six-day work week.

Table 5. Average number of hours/household/year spent on in-forest activities

resource	near villages			far villages		
	total	consumption	sale	total	consumption	sale
bamboo shoots	130	64	66	48	21	27
polewood	11	10	1	0	0	0
honey	32	23	9	1	1	0
timber	I/D	I/D	I/D	I/D	I/D	I/D
ropes	7	6	1	1	1	0
bamboo stems	81	9	72	6	1	5
crafts	I/D	I/D	I/D	I/D	I/D	I/D
mushrooms	30	25	5	4	3	1
firewood	300	297	3	129	124	5
medicine	I/D	I/D	I/D	I/D	I/D	I/D
vegetables	128	115	13	42	38	4
stakes	16	10	6	0	0	0
grazing*	425	425	0	43	43	0
hunting	I/D	I/D	I/D	I/D	I/D	I/D
saltlick	21	21	0	1	1	0
cultural activities	I/D	I/D	I/D	I/D	I/D	I/D
others	30	30	0	86**	44	42
total	1211	1035	176	361	277	84
		(85%)	(15%)		(77%)	(23%)

* Total for hours spent grazing are particularly high because of the intensive in-forest grazing activities within Benet.

** The very high total for "others" is the result of the large quantities of fodder for sale collected by one respondent from Narundi (Ulukusi). This respondent (who apparently spent more than 5,000 hours annually on fodder collection) has skewed an otherwise low figure. It is unlikely, therefore, that the average given is representative of most households within the villages farthest from the forest.

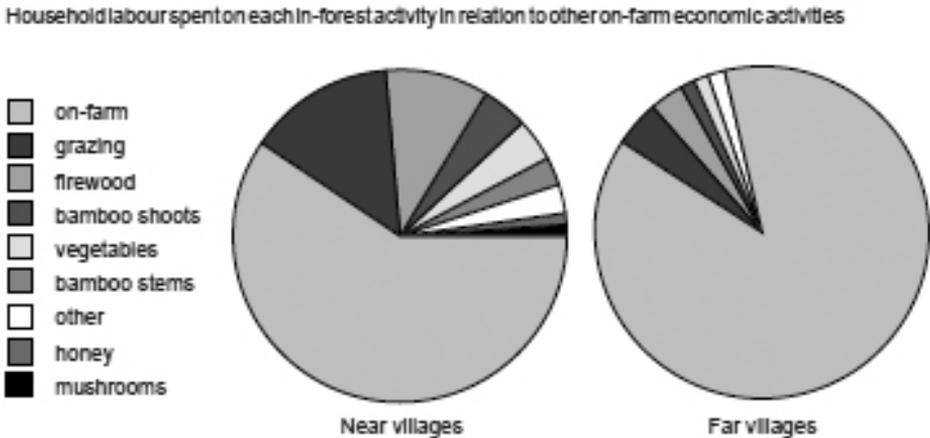
Forest-resource harvesting can be classified as an economically productive activity. If the forest were not available to the people, alternatives would have to be either produced on-farm or purchased with cash or its equivalent. Using the 'guestimate' of 3,000 hours per year, in-forest activities consume on average over 40 per cent and 12 per cent of the household productive labour budget for the near and far villages respectively. Figure 6 illustrates the breakdown of in-forest activities within the household economy.

As mentioned earlier, the figures for grazing are particularly high because of the

intensive in-forest grazing of cattle in the parish of Benet. If the labour figures from this parish are removed, the average number of hours used on in-forest activities for the other five parishes is 952 per year, representing two and a half working days per week: 32 per cent of the household economic labour pie.

The labour analysis demonstrates clearly that the intensity of forest dependence is indeed high. Households choose, or are compelled, to spend a considerable amount of their time collecting resources from the forest, primarily for domestic consumption. For many households forest resource collection is a frequent activity and a vital component of daily life.

Figure 6. Average proportion of household labour spent on in-forest activity



Cultural connections to the forest

People living within the parishes adjacent to Mount Elgon National Park emphasized the importance of their strong and long-standing cultural connections with the forest. In addition to the general importance of the forest as a tangible link with the ancestors, a number of specific examples were given of how the forest and its resources are used during cultural ceremonies such as circumcision, marriage and enhancing fertility (Boxes 7 to 9). The collection and use of culturally significant resources continues today, although it seems to have decreased with the younger generation, the advent of Christianity and increased access to modern education.

Box 7. A visit to Gombe circumcision site

After some hours of meandering through thick scrub, which was formerly encroached land, we reached the massive sacred Gusagali tree (Podocarpus sp.). Nobody in living memory remembers when the tree was young, or when circumcision ceremonies began taking place here. The people of the area have always been forbidden to cut the tree down, even during the time when it was surrounded by cultivated land. Rumour has it that meddling with the tree will lead to madness followed by death. When this Gusagali tree dies, another must be planted in the same place.

Pre-circumcision ceremonies take place here every second year. After harvesting season in the circumcision year, all the clan heads of the area convene on Gombe hill at the foot of the Gusagali tree, bringing millet bread and a live chicken. The chicken is slaughtered and roasted at the foot of the revered tree. Scraps of food are thrown around the tree, in an appeal to the ancestors to grant strength and courage to the circumcision candidates.

On the eve of the ceremony, a group of men gathers; they clear all the surrounding undergrowth so that the circumcision candidates have a clear area for the wild dancing that will follow the next day.

On the day of the ceremony, the ancestral appeasement is repeated by the elders as the candidates assemble in a line by the Gusagali tree. They are already slightly intoxicated from chewing the courage-inciting root, wapalu, which is abundant on Gombe hill. The singing and dancing begin. Women are also present and fully involved in the celebrations. Clan elders are busy counselling the youths and spitting mouthfuls of local beer at each in turn.

During the ceremony, an enormous, heavily bearded, blue-black snake (Wekobe) mysteriously appears and coils itself around the tree, symbolising the arrival of the ancestors. The clan heads take a mouthful of local beer and spit it at the snake, asking it to leave. It then disappears and the celebrations continue well into the night.

Figure 7. Circumcision dancers



Dependence on the forest for income generation

Most of the harvesting from Mount Elgon National Park is for domestic needs. For people from the near villages, only about 15 per cent of the time they spend in the forest is for collecting resources for sale. The majority of the income generated from harvesting forest resources is from local marketing, rarely farther afield than the parish itself.

One notable exception in the past has been timber extraction, an activity which has resulted in severe degradation of some areas of the forest (Howard et al. 1997). Timber extraction has primarily been carried out by non-resident contractors. Local residents were generally employed, at a very low rate, for help with cutting and carrying the timber, but did not receive benefits from its sale in external markets, and were rarely permitted to keep any of the timber for their own use.

The other main exception is bamboo shoots, which are harvested from Mount Elgon to supply the demand throughout the District of Mbale. The cultural importance of this resource is consistent within the entire Bagisu tribe, and bamboo shoots can be bought in small restaurants in Mbale town at most times during the year. The demand for shoots does not extend beyond Mbale. In fact, the Bagisu are the only tribe in East Africa known to consume them.

Box 8. The cultural importance of honey

Honey is an extremely important resource to the communities of Ulukusi, not only because of its taste. It plays a significant role in a number of traditional ceremonies, and symbolises links with the ancestors. Every clan within the parish has at least one traditional hive (made from *Podocarpus* sp., known locally as Gusagali) within the forest. The hive is maintained and harvested by one specially selected, peaceful and highly respected elder. When this elder dies, another is chosen to take up the honour. Only this particular hive has cultural significance.

There are a number of important ceremonies associated with the siting of the hive. Prior to the journey, the clan members sing and dance all night, working themselves into a euphoric state. The next day the procession to the forest is led by the selected elder, who carries the hive. A barren woman must carry a live sheep into the forest; through this offering, fertility will be granted to the community in general. Other offerings are brought to appease the spirits. The hive is then sited in a Gusagali tree.

The ceremony takes place about once each decade, and its timing is usually decided upon by a spiritual leader. The ceremony is often thought to alleviate unusually high levels of sickness or infertility within the community. If the traditional hive is destroyed between ceremonies, the selected elder must go and lift it from the tree, lower it with ropes and raise a new hive in its place. The bees from the old hive will automatically migrate to the new one. The behaviour of the bees is believed to be controlled by the spirits. They rarely sting and will never occupy another hive.

It is the selected elder's responsibility to harvest honey from the hive. A feast will be organised for this occasion, during which all clan members will eat the honey together. When a baby boy is named, the elder sprays honey from his mouth onto the chest of the baby. If the baby cries, it is an indication that the spirits have not approved of the name and another is selected. During circumcision, the candidates are smeared with honey by the elders, in a request for strength and courage from the spirits. Honey from this hive is never sold.

Box 9. Mazaza — a spiritual hunter

Mazaza is a spiritual hunter, as was his grandfather. He is the only one within the family who has been chosen by the spirits to carry on the tradition. Although Mazaza’s grandfather died before he was born, he was aware from a young age that he had been “claimed” by the hunting spirits, and that hunting within the forests of Mount Elgon would therefore be an important, in fact inescapable, part of his life.

At the age of about four he first fell sick. Initially the family believed it was a physical illness and tried their best to have it cured. After a long period of despair, they sought counsel from a spiritual healer, who informed them that their child was to be a spiritual hunter, and the only way in which he could be cured was to initiate a special process. The elders of the clan carried out a small ceremony, giving him a spear and a puppy, as a means of informing the spirits that they were handing him into their control. They requested the spirits to assist in his recovery. After the ceremony, they observed him very carefully. If he had not recovered fully within a few days, they would seek another explanation for his illness. He did recover quickly, however, and grew up with the knowledge that, one day, he must take on the life of a spiritual hunter.

At the age of around 15, he began to move into the nearby forest areas with his dog. In order not to anger the spirits and fall ill again, it was important that he begin to display an interest in hunting, even if he was not at first successful. He was trained in the art of hunting by his older cousin, who, although not a spiritual hunter himself, had accompanied their grandfather on hunting expeditions in the past. After he had acquired sufficient skills, he always hunted alone. Once his hunting “career” was initiated, he visited the forest regularly (twice a month), choosing not to wait until the spirits disturbed him. Once a year would most likely have been enough to appease the spirits, but during the days of his youth, animals were plentiful and hunting had become his craft.

In the past, the number of ordinary hunters (those who took up hunting by choice, rather than under the insistence of the spirits) was much higher than spiritual hunters, perhaps twice as many. Today, animal populations have declined drastically, and spiritual hunters are virtually the only ones active. The number of spiritual hunters has remained relatively constant (there are six within Mazaza’s clan, Mabono, which is a strong hunting clan) and young boys are still being recruited by the spirits. However, their level of activity has decreased considerably. Mazaza has managed to keep up his hunting regularly enough to satisfy the spirits, and has not been severely bothered by them since childhood. Much of the time

Mazaza is unsuccessful, but apparently the spirits understand that times are difficult and animals scarce, and the mere act of going to the forest with the objective of hunting is, these days, sufficient. Occasionally a sacrifice is offered to the spirits, to maintain peaceable relations.

He understands that his “condition” is very much in conflict with forest regulations, but feels powerless to change things. He no longer enjoys hunting; it is arduous, dangerous (a hunter was killed in the forest only recently) and rarely successful these days. However, he must continue. He suggested that the spiritual hunters of the area could be given rights to hunt on a very limited scale (infrequently, and perhaps only for certain species such as moles). In exchange they could be active in preventing illegal activities including ‘normal’ hunting.

For most resources, marketing by local communities is confined to a small number of households collecting a little extra to generate some income. With little in the way of income-earning possibilities in most of the communities of Mount Elgon, the forest is a vital source of extra cash for these households. Since none of the resources currently collected from the forest are of commercial value beyond the forest-adjacent parishes, it is unlikely that formalised extraction for local sale will substantially increase the level of demand.

Some resources (e.g. medicine, honey, craft materials) are collected primarily by specialists. These specialists are few in number, and they depend heavily on their skills and the resources of the forest to provide them with a living. Normally they offer their services only to local residents and rarely extend much farther than the parish boundary. Once again, the notable exception is bamboo shoots, which are collected by a wider spectrum of the population for trade within the District of Mbale (Box 10).

Box 10. Shoot smoking season

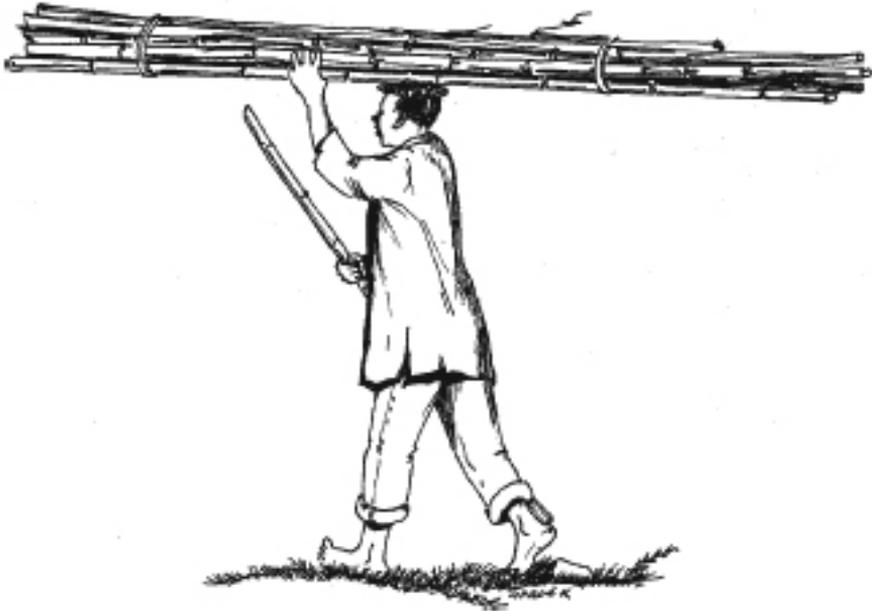
Between June and September visitors to the southern sectors of Mount Elgon National Park would think they had landed themselves in a cross between a British football match and guerrilla warfare. The sounds of chanting and shouting combine with sharp explosions of the water-filled bamboo stems being used as firewood, and impinge on the normally tranquil atmosphere of the forest.

The consumption of bamboo shoots is virtually unheard of in Africa, although to the Bagisu bamboo is an important food. During the bamboo shoot growing season, residents of parishes near the forest flock there in the thousands to harvest and dry the shoots, known in the local language as Malewa. They will normally stay for three to four days, protected from the rain by makeshift bamboo shelters. They work until about 3 a.m. and only dare catch a few hours sleep, for fear of the fire going out if unattended. To maintain energy levels, people bring traditional millet or maize beer with them. Waragi (the local spirit) is not taken as it might reduce their strength. To keep themselves warm and awake, the harvesters chant and sing; sometimes traditional circumcision songs, sometimes pop songs. Friends and neighbours shout progress reports across the valleys. The forest is alive with human activity.

The bamboo shoots are not merely a source of food during periods of shortage. The income generated from their sale is an important supplement to the household economy, particularly for residents of the forest-adjacent parishes of southern Mbale. Most important, however, is the cultural connection with ancestors, which is represented by the harvesting and consumption of bamboo shoots. The dish is an essential component of circumcision ceremonies and weddings. According to a prominent district official, "you can take away whatever you like, but you can't take away our Malewa!"

Source: Extract from Scott, 1994

Figure 8. Man carrying bamboo stems



Past and probable future trends

From discussions with participants at the meetings, interview respondents and the in-forest team, it was possible to gain an impression of the general trends in the use of forest resources. The variety of resources used from the forest seems to have decreased and will continue to do so in the future. A number of resources are now considered to have only “past” uses. As recently as the 1970s, when civil unrest resulted in the dramatically reduced availability of even the most basic commodities, particularly in the rural areas, the forest was a vital source of household goods such as soap (from the bark of a particular tree), fire-lighting sticks, and carved kitchenware such as plates and cups. Most furniture, including beds, was made out of bamboo. With increased access to commercially-produced goods in the local markets at increasingly affordable prices, a number of formerly valued forest resources are no longer popular.

More resources are likely to decrease in popularity over the next decades. If the local economy continues to improve and the cash income of households continues to increase, non-timber building materials, such as forest ropes and thatching grass, will be replaced by sisal ropes, nails and roofing iron. There is already a preference for purchasing such commodities

if possible, rather than spending time journeying to the forest. With agricultural production increasingly geared to the cash economy (as evidenced by the amount of matoke, maize and coffee grown and sold in the area), rural economies are becoming more money oriented. A corresponding increase in the availability of commercial goods will result in reduced subsistence dependence on some forest resources in the future.

However, with the inevitable increase in population, and the establishment of young households requiring new homes, it is likely that the demand for wood products for construction will increase in the future. This will probably be exacerbated by worsening land scarcity, and a reduced area for the establishment of on-farm wood supplies. It is hoped, though, that more effective management strategies – which focus on addressing demand as well as supply, and include effective means of encouraging on-farm wood production – will counteract these inevitable increases in demand. In the short term, this may happen through input from park support projects, but there is also an increasing focus on community ranger activity which should include assistance with on-farm alternative resource development.

These are all trends which may take decades to have a significant impact; the current situation is one of crisis management. The majority of households are dependent on the forest for a large number of resources. Dependence is not restricted to a small percentage of the community. It spans all socio-economic and generational sectors, as will be demonstrated in the next section. Substantial changes in forest use are not likely to happen within the next ten years. Forest dependence is an issue which will not simply go away in the near future. It must be addressed through a pro-active approach.

Forest dependence in monetary terms

There is increasing pressure to place economic values on conservation and on the extractive and non-extractive use of resources within protected areas. People have been struggling to find ways of assigning a realistic monetary value to the use of natural resources by rural communities, particularly uses that do not involve markets (Emerton, 1995). Few have come up with satisfactory solutions.

It is especially difficult to quantify cultural values in monetary terms. But rather than failing to place a monetary value on the use of natural resources by rural communities, and leaving decision-makers with no tangible sense of their worth, some figures can be offered as a partial analysis. Any values not included in the calculations should be acknowledged as an integral component of the analysis. This can reduce the danger of decision-makers focusing purely on the bottom-line.

The assessment considered the economic value to the local population of extracting non-timber forest products. Quantitative data on resource use, combined with information on the local market value of forest resources (if they were to be bought or sold), offered some insight into the scale of economic benefits flowing to communities through extractive use of the park.

To get an idea of the financial value of resource extraction to the entire forest-adjacent community, household interview data from the sample parishes were extrapolated to the communities they were assumed to represent. In most cases, this included all parishes bordering the park within the sub-county where the sample parish was located⁶. The sample villages bordering the park (near) and those distant from the park (far) are representative of the two extremes of forest use in the park-adjacent parishes. Therefore, data on the average financial value of resource extraction per household from the near villages have been extrapolated to half of the households, and the equivalent data from the sample villages far from the park have been extrapolated to the other half. The results of this extrapolation are summarised in Table 6⁷. Additional descriptions of the monetary value calculations are included in Appendix 3.

Table 6. Average minimum and maximum monetary values for resources

Extrapolated to the forest-adjacent parishes represented by the sample parishes. The total is for all households within forest-adjacent parishes (with the exception of Bungokho). Uganda shilling (USh) 1,000.00 = US\$ 1 (approximate rate at time of writing)

area (sub-county) (sample parish extrapolated from)		minimum USh per HH/year	maximum USh per HH/year
Bubulo (Buwundu)	(Near = 4,147 HHs) (Far = 4,147 HHs)	74,250 19,315	107,937 30,441
Total for area	(8,294 HHs)	388,014,055	573,853,566
Manjiya (Ulukusi)	(Near = 5,475 HHs) (Far = 5,475 HHs)	35,234 33,571	69,098 66,572
Total for area	(10,950 HHs)	376,707,375	742,793,250
Bulambuli/ Budadiri (Bumwambu)	(Near = 7,738 HHs) (Far = 7,738 HHs)	36,816 3,303	74,280 9,288
Total for area	(15,476 HHs)	310,440,822	646,649,184
Tingey (Kapkwai)	(Near = 1,424 HHs) (Far = 1,424 HHs)	71,450 23,358	116,255 49,963
Total for area	(2,848 HHs)	135,006,592	236,694,432
Kween (Benet)	(Near = 2,097 HHs) (Far = 2,097 HHs)	70,480 1,338	93,673 2,931
Total for area	(4,194 HHs)	150,566,437	202,530,287
Kongasis (Mutushet)	(Near = 2,385 HHs) (Far = 2,385 HHs)	61,482 2,065	98,743 4,441
Total for area	(4,770 HHs)	151,591,369	246,145,433
Total: all park-adjacent parishes		1,512,326,650	2,648,666,152

Two values have been presented in Table 6, a minimum and maximum:

- The **minimum value** could be described as the **net value**, with the main cost – labour – subtracted. Labour expended during collection could be utilised in another manner, and therefore is a cost inherent in the collection of the resource, even if only in terms of the additional food consumed to compensate for the effort. The real value of labour within primarily subsistence farming communities is very difficult to ascertain. Although on-farm cash wages can give some indication, such work is sporadic and heavily dependent on seasonal demand. The opportunity cost of the collection of forest resources is rarely equivalent to the amount that could be earned from on-farm labour if it were available. On-farm wage labour rates have consequently been adjusted to more realistically reflect the value of labour (see Appendix 3 for more details).
- The **maximum value** could be described as the **gross value** before subtracting the cost of labour. This assumes that, with little in the way of alternative employment opportunities, the opportunity cost of using labour on in-forest activities is minimal.

These two figures offer a range within which the most realistic value is likely to fall. The total figure for all forest-adjacent parishes (excluding the five parishes in Bungokho County) is therefore estimated as falling somewhere between 1.5 and 2.7 billion Ugandan shillings (USh). Roughly translated (using approximate conversion rates at the time of research), the figure is equivalent to somewhere between US\$ 1.5 and 2.7 million per year.

Considered alone, the financial valuation figures mean little. Therefore, a comparison was made between the value of non-timber forest products (NTFP) harvested by the local community, and the value of the sustainable off-take of timber from the park. The net value of timber to the Forest Department was used in this calculation. In the early 1970s the annual sustainable off-take from the forest was calculated at around 8,500 cubic m, based on stock assessments carried out in the late 1950s. To allow for the recent reduction in forest cover (Howard et al. 1997), this figure has been reduced by 20 per cent to give an estimated annual sustainable timber off-take of 6,800 cubic m (approximately 2,267 trees). The Forest Department royalty charge (as of April, 1994) was USh 34,000 per cubic m for the species of highest value. This figure is taken to represent the net standing value of the timber to the Forest Department. In addition, the seven licensed pit-sawyers were charged an annual fee of USh 100,000 each (1993). The total annual income that would accrue from the extraction of timber on a sustainable basis is under US\$ 240,000 (less than 16 per cent of the minimum net value of current levels of non-timber extractive forest use⁸).

The gross value of timber and NTFP extraction were also compared. The local market value of the estimated sustainable off-take of timber (which includes costs such as labour, equipment, royalties, licensing fees and transportation to the local market) is around US\$ 350,000 (based on 45 planks per tree at an estimated market value of US\$ 3.50 each). This figure is just over 13 per cent of the local market value (i.e. the maximum value without subtracting the cost of labour) of the extractive use of NTFP. Box 11 summarises these comparisons.

Box 11. Comparative values (in US\$) of timber and non-timber forest products (NTFP)

a) Net value comparison

NTFP extraction: *value to local population/yr, after subtracting their costs (labour); representing the net value of the standing crop of NTFP (quantity extracted x market value – number of hours x value of labour)*

total **1,500,000**

Timber extraction: *value of sustainable timber off-take to the Forest Department/yr, before value adding costs are incurred; representing the net value of the standing crop of timber*

royalties x annual off-take in m³ 34 x 6,800 231,200

licensing fees x no. extractors licensed/yr 100 x 7 700

total **231,900**

b) Gross value comparison

NTFP extraction: *value to local population/yr, including their costs (labour); representing the gross value of the standing crop of NTFP, reflected in the market price per unit (quantity extracted x market value)*

total **2,700,000**

Timber extraction: *value of sustainable off-take to the extractor, including value added costs incurred (labour, equipment, licensing fees, royalties etc.); representing the gross value of the standing crop of timber, reflected in the market price per unit*

market price/plank x annual off-take of planks 3.5 x 102,015 357,052

total **357,052**

Although these calculations are rough, the magnitude of difference is astounding, and should be particularly so to those who believe that timber is the major value of a forest such as that in Mount Elgon. Both comparisons suggest that the value of the extraction of non-timber forest products by residents of park-adjacent parishes is approximately six times that of the annual sustainable yield of timber.

These figures constitute values of the extractive use of resources only; considered alone they are a gross underestimate. There are substantial values to the local community which have not been taken into account. Many forms of forest use within Mount Elgon National Park have strong social and cultural values which are difficult to quantify in monetary terms. In addition to the cultural/ceremonial values mentioned earlier, these include the use of the forest as an educational and recreational experience. Many of the younger children spend time in the forest collecting bamboo shoots, not necessarily for financial benefit alone, but as a form of enjoyment and, in some cases, initiation into the ways of the ancestors. The environmental benefits for residents – not only in the parishes bordering the forest, but far afield – have not been taken into account during this assessment and are not reflected in the financial valuation above. A monetary analysis of extractive use of the forest such as the one in Box 11 is only the tip of the iceberg.

Summary: the extent and nature of forest dependence

Forest dependence is **extensive**:

- The locally-resident population depends on the forest for a large number of resources. On average, residents living adjacent to the park use ten different resources from the forest.
- A large proportion of local residents make use of the forest; more than 75 per cent of the population (in the near villages) use at least eight forest resources.

Forest dependence is **intensive**:

- In-forest activities consume, on average, more than 40 per cent (approximately 2.5 days per week) and 12 per cent (approximately 1 day per week) of the household labour budget for the near and far villages respectively.

Forest dependence is **culturally linked**:

- As well as representing an important link to traditions, some forest resources are integral and indispensable components of many cultural ceremonies.

Forest dependence is a **source of income generation**:

- For a small proportion of the population, the collection and sale of resources is an important means of earning money. Four resources (bamboo shoots, stems, mushrooms and honey) are collected for sale by more than ten per cent of the population in the near villages. Bamboo shoots are a particularly important source of income, with over 50 per cent of households collecting them for some level of income.

Forest dependence is unlikely to decrease significantly in the next decade:

- Although the collection of some resources could be termed “past” uses of the forest, and it is likely that in the future the use of some resources will increase and others will decrease, it is unlikely that there will be a noticeable change in the general level of dependence on the forest within the next couple of decades.

Forest use is of substantial economic value to the local population:

- In monetary terms, the annual value to the local population of harvesting NTFP from the forest is somewhere between US\$ 1.5 and 2.7 million.
- This value is approximately six times that of the sustainable off-take of the most valuable timber species of the forest.

5. Key characteristics of the forest-dependent population

Forest-dependent communities

According to Poffenberger (1990a), it is typically the people who are most dependent on a forest who make the best managers of that forest. Logically, the more benefits that flow from a venture, the more incentive there is to ensure that the venture is a success and is sustainable. Unfortunately, people with power and a political agenda will often place themselves at the forefront of a new initiative. This is despite the fact that "... non-users are rarely in a position to make informed decisions about the management of a forest or the needs or wishes of the users. When uninformed people make decisions, resource management decisions tend to become secondary to political considerations" (Gilmour and Fisher, 1991; p. 47).

It is therefore very important, but often very difficult, to identify those who are most forest dependent, and consequently those with whom to negotiate and share management responsibilities. It is essential that all of the various users are represented within a decision-making body. An effort should be made to fairly represent gender, tribe, socio-economic status, age and specialist users. Identifying forest users and their representatives, and forming a decision-making unit at the community level, should ideally be carried out as two of the first steps in moving towards partnership management. The local residents themselves should be at the forefront of determining the real users, and the ways in which they can best be represented (Bartlett et al., 1993).

The assessment was carried out prior to, and in isolation from, a process of moving towards some form of collaborative management. However, as it was designed to gather information on which to base such a process in the future, some preliminary investigation into the spatial and socio-economic characteristics of the forest-dependent community was carried out.

There are differences between the situation in Uganda and that in the countries of southern Asia, from where much of the experience on approaches towards collaborative management has been documented. In some areas of Nepal, for example, there are indigenous user rights still in place that define who has rights to the use of which resources from which area (Bartlett et al., 1993; Gilmour and Fisher, 1991). They have evolved over time in accordance with new farming systems and socio-economic climates, and with the resulting changes in the degree and nature of the demand on natural resources. As mentioned above, similar systems existed in the Mount Elgon area in the past, but were seriously undermined by centralised control of the forest.

In the absence of existing, functional, indigenous management systems and clearly defined user rights, identifying the real users is a particularly difficult task (Bartlett et al., 1993). For this reason, the emphasis of the assessment shifted from identifying user groups as specific units (with group affiliations and common interests based

on indigenous legitimacy over certain uses of the forest), to investigating the general characteristics of forest dependence with regard to the following:

- the influence of **distance** – how far does forest dependence extend from the forest boundary?
- the influence of **economic well-being** – is it just the poorest members of the local population who are dependent on the resources from the forest?
- **age/generation** – are there differences in the level and nature of dependence between generations?
- **gender** – are there differences in the ways in which men and women use the forest?
- **specialist groups** – what are the interests and needs of specialist users?

The influence of distance on forest dependence

How far does the forest-dependent community extend?

It is logical and predictable that distance will influence dependence on forest resources. Clearly, access to the forest will be less beneficial to someone living many hours' walk away than to someone living adjacent to its boundary. What is not so easily predicted is the distance at which the cost of travelling outweighs the benefits of access to the forest. Enlisting the participation of people living near to the forest is important, because they are often the ones most heavily dependent on the forest, and because they are in the best logistical position to monitor activity in and out of the forest. It is important, however, not to ignore more distant users, who feel they have equal rights to access and representation, and who may feel alienated by a process which focuses too much on those living near the forest (Poffenberger, 1990a). The Mount Elgon assessment investigated the spatial nature of forest use, and put forward a preliminary definition of the physical boundaries of the forest-user population⁹. The question to be answered was whether or not forest dependence was largely confined to the forest-adjacent parishes.

The influence of distance was assessed on a number of levels:

- **opinion-data comparison of villages.** Representatives from each village of the parish were invited to the parish profile meeting. The villages were grouped according to distance from the forest (near, average distance and far). During the parish profile, village representatives were asked to give opinions on the level of use, collection and sale of forest resources by households within their village. These data gave a relative, rather than empirical, indication of the impact of distance on each resource.

- **Quantitative data comparison of villages.** To compare the extremes of forest use, two villages per parish were sampled, one adjacent to the forest and one far away. Data from the village profiles and household interviews provided the basis for comparison of resource use between residents of the near and far villages.
- **Quantitative comparison of households within the sample villages.** The influence of distance was also assessed within the sample villages. Participants in the village profile exercise were asked to categorise households according to their proximity to the forest. In addition, comparisons were made between the household interviews, the selection of which was stratified according to distance from the forest as determined through the village profile.

The data from the village profile corresponded well with that of the household interviews; therefore this profiling approach is strongly recommended for making a rapid assessment of the level of forest use. The quantitative data from the household interviews has been used to support the following discussion (for reasons detailed in Appendix 2).

The influence of distance has been considered on two levels:

- the **general influence** of distance – the difference in the number of resources used, collected and sold by households within different distance categories.
- the **influence of distance on specific resources** – the difference in the use, collection and sale of each specific resource between households within the different distance categories.

General influence of distance

The previous section presented household interview data comparing both the number of resources used/collected/sold and the amount of time spent on in-forest activities by the near and far villages. The results are summarised in Table 7.

Table 7. Differences between near and far villages

Differences between average number of resources used/collected/sold, and average number of hours used. Data are from the household interviews.

proximity of village	average number of resources/household			average number of hours on in-forest activities/hh		
	used	collected	sold	consumption	sale	total
near	10.0	6.9	1.4	1,035	176	1211
far	6.6	1.7	0.4	277	84	361

These results indicate that forest resource use extends at least as far as the boundary of the forest-adjacent parishes. Use diminishes considerably with distance, however, and the key user population is unlikely to extend far beyond the boundaries of the park-adjacent parish. As expected, proximity to the forest has a strong influence on the actual collection of resources (an average of 6.9 resources collected per household in forest-adjacent villages, compared with only 1.7 in the farthest villages). Although people from the villages farthest from the forest use a considerable number of resources from the forest, most of them are purchased, mainly from people nearer the boundary.

Further analysis of the household data was carried out to determine whether or not dependency with the near villages was highest in households which were closest to the forest. The data demonstrate that, although there is a tendency towards a higher level of use and collection within households nearest the park boundary, the difference is slight (Table 8). Households at the extreme ends of the near villages are also heavily dependent on the forest. This suggests that high levels of forest use are not confined to the boundary-adjacent households, but are virtually consistent throughout the forest-adjacent villages, and most likely extend some distance beyond.

Table 8. Comparison: use, collection and sale of resources, near villages
(data from household interviews)

distance categories within near villages	average number of resources/household (range)		
	used	collected	sold
near	10.4 (7-13)	7.3 (3-10)	1.6 (0-5)
average	10.0 (6-13)	7.0 (1-12)	1.5 (0-5)
far	9.5 (9-13)	6.3 (3-12)	0.9 (0-4)

The influence of distance will result in a forest-dependence continuum and consequently hard and fast boundaries between users and non-users cannot be identified. However, the following broad definition can guide decision-makers in initiating future work. Residents of the park-adjacent parishes have been defined as the main forest resource-use population, although some use will extend beyond this boundary. Two sub-populations have been roughly defined within this broad user population: the collector population and the buyer population.

Residents of park-adjacent parishes = **The resource collector population**
 The resource collector population occupies roughly the half of the park-adjacent parishes **nearest the forest** and is characterised by households which are intensively collecting resources primarily for domestic use, but are also dependent upon the forest for some level of income generation.

Resource user population = **The resource buyer population**
 The resource buyer population occupies the half of the park-adjacent parishes **farthest from the forest**, and is characterised by households primarily buying forest resources, with low levels of collection and minimal dependence on collection for sale.

Influence of distance on specific resources

Distance will not have the same impact on all resources. Much depends on the intrinsic value of a resource, and whether substitutes are readily available. For example, bamboo shoots have an intrinsic value which includes aspects of cultural importance. They cannot be grown in the lower altitude areas outside the park. Because of their cultural value, the development of on-farm food substitutes is not an option. Conversely, a resource such as firewood, with a primarily utilitarian value, is more easily substituted on-farm if space is available. For management purposes, it is necessary to understand how far dependence on each resource extends within the population, particularly for resources of major conservation concern.

Information is available from two data sources: opinion data from the parish profile, and quantitative data from the household interviews. The opinion data from the parish profile demonstrates that the use of most resources lessens as distance from the forest increases (Table 9). There are only a handful of resources whose use is not significantly influenced by distance: bamboo shoots, bamboo stems, medicine, honey and timber¹⁰. For most of them there is little in the way of alternatives available. Bamboo shoots and stems are the only resources which are collected by a sizeable share of households in the farthest villages.

Table 9. Perceived use, collection and sale of resources according to distance

Relative scoring: resources least influenced by distance are shaded. Scoring by village representatives¹¹ was as follows:

0= no/almost no households using

3= most households using

1= some households using

4= almost all/all households using

2= approximately half the households using

resource	using		collecting		collecting for sale	
	near	far	near	far	near	far
bamboo shoots	4.0	3.7	2.8	1.6	0.8	0.6
bamboo stems	3.8	3.4	2.0	1.3	0.5	0.2
mushrooms	3.1	2.0	1.7	0.7	0.2	0.2
medicine	2.6	2.3	1.5	0.6	0.8	0.0
timber	3.6	3.8	2.1	0.3	0.8	0.1
honey	3.6	2.6	1.9	0.6	0.7	0.2
firewood	3.1	1.7	2.5	1.4	0.6	0.0
ropes	2.6	1.0	2.0	0.6	0.1	0.0
polewood	2.8	1.6	2.8	0.8	0.5	0.0
vegetables	2.8	1.6	1.9	0.9	0.3	0.0
crop stakes	1.1	0.2	0.8	0.0	0.2	0.0
grazing	–	–	2.0	1.1	–	–
hunting	0.9	0.2	0.1	0.0	0.0	0.0
saltlick	2.2	0.7	1.8	0.4	0.0	0.0

The quantitative data from the household interviews shows the percentage of households interviewed using, collecting and selling resources from both the forest-adjacent and farthest villages (Table 10).

Table 10. Percentage of households using/collecting/selling resources according to distance

Resources least influenced by distance are shaded

Percentage of households

resource	using		collecting		collecting for sale	
	near	far	near	far	near	far
bamboo shoots	95	93	73	35	53	17
bamboo stems	95	90	59	22	12	7
mushrooms	81	67	68	20	15	2
medicine	88	78	27	5	8	0
timber	86	87	3	0	3	0
honey	76	73	37	3	22	2
firewood	88	33	85	28	2	2
ropes	78	23	78	12	2	0
polewood	66	10	59	3	3	0
vegetables	63	38	59	20	7	3
crop stakes	39	7	34	2	5	2
grazing	—	—	20	3	—	—
hunting	34	23	8	2	7	0
saltlick	22	7	19	0	0	0

The use of bamboo shoots, bamboo stems, mushrooms, medicine, timber and honey is only minimally (less than 15 per cent) lower in the villages farthest from the forest than in the near villages. The use of polewood, ropes and firewood appears to be most influenced by forest proximity, with a difference of more than 50 per cent between the far and near villages. These are all resources for which substitutes can be most readily found.

Bamboo shoots, bamboo stems, mushrooms and vegetables¹² are the only resources that show a difference between the two distances of less than 50 per cent in the proportion of households *collecting*. These are the resources which are least affected by proximity to the forest.

The *sale* of resources is virtually confined to the residents of the villages nearer the forest. Bamboo shoots are the only resource that had a substantial number of sellers (more than 10 per cent of respondent households) from the farthest villages.

Household interviews are very time-consuming, both in terms of conducting the interviews and of analysing the data. Although they provide quantitative, statistically workable data, this is not necessarily more informative or useful than “opinion data”. In fact, the opinion data from the parish profile corresponds well with the quantitative data from the household interviews, suggesting that it is an effective means of rapidly gauging the variation in the impact of forest proximity upon specific resources.

The influence of wealth on forest dependence

Gaining insight into the spatial nature of forest dependency is important, but it is only part of the story. Residence in an area may not be the only factor that determines the level at which people utilise the forest. There are a number of other factors which should be investigated, including wealth. A fundamental question to be asked during this assessment was whether or not wealth had an influence on the use and/or collection of forest resources, and whether the poorest households were the most dependent on the forest.

It is very time consuming for an outsider to gain ‘objective’ insight into the parameters of wealth in an unfamiliar area and collect the necessary information to carry out a wealth ranking. Given the time constraints of this assessment, a rapid wealth ranking by the residents of the village was used as the basis for stratifying households and making a comparison of forest use according to economic well-being. The village profile participants had an intrinsic sense of the range and distribution of wealth among the residents of their community.

Participants were asked to list the most important indicators of wealth in their particular village (in most cases, the key indicators were land and livestock numbers). Keeping these in mind, they then assessed each household according to its relative wealth within the village. The categories were poor, average-poor, average, average-rich and rich.

This method was found to be an efficient means of ranking households by relative wealth. However, while it was explained that the rankings should be considered relative within their village, a rich household was generally associated with people who lived in major centres, or owned pick-ups or grinding mills. Very few households were assigned to the categories of average-rich and rich. To balance the distribution, households within the categories of average, average-rich and rich were combined. The three resulting categories were renamed poor, average (originally average-poor) and rich (the last three categories combined).

As with forest proximity, the influence of wealth has been considered on two levels: the general influence of wealth (reflected by a comparison of the number of resources

used, collected, and sold by households in the three wealth categories), and the impact of wealth on the use, collection, and sale of each specific resource.

General influence of wealth

The results in Table 11 demonstrate that, within these rural populations, the level of economic well-being does not have a major impact on the number of forest resources used, collected, or even sold, in either the near or far villages. Even people from the ‘wealthiest’ households travel to the forest to collect resources. The assumption that it is primarily the poorest sector of the population which is dependent on the forest is therefore not supported by these results. It would be expected that the poorer households were the most reliant on the forest as a source of income. Although there is, in fact, a slightly higher incidence of collection for sale within households categorised as poor, within the near villages in particular, the wealthiest homes also display some level of economic dependence on the forest.

Table 11. Average number of resources used/collected/sold according to wealth category

wealth category	average number of resources/household (range)					
	near villages			far villages		
	used	collected	sold	used	collected	sold
poor	9.4 (7-13)	6.6 (3-12)	1.6 (0-5)	5.8 (3-10)	2.0 (0-7)	0.2 (0-1)
average	10.1 (7-13)	6.8 (1-10)	1.5 (0-4)	7.0 (5-10)	1.7 (0-6)	0.3 (0-3)
rich	10.6 (6-13)	7.4 (4-12)	0.9 (0-4)	6.7 (3-14)	1.5 (0-9)	0.6 (0-6)

The comparative amount of labour used for in-forest activities by the three wealth categories indicates that, in the villages adjacent to the forest, there is no clear trend of labour expenditure decreasing as wealth increases (Table 12). This seems to be further evidence that wealth is not a key determining factor in forest dependence. Even in the far villages, the wealthiest members of the population spend a considerable amount of time travelling to the forest. Although the results show that the poorer households spend a greater amount of their labour time on commercial collection, the difference is slight. The data are from a relatively small but stratified sample (n=119), and there are likely to be considerable levels of error. Nevertheless, if wealth were a major factor determining the levels of forest dependence, the difference should have been evident.

Table 12. Average number of hours spent on in-forest activities according to wealth category

village	total			consumption			sale		
	poor	aver	rich	poor	aver	rich	poor	aver	rich
near villages	1,357	598	1,600	1,079	536	1,458	278	62	142
far villages	419	332	325	266	297	262	153	35	63

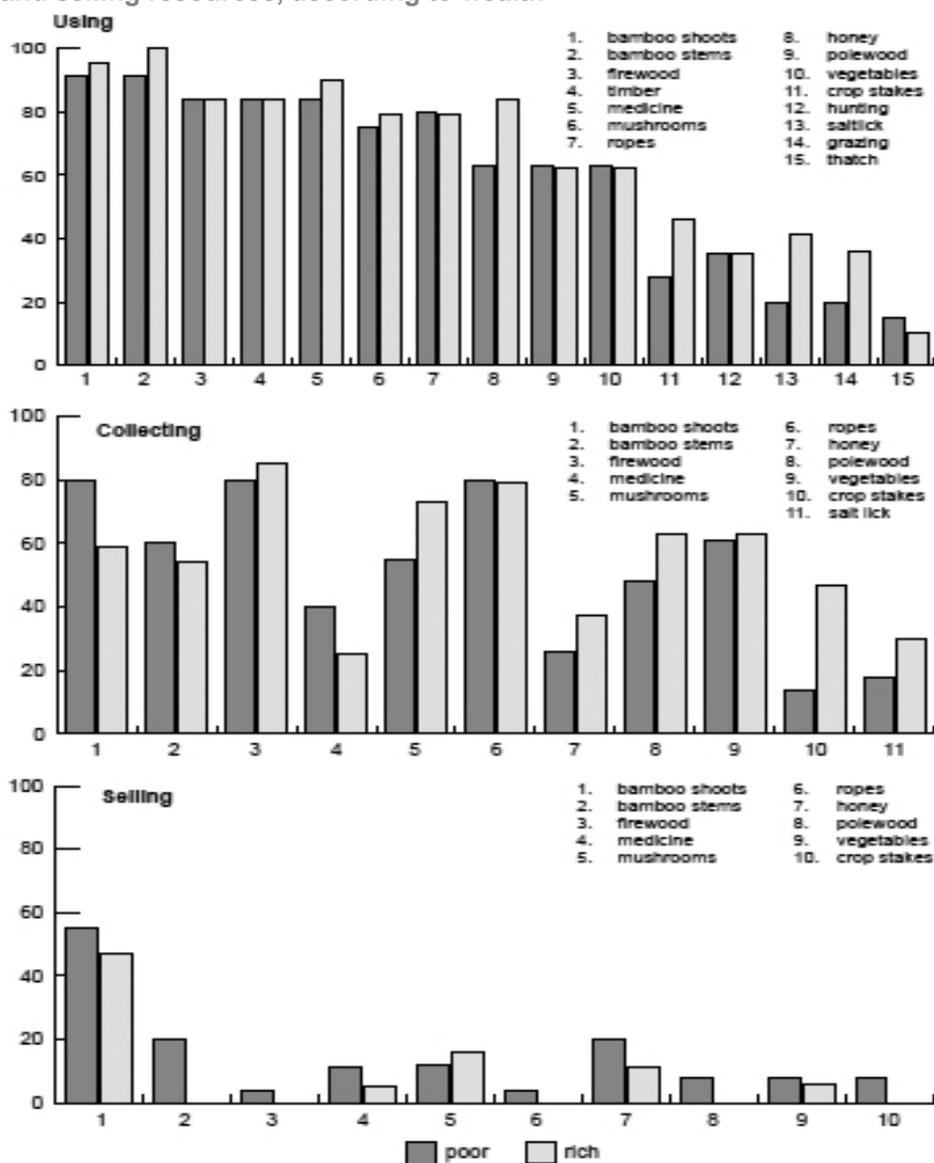
Influence of wealth on specific resources

The percentage of respondents within the near villages¹³ from the poor and rich categories using, collecting, and selling each resource is shown in Figure 9. For simplification, data from the average category have not been included.

None of the resources listed are used by a substantially higher proportion of poor households. Even with regard to collection, bamboo shoots and medicine are the only resources that are collected by a notably larger proportion of respondents from the poor category. Other resources, such as mushrooms, polewood and crop stakes, show a higher incidence of collection among the wealthiest of the population. As indicated in Table 11, slightly more respondents from the poor category collect resources for sale. However, bamboo shoots – the resource most heavily depended upon for income generation – are also collected for sale by almost half of the respondents within the wealthiest category.

The minimal influence of economic well-being on the level of forest dependence can be attributed to the homogeneity of households within the park-neighbouring parishes with regard to wealth. The collection of forest resources is generally regarded as a poverty-driven activity, particularly in cases such as Mount Elgon where such resources are commercially undervalued even in the local market. Ventures such as crop production and off-farm employment are usually more lucrative alternatives, if available. In the Elgon case, such alternatives are rarely available to the majority of the population. The results demonstrate that the majority of households, even the wealthiest, are at an economic level which compels a high degree of forest use. Restrictions on the use and collection of forest resources will inevitably have serious repercussions on most of the population. In the near future forest reliance is likely to increase in response to population growth, corresponding land shortage, and a general increase in relative poverty within the rural communities with the least access to means of economic growth such as communication, marketing opportunities, higher education and off-farm job opportunities.

Figure 9. Percentage of respondents in the near villages using, collecting and selling resources, according to wealth



The influence of age on forest dependence

When considering the characteristics of a forest-dependent community, it is important to identify differences in forest dependence between older and younger members. This not only allows predictions about what the issues of the future are likely to be, but also assists in understanding the changing values and constraints of the younger generation. The question to be answered was whether forest use by the younger generation is decreasing; i.e. whether forest use will cease to be an issue in the foreseeable future.

Differences in the use of resources by younger households may reflect changes in the value of the forest and the nature of dependence over recent years, and indicate the likely dependence trends of the future. To make a comparison between generations, the households interviewed were categorised in the following way:

- **young** – usually a newly married couple, sometimes with one or two small children;
- **average** – a well-established family, usually with many dependants (children under the age of 15); or
- **old** – with few or no children remaining at home (although often resident grandchildren), usually an older couple or a household headed by a widow.

The data presented in Table 13 demonstrate that there is minimal difference in the number of resources used by households within the three categories, indicating that the level of forest use is not substantially lower within the younger generation. Members of households in the older category actually harvest fewer resources due to the fact that collecting heavy resources such as polewood, bamboo stems and crop stakes is beyond their capability. Many older people are supplied with these resources by their relatives or neighbours. The sale of resources shows similar trends, with the older generation being least involved.

Table 13. Average number of resources used/collected/sold according to age

generation category	average number of resources/household (range)					
	near villages			far villages		
	used	collected	sold	used	collected	sold
young	10.4 (7-13)	7.3 (4-9)	1.6 (0-4)	6.4 (3-10)	1.6 (0-7)	0.4 (0-3)
average	10.0 (7-13)	7.0 (3-11)	1.5 (0-5)	6.8 (3-14)	1.9 (0-9)	0.5 (0-6)
old	9.5 (6-13)	6.3 (1-12)	0.9 (0-3)	6.5 (3-10)	1.6 (0-6)	0.3 (0-3)

The resource-by-resource assessment (Figure 10) indicates that there are very few resources for which the proportion of users differs substantially between the three groups. The demand for the most controversial resources (from a conservation perspective), such as polewood, firewood, ropes, crop stakes, and timber, appears, if anything, to be higher in younger households. Few resources show a higher incidence of collection among the older households, the collection of medicinal plants being the only obvious one. The majority of medicinal specialists are found within the older generation; they have developed and refined their skills and knowledge over time.

For most resources, there is a higher incidence of collection within the younger generation. Few households within the oldest generation collect resources for sale, as this is very labour intensive. The main exceptions are bamboo shoots, mushrooms and vegetables. The labour assessment also showed no major differences between the three categories of household, indicating that the intensity of forest use is similar among the three generation categories.

In general, overall dependence on the forest for both domestic consumption and income generation is not, at present, decreasing with the younger generation, and is unlikely to do so in the near future. Although the number of forest resources used is likely to decrease in the future, this will not happen rapidly, and most likely not significantly within the next couple of decades.

The influence of gender on forest dependence

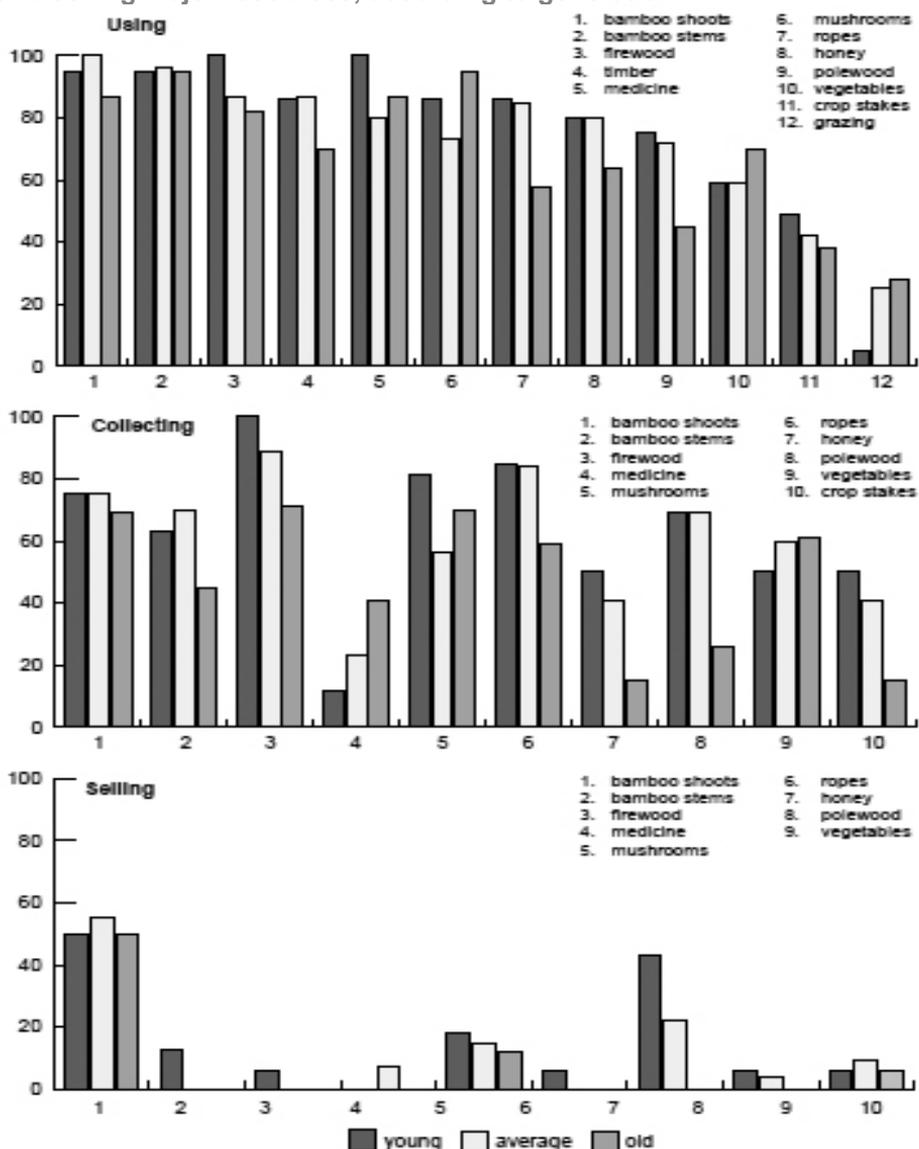
Gender of the household head

Investigating ways in which the gender of the household head influences resource use was to form part of this assessment; however, a distinction between *de jure* and *de facto* female heads of household was not made. Information was collected regarding *de jure* female household heads (mainly elderly widows) only. Extensive analysis has not been carried out as the information is limited, and does not reflect households which are run on a day-to-day basis by women whose husbands are away semi-permanently (*de facto* female household heads). In general, the trend (in relation to *de jure* female household heads) showed a higher incidence of use and collection of the resources harvested primarily by women, and a correspondingly lower proportion of those harvested primarily by men, as would be expected when there is no man in the household.

Gender in relation to resource collection

It is important to understand the different ways in which the forest is used by women and by men. Managers of natural resources should be aware of, and consider,

Figure 10. Percentage of respondents in the near villages using, collecting and selling major resources, according to generation.



the impact of their decisions on both genders. The question to be answered was whether there was a difference in the level and nature of forest use between men and women.

The effect of gender on the collection of resources was investigated at two levels. Opinion data was collected during the parish profile meeting; participants were asked to assess each resource according to the gender of the principal collectors. Table 14 summarises the results for all parishes combined. It is evident that the vast majority of resources are collected primarily by men, the main exceptions being bamboo shoots, firewood and vegetables. This is supported by the information collected during the household interviews, also shown in Table 14. The only inconsistency concerns bamboo shoots. In a number of villages, men were also heavily involved in shoot collection, particularly in areas where bamboo is a long distance inside the forest and smoking shoots within the forest is common. The household interviews also suggested that the men usually collect medicinal plants, although at times they do so on behalf of their wives, who are the specialists.

Resources collected for income generation (i.e. honey, timber, craft materials, medicine, bamboo stems and bamboo shoots) are generally collected by men, with the exception of bamboo shoots. In addition, cultural resources are collected primarily by men. Many of the ceremonies related to circumcision and manhood have very close ties with the forest and these connections are upheld by the males of the community.

Table 14. Principal gender of resource collectors (near and far villages)

resource	opinion data	factual data (household interviews)	
	(parish profile)	near villages	far villages
bamboo shoots	f	m/f	m/f
polewood	m	m	m
honey	m	m	m
timber	m	m	—
ropes	m	m	m
bamboo stems	m	m	m
crafts	m	m	—
mushrooms	m	m	f
firewood	f	f	f
medicine	m/f	m	m
vegetables	f	f	f
crop stakes	m	m	m
grazing	m	m	ch
hunting	m	m	—
saltlick	m	m	m

Resource collection by women is mainly carried out in the areas of the forest nearest the villages, the main exception being bamboo shoots. It was mentioned by a number of respondents that women fear travelling deep into the forest. This information suggests that in fact it is the men who are the primary forest users.

Gender and labour

Just listing the number of resources collected from the forest gives no indication of the intensity of use. This was assessed through the household level labour analysis. The total household labour used for each in-forest activity was dis-aggregated by gender (Table 15).

Table 15. Average number of hours spent on in-forest activities (near villages)

resource	total (hrs)			consumption (hrs)			sale (hrs)		
	m	f	ch	m	f	ch	m	f	ch
bamboo shoots	47	57	26	20	33	11	27	24	—
polewood	11	—	—	10	—	—	1	—	—
honey	21	—	11	15	—	8	6	—	3
ropes	7	—	—	6	—	—	1	—	—
bamboo stems	65	15	1	8	1	1	57	14	—
mushrooms	25	5	—	20	5	—	5	—	—
firewood	14	284	2	11	284	2	3	—	—
vegetables	13	112	3	8	104	3	5	8	—
crop stakes	16	—	—	10	—	—	6	—	—
grazing	355	15	55	355	15	55	—	—	—
saltlick	21	—	—	21	—	—	—	—	—
others	19	10	1	19	10	1	—	—	—
total	614	498	99	503	452	80	111	46	19
percentage	51	41	8	48	44	8	63	26	11

Although the fact that women are primarily involved in the collection of just a few of the forest resources (firewood, vegetables and bamboo shoots) suggests that they are “minor” forest users, they in fact use a high proportion of their labour within the forest. More than 40 per cent of the total household labour time spent within the forest is by women. Considering that this time is spent collecting a limited number of resources, the results indicate that the collection of firewood and vegetables (and bamboo shoots during the season) is a frequent activity.

In the villages farthest from the forest, the general trend was found to be similar. Men spend only slightly more time in the forest than the women, despite the fact that they are collecting a greater variety of resources.

Box 12. Discussion with a spiritual healer

Kokup (grandmother) Chemwanjar is a spiritual healer. Many of her medicinal skills were passed on from her grandfather, who was a prophet and a spiritual circumciser as well as a spiritual healer. In addition she receives knowledge and assistance from spiritual sources through dreams which began at around the age of 18. Although her main dwellings have always been below the forest line, in the past she has spent much time grazing her animals there. This is usually considered the domain of men, but her husband was a heavy drinker and could not be entrusted with the care of the animals. She is consequently very familiar with the forest, and although she no longer has grazing animals, she visits it weekly in search of her traditional cures (she estimated the number of important species at around 40). She stressed the importance of selectively harvesting so as to ensure that plants are not needlessly damaged. This is a common edict among the specialists to whom we have spoken.

Although she treats many different diseases (in adults and children), Kokup Chemwanjar specialises in traditional birth attending, assisting the mother before, during, and after the birth. She is officially registered as a TBA (traditional birth attendant) in Kapchorwa and has attended a number of training courses. The Ministry of Health has provided her and others with free rubber gloves and basic sterilising equipment.

She estimates that every year approximately 18 children are born at home with her assistance. She believes strongly in the marriage of traditional and modern medicine and recognises that they both have an important role in prenatal care and childbirth. She works very closely with a nearby hospital; if she senses that a delivery may be difficult she will recommend that the woman give birth there. She will almost always accompany her patient and assist at the birth. The staff at the hospital respect her knowledge and experience and will generally advise patients to seek her counsel before they come to the hospital.

She is usually paid two kg of maize after her journey to the forest to gather herbs. Although she does not place a set fee on her services, it is customary to demonstrate one's appreciation with the offer of a chicken or some beer. However, she is often disappointed by women who too easily appear to forget her services after the birth.

Specialist users

In general, utilisation of the forest of Mount Elgon is widespread throughout the population, as evidenced by the high proportions of households active in the collection of the major resources for their own consumption. However, the collection of some forest resources is the realm of specialists.

- A number of medicinal specialists in the parishes surveyed depended heavily on the forest for their traditional remedies. Although many household members collect a few commonly known medicinal plants, most people rely on specialists' skills. These skills are acquired through knowledge passed down from family elders and/or through spiritual channels (Box 12). The specialists who were interviewed expressed a great respect for the forest. They maintain an age-old code of careful harvesting in order to protect the resources upon which their livelihood depends.
- Traditional stools and implements such as bowls, cups and walking sticks are generally produced by specialists, often older men who have a cultural connection to the forest.
- Although the collection of bamboo stems is widespread, there are a number of specialists who selectively harvest bamboo for weaving baskets (Box 13).
- Hunting is a specialist activity and is often passed down from father to son. The incidence of "spiritual hunting" has been mentioned earlier.
- Wild honey collection is often the job of specialists, and hunters are acclaimed as the experts.

With professions that are integrally linked to resources, specialist users are particularly dependent on the forest. They therefore require special consideration.

Figure 11. Bamboo baskets



Box 13. Bamboo basketry in Benet

Bamboo basketry has been an integral aspect of the cultural and economic life of the Kony people. Formerly moorland dwellers, the Kony now live in the parishes within the Benet resettlement area. They were primarily pastoralists and, with little in the way of agricultural responsibilities, the women occupied themselves with crafting beautiful baskets from the readily available bamboo. These baskets were taken to the farming communities farther down the mountain and exchanged for food. One basket could be traded for the quantity of maize that it would contain. This was one of the most important sources of acquiring food, given the limited agricultural potential of the mountain's upper reaches.

Since the Kony were evicted from the forest, these specialist skills are becoming less important to them, and they now cultivate maize for sale. In addition, now that they are no longer living within easy access of the bamboo forest, the arduous journey to collect bamboo renders basket making unprofitable. Although basketry is in the craft curriculum at many of the local schools, girls are no longer interested in the tedious basket-making trade.

Residents of other parishes are concerned about the diminishing availability of bamboo baskets, and would be prepared to pay higher prices than in the past if they were once again available. Not only are the baskets useful for storing, carrying and sifting crops, and sieving locally made maize beer, they are an important component of many traditional ceremonies. A number of people expressed the opinion that, unless efforts were made to encourage people to take up the craft, the skills would soon be lost. Formalising legal access to the bamboo within the forest and improving marketing opportunities are ways in which the community could be helped to maintain the traditional skills.

Variation between areas

Mount Elgon National Park's boundary on the Uganda side is more than 200 km long, extending through two districts and a diversity of ecological, social and cultural environments. Differences in tribes, agricultural practices, population densities and environmental conditions are reflected in the variation in park use.

Some of the notable differences between the parishes surveyed are:

- People in the distant villages of Kapchorwa District place less importance on many of the forest resources than those in the distant villages of Mbale District. The majority of the people living within Kapchorwa have only recently migrated onto the slopes of Mount Elgon. They have come in response to growing insecurity in the plains and farming opportunities on the higher slopes. The tradition of forest use within these

communities is not as strong as in Mbale District, where the communities have a long history of dwelling near and within the forest. Because of cattle rustlers, population densities in the lower areas of northern Kapchorwa are low; consequently there are considerable areas of land not under cultivation from which poles, firewood, ropes, etc. can be obtained.

- The importance placed on grazing (and finding refuge) in the forest is higher for the communities of Kapchorwa. Not only are they traditionally pastoralists, but in-forest grasslands suitable for grazing are more common in the northern sector of the forest and the terrain is less rugged.
- Crop stakes have comparatively little importance in the northern parishes, where there is virtually no matoke (the local banana staple) grown.
- Bamboo shoots have considerable cultural value for the Bagisu of Mbale. Bamboo shoot harvesting (and in-forest smoking in the south where the bamboo is quite distant from communities) is probably the most important activity carried out by the residents of the parishes of Mbale. It is less important in Kapchorwa.
- Hunting is more important to the parishes within Mbale. The people of Kapchorwa District have adequate meat supplies in the area and cultural taboos against eating wild meat.
- Few resources of economic importance were mentioned by the participants of Benet. Most of the participants (particularly in the upper villages) were former forest dwellers. Settlement is recent and a system of resource marketing has not yet been developed. Most people still travel to the forest to satisfy their individual needs. The only resources considered to have economic value are medicine, grazing, bamboo stems (for basketry) and timber.

Box 14. Grazing within the forest adjacent to Benet

The residents of Benet are traditionally pastoralists from the high regions of Mount Elgon, although they have recently taken up the practice of maize cultivation with enthusiasm. They still retain livestock herds which are grazed in the fields after harvesting and within the forest during the long crop growing season (March-December). Herds are grazed in the forest in order to avoid crop damage. A number of areas are popular for grazing, including the natural grasslands within the forest and an extensive deforested area to the west known as London. This was formerly cultivated under a proposed, but unfulfilled, taungya system.

If a family lives very close to the boundary, and has easy access to a trail, they will move their cattle to and from the forest each day. However, it is more common for them to establish a temporary shelter and kraal (small fenced-in stock area) on the edge of the forest boundary and rotate caretaking responsibilities among family members and neighbours. During crop-growing season the boundary is literally dotted with small residences. Although there is much merriment during this period, residents run a high risk of contracting trypanosomiasis (sleeping sickness) because of the large number of tsetse flies in the forest.

Each day, the person in charge of the animals leads them to the grasslands and either remains there with them, or moves downslope to work in the shamba (garden). The wives of cattle keepers make regular trips to the forest dwellings carrying food and the essential beer supplies.

Summary: the forest-dependent population

In terms of distance from the forest:

- The forest-dependent population is primarily found within the forest-adjacent parishes, although for some resources (e.g. medicines, bamboo shoots) it is likely to extend some distance beyond.
- Those people occupying roughly the half of the parish nearer the forest have been termed the “collector population”. They are characterised by households which intensively collect resources primarily for domestic use, but which are also dependent upon the forest for some level of income generation.
- Households occupying the half of the parish farthest from the forest have been termed the “buyer population”. They primarily buy forest resources, with low levels of collection and a minimal dependence on collection for sale.

In terms of **wealth**:

- Because households within the forest-adjacent parishes (especially those in villages nearest the forest) are relatively homogeneous with regard to economic well-being, forest dependence is not confined to, or even notably higher within, poorer households.

In terms of **generation**:

- Forest dependence is not significantly lower in younger households, and is therefore unlikely to decrease in the near future.
- the resources that are important are likely to change slightly, however, with an increase in importance for wood resources, and a decrease for non-wood resources.

In terms of **gender**:

- There is no substantial difference between the intensity of forest use by men and women. Even though women collect far fewer resources, they are frequent users and supply households with the resources necessary for daily survival (such as firewood and vegetables).

In terms of **specialist use**:

- Although forest dependence is primarily general, with most people collecting a variety of resources for their own domestic use, there are a number of specialist users, such as healers, hunters, and craftspeople.

6. Ecological Considerations

Recent discussions on the traditional approach to management of protected areas – forests in particular – have highlighted the fact that protected status on paper does not always equal protection on the ground, where often, rather than no access or controlled access, there is essentially “open access” resource use. Protected Area managers have insufficient capacity to control people’s use of the forest. Therefore access is essentially “free”, albeit illegal. Ignoring reality is certainly not a feasible management strategy, and so the focus is progressively moving from “prevention of use” to “sustainability of use”.

Given this situation, one of the major concerns of official management institutions regarding incorporating resource extraction into a protected area management strategy is whether or not such use can be carried out sustainably and without compromising the conservation objectives of the area. This concern is understandable. For decades now, the term “national park” has referred to an area where human use, apart from tourism and research, is prohibited. All forms of extractive use have been considered unwise, and detrimental to the future integrity of the area. It takes time for those working in the conservation field to adjust to, and feel comfortable with, legalised extraction of resources from protected areas with the highest conservation status. However, coming to terms with this is a necessity, not a choice.

An assessment such as this one can only provide a static picture of a dynamic and complex relationship between people and natural resources. It should therefore not be viewed as definitive. ‘Complete’ information is a myth even in the most sophisticated management systems. Anything close to complete information will only become available after years of monitoring activities, and such monitoring should form an integral component of any park resource-use programme. However, decisions cannot be postponed until the information available is considered complete. It is important, at this early stage, to provide the decision-makers with as much information as possible regarding the likely ecological impact of utilisation regimes. This will guide them in the first stages of planning and implementing a management strategy that involves the local population and their use of resources.

Patterns of use within the forest

Patterns of use within the forest were investigated during in-forest walks. The main objectives of the forest walks were to continue general discussions regarding resource use, and, in as much detail as possible, to map the patterns of use within the forest. The Forest Officer spent several days in the forest on user trails, together with several knowledgeable community members. Specific information collected during the forest walks included:

- physical features (using local names), trails, special sites and resource collection areas;
- a history of the area (e.g. people who have lived there, use of the area during periods of war, stories of ancestors/spirits);
- general resource-use information (which resources are collected from where, why, when, how, etc.);
- scoring each area with regard to a) the intensity of use and b) the intrinsic value of the area for resource collection;
- botanical specimens of species mentioned during the parish and village meetings and the household interviews, as well as information about these species (e.g. type of use, how used and when used);
- former/current indigenous systems of forest and resource management.

Total resource-use area (TRA)

The total area of the forest used by the local residents of each parish is called the total resource-use area (TRA). Within the forest adjacent to each parish TRAs are composed of a number of sub resource-use areas (SRAs), which were identified by the community and often correspond with changes in the vegetation type or conspicuous physical features.

The names of SRAs often refer to former residents or the nature of forest use in the area:

Kayiga	= named after the woman who used to live there
Nangutani	= named after a medicinal herb plentiful in the area
Roropmosopsis	= place of the forest-dwelling Kony
Kortek	= world of bamboo
Kapmwemui	= place of antelopes
Mawolera	= place of roaring water

The approximate size of the TRAs corresponding to each of the sample parishes and the maximum distance travelled for resource collection are presented in Table 16.

Table 16. Size of TRAs and distance from park boundary

parish	TRA size in sq. km (approximate)	maximum distance travelled for resource resource collection	maximum time travelled for resource collection
Buwundu	36 sq. km	8 km	4 hrs
Ulukusi	20 sq. km	6 km	3 hrs
Bumwambu	11 sq. km	5 km	3 hrs
Kapkwai	12 sq. km	5 km	3 hrs
Benet	34 sq. km	10 km	5 hrs
Mutushet	10 sq. km	6 km	3 hrs

Use according to distance from the boundary

Although people use a large area of the forest to collect resources (up to ten kilometres/five hours from the boundary), it is logical that they would not travel such great distances unless absolutely necessary. Due to the mountainous nature of the park, and the fact that vegetation changes according to altitude, the nature of resource use near the boundary differs from use several kilometres into the forest. To investigate these differences, the TRA adjacent to each parish was divided into three distance zones based on travelling time:

- **Near zone (NZ=<1 hour)** – in most areas, mainly formerly cultivated land which is regenerating into bush and secondary forest, with some areas still forested and some open grasslands. The NZ covers approximately 30% of Mount Elgon National Park.
- **Intermediate zone (IZ=1-2 hours)** – a combination of formerly encroached land with open forest and mixed bamboo forest.
- **Far zone (FZ=>2 hours)** – mostly mixed and pure bamboo forest, with the exception of Benet, where the bamboo begins a considerable distance from the edge of the forest.

Various characteristics of the three distance zones were compared (Table 17):

- **Average intensity of use** – a subjective “intensity of use” score was assigned to each SRA by the Forest Officer and the local forest users with whom he worked. The average intensity of use/zone is the average for all the SRAs in each distance zone (e.g. for NZ, the figure is the average for the 51 SRAs within this zone). 1=minimal use; 2=some use; 3=intensive use.
- **Average value of use** – SRA value scores were assigned by the forest users during the in-forest assessment. This value is not necessarily related to the intensity of use (i.e. the number of resources that could be collected from the area), but rather the value of use (e.g. an area may be used for the collection of only one resource, but one which is very important, giving the area a high value score). The figures presented in Table 17 are the average value of all SRAs in each distance zone (1=minimal use value; 6=maximum use value).
- **Most common vegetation types** – these are listed for each distance zone in addition to the percentage of SRAs within which each vegetation type was encountered. The vegetation types presented here have been roughly defined by the Forest Officer; more accurate information is available from the vegetation/land unit map for the Mount Elgon National Park.
- **Major resources collected** – within each distance zone.

Table 17. Generalised information for three distance zones

distance zone	total SRAs	average intensity of use	average value of use	most common vegetation type	% SRAs where found	major resources collected
NZ <1 hr	51	2.9	3.3	encroached/bush	73	grazing
				open forest	24	firewood
				dense forest	8	polewood
				rocky ground	6	vegetables
				mixed bamboo forest	2	mushrooms ropes honey crop stakes timber hunting medicine
IZ 1-2 hrs	31	1.7	3.4	mixed bamboo forest	35	timber
				encroached/bush	26	polewood
				dense forest	23	hunting
				open forest	16	medicine
				natural grassland	13	crop stakes
				pure bamboo forest	10	bamboo shoots
rocky ground	3	bamboo stems				
FZ >2 hrs	15	1.5	3.1	mixed bamboo forest	60	bamboo shoots
				natural grassland	33	bamboo stems
				dense forest	27	hunting
				pure bamboo forest	27	medicine

It is immediately clear that the greatest variety of resources is collected from the NZ and that the SRAs within this zone have consequently been rated as the ones most intensively used. Interestingly, in most areas the NZ is primarily regenerating bush/scrub, a vegetation type which was considered virtually worthless by park managers. This is clearly not the case. The area supplies the majority of resources, both wood and non-wood, collected by the local residents, and, judging by its value score, is of great importance to the local residents.

Far fewer resources are collected from the IZ and FZ than from the NZ, and the average intensity of use is correspondingly lower. However, this should not detract from the importance of the more distant areas of the forest, which supply a number of the most valued but least controversial resources, primarily bamboo and medicinal plants. The importance of these areas is reflected in the high value of use scores.

Size of the Total Resource Area

Figure 12 is a map of the whole forest, with the TRA for each sample parish marked and divided into distance categories. A line indicating the probable extent of forest use for the entire national park has been extrapolated from the six TRAs. It is clear that an extensive area of the forest is important for resource collection, extending as far as, and some way into, the bamboo zone. Very few people travel to the moorland area because of the distance and insecurity due to cattle rustling.

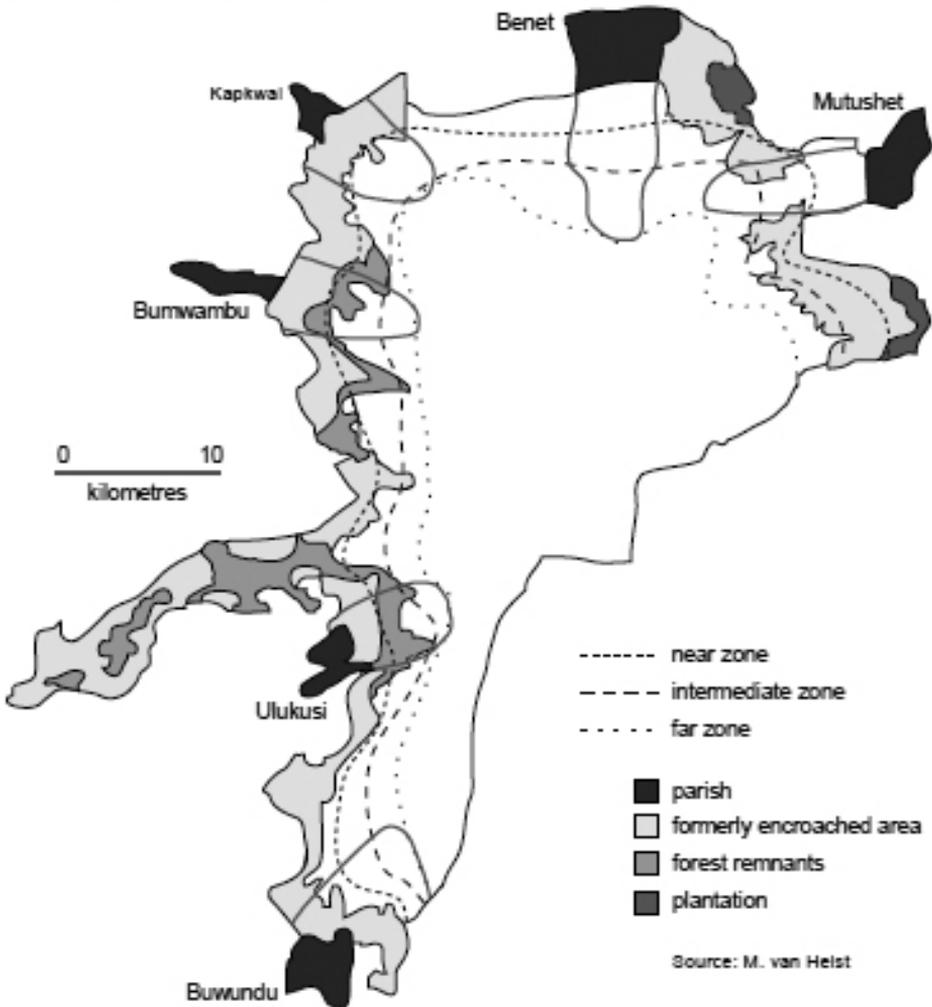
Based on this extrapolation, it has been estimated that the local population accesses approximately 60 per cent of the national park, in varying intensities. However, this broad estimation oversimplifies the situation. Although people extend deep into the forest for the collection of some resources, there are vast areas of the TRA which are never visited and are therefore essentially not utilised. People rarely venture more than 500 metres from either side of a main trail. Consequently, although the total area of use has been calculated as approximately 60 per cent, a large proportion of this area is rarely visited. It is unlikely that the community effectively uses as much as 30 per cent of the park.

Quantification of resource use

At the household interview level, quantitative data were collected to give an indication of the harvesting levels of resources in general, and of particular species, where applicable and feasible. The household interview data were extrapolated to parish level and then to all parishes bordering the park. Alone, the figures are meaningless; therefore, the amount harvested per hectare (ha) of forest has been estimated. This makes the totals more tangible, and provides a foundation on which to base more detailed sustainability assessments as a component of future forest use management and monitoring.

An area of 30 per cent of the park (approximately 34,000 ha) has been used for extrapolation purposes. The combined area of all TRAs has been estimated at 60 per cent of the park, but much of this is, in reality, untouched. In future, when more accurate estimations of use area are generated (e.g. through a zoning process), these figures can be adjusted accordingly.

Figure 12. Total Resource Areas



Non-timber forest products

Table 18 presents extrapolated estimates of the quantities of non-wood resources consumed annually by all households, in all forest-adjacent parishes. The total and per hectare figures are given.

Table 18. Annual harvest of non-wood forest products by households from all forest-adjacent parishes

resource	unit	total quantity harvested/yr by forest-adjacent parishes	total quantity harvested/ yr per hectare
bamboo	shoots*	9,865,456	580
bamboo	stems*	1,069,903	178
honey	litres	132,295	4
mushrooms	plastic bags	353,976	10
vegetables	bags	1,545,813	45
saltlick	kg	971,989	29

*As there is a smaller area where bamboo can be extracted these figures are the result of dividing the extraction quantities by 6,000 hectares (see Box 15).

During such a rapid assessment, it was not possible to collect quantitative information about the availability of non-wood resources in order to assess the potential sustainability of current use levels. Resources such as mushrooms and honey were not in season when the research was carried out. Due to the complexity of medicinal plant collection, assessing the sustainability of even the most commonly collected species would require a study in its own right. Nevertheless, some impressions, based primarily on the information gathered on the nature of use, have been gained.

- **Bamboo** (both shoots and stems) is clearly the most important resource to forest-adjacent residents and is in high demand in most of the parishes surveyed, particularly those in the district of Mbale. It serves many purposes (common uses include construction, production of granaries and baskets, crop staking and consumption) and is culturally significant. The fact that a high value is placed on this species is very fortunate for the management authority and should be viewed in a positive light. Although concern has been expressed about the level of bamboo harvesting from Mount Elgon, detailed research recently conducted on the sustainability of bamboo extraction suggests that current levels of use, although they seem high, are generally well below the estimated maximum sustainable yield, given the extent of the bamboo resource, its rapid regeneration and its resilience to harvesting¹⁴ (Scott, 1994; Box 15).
- The actual quantity of **wild honey** collected is unlikely to cause concern. However, it is believed that many of the fires common throughout the forest, particularly during the dry season (which coincides with the honey collection season), are caused by wild honey harvesters, who use smoke to rid the hive of bees. This is an issue that will have to be addressed during the negotiation and forest-use planning process.

- Medicinal plant collection is mostly done by specialists. Often their livelihood depend on these resources and they maintain strict codes which ensure their activities are not detrimental to the plants. Generally, medicinal specialists are among the community's most concerned conservationists.
- Resources such as vegetables and mushrooms, which contribute to food security in the area, are most commonly gathered from the encroached area; their harvest is unlikely to cause concern. Further investigation may be necessary into one species of mushroom, which is available from specific areas of the forest, and which apparently is often in limited supply.
- cultural uses of the forest offer high benefits to the community and are generally non-extractive and non-damaging.

There are a number of non-wood resources which may raise concern in particular areas. These concerns are often localised issues that need to be dealt with at the individual parish level.

- In certain areas, such as the parishes in the Benet resettlement area, grazing is a key issue. The human-made (through encroachment) and semi-natural grasslands of the forest are an important source of pasture for a number of the parishes surveyed (in particular Benet and Mutushet). Although these grasslands contribute to the biodiversity of the park, UNP is very concerned about over-grazing. Careful consideration is called for in such cases.
- Due to the lack of animals in the forest, the general insecurity due to cattle rustler movements in the upper areas of the forest, and the availability of other sources of meat, hunting appears to be much less important to the community today than it was in the past. In some areas, however, the act of hunting is culturally significant. This is an issue which must be approached with extreme sensitivity.

In general, most of the current activities which are important to people could be continued (either at current or reduced levels) within the parameters of Uganda National Parks policy and the management objectives of Mount Elgon National Park. Non-wood resources such as bamboo, honey, medicinal plants, and use of ceremonial sites, are perfect bargaining chips. It is likely that the more readily substituted resources, such as timber and polewood, will be foregone by the local population, or efforts will at least be made to organise alternatives in exchange for access to the highly valued, less easily substituted non-wood products. Conservation concern does not generally focus on non-wood forest products and unless there are high demands from external markets, they are unlikely to present great obstacles at the negotiating table. Nevertheless, careful monitoring should be instituted after use levels are established, to minimise the chance of unpredictable negative impacts.

Box 15. The sustainability of bamboo harvesting

According to the recent Mount Elgon National Park Land Unit mapping exercise, bamboo (either as mixed bamboo forest or pure bamboo stand) accounts for over 20 per cent – 23,000 hectare – of the national park (van Heist, 1994). An extensive survey of the bamboo resources of Mount Elgon was conducted in 1993-94 to investigate levels of utilisation and the impacts of these levels on the bamboo forest (Scott, 1994).

The survey consisted of two components:

- the village survey – 420 semi-structured household interviews within 14 parishes were conducted to assess the use of bamboo and its value to the forest-adjacent communities;
- the forest survey – 170 plots (each 10 by 20 metres) from within three areas of the bamboo forest were surveyed to collect data on size, condition, age distribution, level of harvesting activities and the value of the bamboo for utilisation. An essential component of this survey was the role of the local resource use members of the team.

An assessment of the sustainability of current levels of harvesting was carried out from the survey results. The following conclusions were drawn:

- *Arundinaria alpina* is a species which generally offers high use potential, on account of its nature (it is from the grass family) and production capacity. It has been suggested in the literature that certain levels of harvesting enhance the regeneration of bamboo stands.
- A conservative maximum sustainable yield (MSY) of 600 stems/ha/yr has been estimated from this survey. The current level of harvesting for all uses (under 200 stems/ha/yr) is considerably below this figure. * Harvesting is not evenly distributed, however, and 20 of the 170 plots assessed were classified as over-harvested.
- As not all the bamboo forest is used by the community, only “effective harvesting areas” (EHAs) were considered in the sustainable harvesting assessment. The remainder of the bamboo forest can be considered a “no-exploitation” zone. Of the total plots, 73 per cent were either unused or minimally used, amounting to an effective harvesting area of only around 6,000 hectares.
- In most areas, and for most uses, there is adequate bamboo of the highest quality available within the EHA. In some areas, however, the quantity of old dry stems preferred for house construction is either inadequate at present or may be within the near future.

The overall conclusion from the study was that bamboo is one of those important resources which has both a very high value to the local people and is suitable for a considerable level of harvesting. This resource's potential to satisfy local needs without compromising the conservation objectives of the area should be maximised.

** These harvesting levels correspond well with the demand calculations generated from the assessment.*

(Summarised from Scott, 1994)

Wood resources

Many managers of protected areas maintain that forest use should be limited to non-timber or 'minor' products. This is understandable given the abundance of information about deforestation in the tropical realm (Allen, 1975; Myers, 1980; Roth, 1984; Jacobs, 1988; McNeely et al., 1990). Certain members of the population still depend on the park for their firewood and polewood supplies, however, and no amount of regulation will change that fact. In addition, dependence is unlikely to decrease in the foreseeable future unless the situation is dealt with effectively. Consequently, it is likely that the greatest source of conflict during the negotiation of park use will revolve around the collection of wood products. Table 19 presents the quantitative data for wood resources, extrapolated to all households of forest-adjacent parishes (and divided per hectare of forest¹⁵). A figure of 30 per cent of the park (34,000 ha) was used to calculate the quantities per ha, for reasons discussed earlier.

Table 19. Annual wood product harvest and average harvest per hectare

resource	units	total quantity/yr - all HH	quantity/yr per hectare
polewood	stems/trees	79,509 / 3,790	2.3 / 0.1
timber	trees	919	0.03
ropes	stems	233,580	7
firewood	bundles	2,153,407	63
crop stakes	stems	169,401	5

It was not possible to accurately quantify the use of firewood from the park in terms of the number of trees/branches/stems. The figures given for firewood in Table 19 indicate bundles, which have been estimated at around 25 kg each. While future research should be carried out to supplement the information available through this assessment, it is immediately clear that the forest is a very important source of firewood to local populations.

On first impression, the high figures for polewood, ropes and crop stakes suggest that the current level of demand might not be sustainably supplied by the forest. However, when the figures are examined further, the actual demand per hectare for all uses combined is less than 15 stems¹⁶ (i.e. young stems, coppicing stems, suitable branches) and about 13 per cent of one tree. It is likely that one hectare of forest can sustain this annual demand. It should be remembered that these per-hectare calculations are based on only 30 per cent of the park's area. There remains a large 'safety net' area which is currently not used at all, and which, due to inaccessibility, is unlikely to be used.

It is futile to ignore the existing demand and institute unrealistic regulations. It would be far more effective to work together with the people to find a solution that is workable for everyone. This may involve some level of access for a limited time while people develop alternatives. Those who are most dependent on forest resources should be identified and targeted with "individual" approaches to developing alternatives that would take into account their constraints as well as their needs.

The data suggest that it may be possible to supply much of the wood needed by communities within forest-adjacent parishes from the 30 per cent of the forest used. But since harvesting patterns are not evenly distributed, narrow areas near the trail and the boundary may be subject to over-harvesting and will have to be monitored carefully.

Species of concern

Species-specific information was collected through household interviews and in-forest walks (Box 16). Subjective supply information was combined with demand level assessments, resulting in a preliminary identification of the species most likely to constitute a conservation concern (see Appendix 4 for an example of subjective assessment). The collection levels of species with a very high consumption score (4) were automatically assumed to be potentially unsustainable. Species were subjectively assigned to one of three categories:

1. unlikely to constitute a conservation issue;
2. possibly an issue and should be further investigated; or
3. most likely a conservation issue and should be a priority for investigation.

Box 16. Identifying species of likely conservation concern

Demand

Resource consumption information from the household interviews was broken down by species and a demand assessment was made. This species list is far from comprehensive, and the extrapolated results should not be considered definitive. Each species was assigned to one of the following four categories:

- 1 = low < 10 trees and/or < 100 stems/parish/yr*
- 2 = intermediate 10-30 trees and/or 100-500 stems/parish/yr*
- 3 = high 30-50 trees and/or 500 - 1000 stems/parish/yr*
- 4 = very high > 50 trees and/or > 1000 stems/parish/yr*

Supply

During the forest walks, opinion data was gathered about growth rates, habitat, harvesting impact and rarity of each species. A detailed inventory was not carried out; this information is based on the assessment of the in-forest team and is not scientifically rigorous. It suffices to provide an indication of which species require more focused research and monitoring attention. Individual parish assessments were made, since the species used varied considerably from one parish to another.

Table 20 lists the species which were assigned to category 3 for each of the sample parishes. This list can serve as the basis for further research into the species-specific impact of harvesting. It is advisable that these species be restricted from harvesting until more information is generated.

Scientifically-determined sustainable harvesting levels for each species have not been investigated as a component of the resource-use assessment. However, a detailed land unit mapping and biodiversity inventory was carried out just prior to the assessment. Although inadequate links between the two pieces of research were made at the time, it is vital that the inventory data (on how much of each species is actually found in the forest) are linked with the results from this assessment.

Table 20. Species most likely to constitute a conservation issue at current harvest levels

local name	botanical name *	most common use
Buwundu Parish		
Gwiruni	<i>Aningeria adolfi-friederici</i>	polewood, timber
Zingusa	<i>Dombeya spp.</i>	polewood, ropes
Gusopo	unknown	polewood
Zikweso	<i>Macaranga kilimandscharia</i>	polewood
Ulukusi Parish		
Gusagali	<i>Podocarpus milianianus</i>	timber, crop stakes
Gubuluwa	<i>Dombeya mastersii</i>	ropes, crop stakes
Gudodowa	<i>Neoboutania macrocalyx</i>	crop stakes
Zingugumu	unknown	ropes
Bumwambu Parish		
Zifudyuku	<i>Dombeya sp.</i>	ropes
Kapkwai Parish		
Chebakwet	<i>Neoboutania macrocalyx</i>	Crop stakes; polewood
Borokapmoi	<i>Dombeya sp.</i>	ropes
Tobomwet	unknown	polewood
Benet Parish		
Sitetet	<i>Podocarpus milianianus</i>	polewood, timber
Chebakwet	<i>Neoboutania macrocalyx</i>	polewood
Borokapmoi	<i>Dombeya sp.</i>	withers, ropes, polewood
Koroshondet	<i>Olea chrysophylla</i>	polewood
Kaptolongit	<i>Olinia usambarensis</i>	polewood
Turuymoyendet	unknown	withers
Mutushet Parish		
Tobomwet	unknown	withers, crop stakes
Borokapmoi	<i>Dombeya sp.</i>	crop stakes, ropes
Kamuruk	unknown	crop stakes
Kelyangpok	unknown	withers
Kaptolongit	<i>Olinia usambarensis</i>	polewood

* Although botanical names are shown here, they have not been confirmed. They are based on information from local rangers and publications. Herbarium specimens had been collected at the time of writing but had not yet been processed. Once the botanical names have been verified, their availability, as well as other botanical information collected during the biodiversity inventory, should be linked to this data for further confirmation.

Summary: ecological considerations

Patterns of use:

- The total area used by the local population has been termed the total resource-use area (TRA) and extends up to ten km into the forest from the park boundary.
- For the forest area adjacent to each parish, the TRA was divided into three zones according to distance from the boundary: the near zone (NZ), intermediate zone (IZ) and far zone (FZ).
- The near zone (primarily formerly encroached land) is used the most intensively and for the greatest number of resources, which contradicts the common belief that it is useless land.
- There are some valuable resources (mainly bamboo and medicinal plants) collected from the IZ and FZ and these areas are highly valued by local forest users.
- Although the TRA for all park-adjacent parishes amounts to approximately 60 per cent of the entire park, people rarely venture far from the trails. The effective area of use is unlikely to be more than 30 per cent of the park area.

Quantification of use:

- Quantities of resources consumed by all households in park-adjacent parishes were calculated from household interview data. These figures were also quantified per hectare of forest (using 30 per cent of the park/34,000 hectares).
- Many of the non-wood forest products have been ranked as having high value. In general, they are the least likely to cause conservation concern, although there are some localised exceptions.
- Even with bamboo, the most heavily used resource, detailed research has shown that current levels of harvesting are below the estimated maximum sustainable yield.
- Wood products are the resources most likely to cause conservation concerns. However, estimates of demand per hectare suggest that, for most uses, extraction may be sustainable at current levels. However, localised over-harvesting is likely to be a problem.
- Certain species have been identified as being of potential conservation concern, due to high levels of demand and/or probable limited supply.



Part 3: Applying the information

7. The feasibility of a collaborative management approach

All too often information is gathered without sufficient consideration being given to its utility and final application in decision-making, management, monitoring, and support for policy development. Consequently, a lot of statistically significant, interesting, but sadly useless data are collected, which do not relate closely enough to the problems facing protected area managers at the local level. Information for interest's sake alone is a luxury that many conservation institutions cannot afford, particularly those in the tropical realm.

Information generated from the assessment of resource use in Mount Elgon National Park is naturally site-specific. The details are primarily of interest to those involved in the management of the park. However, the relevance of this type of assessment and the manner in which its results can be applied is broad-ranging and likely to be relevant to other areas with similar management objectives. This section places some of the information generated into a practical and applied framework, to illustrate its utility in decision-making, management and policy-formulation.

It is essential that decision-makers, both at the day-to-day park management level, and at the institutional policy development level, have pertinent information at hand. When considering a collaborative management approach, it is important that they have some idea of whether or not such an approach is appropriate, given the socio-economic, political and cultural climate.

The original recommendation of Wily (1994) was that the socio-economic climate surrounding Mount Elgon National Park was appropriate for embarking on a collaborative management approach. However, it was necessary to verify this observation, and provide adequate justification for such an approach, before a genuine commitment to moving forward could be expected from the decision-makers. Within the institutions in Uganda mandated to manage protected areas, there is still considerable scepticism towards community-friendly philosophies. Sharing decision-making authority and management responsibility with local people is a far cry from the traditional approach of total exclusion. Understandably, the decision-makers are concerned about such radical changes in strategy.

There are many aspects to investigate when making a preliminary evaluation of the suitability of a collaborative management approach. Much depends on the nature of the locally-resident population and their connection to, and use of, the forest. A number of the questions addressed during the assessment can assist in deciding whether to embark on a full-fledged collaborative management approach. The information detailed in sections 4 to 6 is summarized here, highlighting its relevance to collaborative management.

Extent and nature of dependence on the forest

The extent and nature of forest dependence are important factors in deciding whether or not a collaborative management approach is likely to be successful. Some protected areas are fortunate enough to have a number of benefits to offer local communities (an example is Bwindi Impenetrable National Park, which gives the local population a proportion of the considerable revenue earned through gorilla tracking, in addition to community development through the Bwindi Trust Fund). In the Mount Elgon National Park context, monetary benefits from tourism are insubstantial and there isn't enough international interest in the area to generate major financial inputs in the long term. The costs incurred by local people, both in negative impacts from the protected area and in taking on management responsibilities, must be balanced by benefits. In the case of Mount Elgon these will primarily consist of access rights. It is important for the park to be able to offer adequate benefits in terms of forest resource sharing, but it is equally important that the local population have enough interest in the use of these resources. The people must feel that they are getting a "fair deal".

Section 4 detailed the extent and nature of dependence of the local population on the forest of Mount Elgon National Park. A number of the points made in that section support the thesis that a collaborative management approach is appropriate.

The local people are dependent on the forest for a large number of resources

- When dependence on the forest is spread over a wide range of resources, there are many bargaining "chips" to take to the negotiation table. If dependence is limited to a small number of controversial resources (e.g. charcoal and timber), there is little to offer in exchange for foregoing the use of these resources. All negotiation involves compromise, and the more options there are available, the greater the possibility of realistically "negotiating out" resources that seriously compromise the management objectives of the conservation area.
- Many of the resources that are important to the communities surrounding Mount Elgon National Park would be lost if the forest were converted to agricultural or pasture land, or to plantation. The greater the variety of resources that can be made available from the forest, the more valuable it is to the people, and consequently the more willing people will be to actively invest in its protection.

A large proportion of the population is heavily dependent on the forest

- Since such a large proportion of the community is so heavily dependent on the forest, it is unlikely that any amount of armed force will be able to prevent use of the park. Given such dependence, a policing approach is not likely to be effective. Collaboration and negotiation with the users is certain to be more effective.
- An agreement between the park and the people is less likely to be successful if only a handful of the people benefit. Ideally, the “majority” is critical in placing pressure on the “minority” of illegal offenders. The optimum situation would see the majority receiving sufficient benefits, and genuinely supporting the agreement and its regulations. With such a large proportion of the population heavily dependent on the forest for a large variety of resources, it is likely that the majority can be offered adequate benefits in exchange for management responsibilities.
- Conversely, if only a few people profit from an agreement with the park, an “elitist” beneficiary group may be created (e.g. if only medicinal specialists and specialised crafts people have access and therefore receive the bulk of the benefits). This may have a negative effect, with the majority of the population gaining nothing from the park, and consequently not seeing any reason to abide by the regulations, or to take an active role in enforcing them.
- Households from all economic strata are dependent on the forest and have a stake in its use. Social pressure from the majority is likely to be stronger than if forest use were confined to the poorest households. A process that only benefits the poorest in the community is likely to be politically marginalised by the wealthier, and usually more powerful, members of the community, who would receive no real benefits themselves.

Dependence on the forest is culturally linked

- It is unrealistic, and ethically unreasonable, to think that park authorities can or should prevent cultural uses of the forest. Such uses have been an integral and vital component of community life for longer than UNP has existed. A policing approach that focuses on forced exclusion is unlikely to be effective; if pursued, it will only serve to heighten conflicts and animosity.
- It is rarely possible to substitute culturally-linked forest use with on-farm alternatives. Therefore a management approach which focuses on interventions to completely transfer dependency from the forest to the farm will not be effective in the context of Mount Elgon National Park.
- Cultural uses of the forest, while offering substantial benefits to the community, are generally non-extractive (with the exception of a few resources such as honey and

bamboo which are harvested in very small quantities for various ceremonies). They are minimally destructive, and are therefore ‘inexpensive’ bargaining chips for the negotiation table.

- A vital prerequisite for a successful collaborative management approach is that the local people, as a management partner, are genuinely committed to the conservation and wise use of the protected area. The cultural value of the forest is likely to be a key reason for the people to support, and partake in, the protection of the forest. The area has cultural value only while the forest remains intact.

There is some level of dependence on the forest for income generation

- The resources that are the most important for income generation (i.e. medicinal plants, mushrooms, honey, bamboo stems and bamboo shoots) are among the least controversial in terms of conservation objectives. Agreeing to some level of commercial collection can add overall value to the benefits “package” that can be offered in exchange for management responsibilities, without compromising conservation objectives. Furthermore, most of these resources will be totally lost with the degradation of the forest. Their value for income generation is yet another reason to keep the forest intact.
- The poorer families are most dependent on the forest for some income. Consequently, prohibition of all commercial collection will have its highest impact on them. Negotiating rights and responsibilities through a carefully executed collaborative management approach – taking into account the importance of some level of income generation to the poorest sector – can result in a more equitable resource use arrangement.
- The households which are dependent on the forest for income are most likely those which are most dependent on the forest in general. They are also most likely to ignore unrealistic and non-negotiated regulations; not necessarily by conscious act, but through a lack of options. Offering extra benefits to these people in exchange for extra responsibilities would benefit everyone.
- There is a demand for forest resources, and it is currently supplied regardless of the regulations. It would be more useful to address the situation, monitor it, and attain some level of control. If over-harvesting of certain commercial resources is found to be an issue, then it can best be broached through discussion and joint problem solving efforts – in other words, through collaborative management.

There is unlikely to be a significant reduction in forest dependence in the future

- It is clear that forest dependence is an issue that will not go away in the near future. Imposing regulations which satisfy the management objectives of UNP, but do not take into consideration the needs of the people, is ignoring the issue. If it is not addressed now, it will be even more difficult to deal with in the future. Through developing a partnership, future issues can be more effectively tackled now.
- Encouraging – and, to some extent, supporting – the adoption of alternatives will be imperative for some resources, particularly those for which dependence is likely to increase. Such initiatives are most effectively undertaken as an integral component of a partnership process. In that way, all parties are involved in identifying the resources for which alternatives are necessary and the most appropriate way of developing them. As a component of a management approach that is “owned” by the people, developing alternatives to forest resources to satisfy future needs also becomes the “ownership” of the people.

In summary, it has been demonstrated that the forest of Mount Elgon is an essential resource to the lives of the neighbouring population; a resource that for many is necessary for daily survival. Trying to forcibly restrict people from using the resources of the forest is logistically close to impossible, and ethically questionable. Such an approach is most likely to result in a climate of heightened conflict as peoples’ very survival is threatened. It is not a viable option.

Involving people in management

Naturally, a willingness on the part of the community to become involved in management is imperative if a collaborative approach is to succeed. It is also useful to investigate the potential capacity for management (e.g. in terms of indigenous management systems, existing institutions, understanding of the principles of conservation management, etc.). Although these issues were not investigated in detail, the assessment brought forward some further justification for embarking on a collaborative management approach.

Remnants of past management structures

Centralised control over the last 50 years or so has resulted in considerable erosion of local management capacity; consequently the local institutions are unlikely to be strong enough to take on management responsibilities immediately. Nevertheless, remnants of indigenous systems of management, and a sense of ownership and responsibility over the forest, remain within the local population.

There are a number of positive aspects to this situation:

- These remnants are based on an appreciation of wisdom and experience. Even today indigenous leaders retain some authority over community matters and disputes, if not specifically over issues of forest management.
- Past systems were commonly based on traditional political units that have geographical boundaries closely corresponding with forest use areas (e.g. ridges).
- Spiritual connections to the forest, which recognise particular people as caretakers (e.g. with “honey” elders, spiritual hunters), still exist.
- Indigenous regulations over the way resources should be harvested, which are conservationist in principle, are still appreciated, if not always abided by.
- A sense of “ownership” over the forest, emanating from the past when the control was essentially in the hands of local people, is maintained through the remnant systems of indigenous management – Mount Elgon is still considered the home and realm of the Bagisu. This sense of ownership is more likely to lead to a desire to safeguard than a desire to destroy.

Although these remnants may be inadequate as they currently stand, they represent the most appropriate point of departure for local institution support and strengthening, and for initiating a collaborative approach to forest management. In the end, decisions regarding which members/institutions within the community would be most suitable to take up the responsibilities of management should emanate from the people themselves. It may nevertheless be beneficial to encourage people to look beyond the currently well-entrenched, but potentially short-lived and primarily political local council (LC) system and explore the potential of the long-standing indigenous institutions.

Willingness of the community to become involved

During meetings at the parish and village level, participants emphatically expressed an interest in becoming involved in the decision-making and management process. Their readiness to cooperate was demonstrated through their active and voluntary participation in the assessment. Recent institutional changes and increased protection activities (facilitated by hefty external input) have led to a realisation by some people that the only way of securing legal access to the forest is through negotiation over rights and responsibilities. Others feel that collaboration is the best approach, and are happy that the officials are finally prepared to talk (and listen) to them regarding the issues of their mountain. In general, people have a fundamental desire to act within the law. Sneaking into the forest and risking beatings and bribery is not an act of choice, but of necessity.

Appreciation of the need for controls

It is often assumed that rural people living adjacent to conservation areas are ignorant of the conservation issues at stake, and that the first thing the ‘experts’ need to do is ‘educate’ them. However, local people’s extensive knowledge of the dynamics of natural systems, and the impact of their activities on these dynamics, are receiving more and more recognition. There is an increasing appreciation of the value of offering people the opportunity to contribute their knowledge. It is clearly better to find out what people know before making assumptions about what they do not know.

In line with this principle, the parish profile participants – who are themselves forest users – were asked to categorise each resource according to the level of damage its collection inflicts and the level of control that would be most appropriate in a future management regime. As well as demonstrating their ability to make rational assessments about the impact of harvesting activities, they began the process of thinking as managers as opposed to users¹⁷. (Table 21).

Through this exercise and the ensuing discussions it became evident that the community had an intrinsic understanding of the varying degrees of impact their activities have on the forest. There is an awareness of the detrimental effects of some resource-harvesting practices, and an appreciation of the need for controls. Although there may be some disagreement from the official management body with regard to the categorisation of some resources, there is, in general, a greater amount of common ground. A collaborative management approach should focus on maximising the potential of this common ground.

People are aware of socio-economic realities and they appreciate the need for regulations which will safeguard the forest for their children and grandchildren. However, transforming this understanding into behavioural change is not straightforward or automatic. A philosophical commitment to the future of the forest will not feed the children today; and so, even while negotiating restrictions, the potentials and constraints of developing alternatives for the future must be addressed.

Table 21. Categorising resources according to damage done by harvesting

Based on opinion data from all parishes combined; a distinction was made between the level of damage and the level of control to ensure that the relationship between harvesting impacts and the necessity for regulations was clear

resource	level of damage			level of control needed		
	maximum	some	minimum	maximum	some	minimum
timber	√			√		
hunting	√			√		
charcoal	√			√		
polewood		√			√	
firewood		√			√	
honey		√				√
grazing		√			√	
craft materials		√			√	
crop stakes		√			√	
fodder		√			√	
medicine			√		√	
bamboo stems			√		√	
bamboo shoots			√			√
ropes			√			√
mushrooms			√			√
vegetables			√			√
fruit			√			√
white ants			√			√
thatching grass			√			√
traditional sites			√			√
fertiliser			√			√
clay/sand			√			√

A “rights for responsibilities” approach to management

Consideration must be given to the ecological consequences of formalising extractive use of the park. Although the ecological component of the assessment was not detailed enough to draw definite conclusions about the impact of current levels of harvesting, some of the more general assessments support the argument that collaborative management, involving the negotiation of use rights in exchange for management responsibilities, is a viable approach.

The value of ‘minor’ forest products

It has been demonstrated that ‘minor’ forest products have, in fact, major value to the people on the border of Mount Elgon National Park. Many of the important non-timber resources can be harvested without compromising the conservation objectives of the area; i.e. maintaining the watershed value of the mountain, or the conservation of rare and endemic species (found primarily in the moorland area). This means that a substantial part of the benefit package that can be offered to the community can be made up of the non-wood products, which are the least controversial.

Although the collection of wood products is justifiably approached with anxiety, wood is essentially a renewable resource and some level of harvesting is always sustainable. In the short term, while alternatives are being developed, it is possible that local demand for polewood, firewood, rope, and crop stakes could be satisfied from the protected area without detrimental impacts. Harvesting of such products would have to be carefully managed and monitored, with clear channels of responsibility and accountability.

The need to develop alternatives

It is clear that there is a need to assist the community in developing alternatives to certain resources, particularly wood. There is limited money available for such support and therefore it is vital to have efficient and effective strategies. A collaborative management process is one of the mechanisms by which park management can identify and assist those most in need. Working through the management needs of the forest, together with the users themselves, will highlight the importance of beginning to address future wood requirements today. Such outcomes of a collaborative management approach have been experienced elsewhere in Uganda (Scott, 1995). Tackling the issues of developing alternatives in isolation of such a process is certainly possible, but will probably be far more difficult and less effective in the long run.

Limited area of use

Although the total resource-use area was defined as approximately 60 per cent of the park, it was pointed out that within this 60 per cent there were major areas which were effectively unused. This leaves a large percentage of the total park area (hopefully containing representative samples of all vegetation types) which is not normally used. There is already a “safety net”: the fact that the use area is limited supports the proposition that a utilisation programme with clear and feasible zoning could be a sustainable approach for the conservation of the park as a whole.

Although localised over-harvesting must be addressed, ‘micro’ managing is not feasible given the limited resources that are currently available to UWA. It may be necessary, for the short term only, to consider allowing some forms of utilisation that are not 100 per cent sustainable at the localised level. If such activity is contributing to the overall maintenance of the larger area of the park (‘macro’ managing), and alternatives are being developed, it is a small price that may need to be paid for more effective conservation in general. That price is currently being paid with no gain or return.

Use of the formerly encroached area

One of the major areas of use is the formerly encroached zone, which is considered by UWA to have minimal conservation value. The most controversial resources, such as polewood, firewood, ropes and crop stakes, are collected primarily from this degraded area. The long-term plan is to restore the encroached zone through enrichment planting (or to at least ensure high levels of protection to allow for natural regeneration). Without the support and cooperation of the community, efforts to enhance regeneration are likely to be unsuccessful. Community involvement is essential in restoring these areas, and can be beneficial to both the local community and the UWA. Trading “rights” (e.g. present and future harvesting rights over some trees) for “responsibilities” (e.g. planting and maintaining trees, ensuring that grazing does not occur) can involve local people in restoration of degraded areas and increase the chances of success in the long term by:

- relieving pressure on park staff;
- supplying some of the communities’ needs;
- relieving pressure on the wood resources of the more important (in conservation terms) and comparably intact areas further inside the park; and
- contributing to improved relations between the park and the community so they can work together as a team.

Limited and local market demand

One of the fears associated with legalising access to forest resources is that it will lead to an increase in demand from external markets, placing unsustainable pressure on the resources of the forest. While this is a valid fear, harvesting activities within the forest of Mount Elgon are primarily for domestic purposes. The market for resources, with the exception of bamboo shoots, is almost exclusively local (within the forest-adjacent parish). Demand is unlikely to increase substantially as a result of formalised access to the park. Those living a considerable distance from the forest already have alternatives to most resources, particularly poles and firewood. Resource harvesting from the park is hard work and not particularly lucrative. People will only do it if there are no alternatives, and alternatives for some resources, especially the most controversial ones, are becoming increasingly available at affordable prices in the local markets.

Economic justification for formalised resource collection

Conservation in the tropical realm, as in the rest of the world, is only one component of an economic society that is striving for increased economic development. Increasingly, conservation has to compete on an economic level. Within the Ugandan context, the economic benefits emanating from tourism do not come close to covering the costs of conserving the protected areas of the country. Almost every national park has at least one external project that boosts management capacity by providing financial and technical support. In the future, when external support may not be so readily available, it will be necessary to demonstrate that protected area maintenance is economically viable.

When assessing economic benefits, it is important to look beyond tourism revenue. Benefits can be global (e.g. maintenance of biodiversity, carbon sequestration), national (e.g. revenue from tourism or timber export) or local (water catchment, domestic use of resources). Very often, economic analyses ignore local-level benefits that are not evident in the national economy. Domestic-use values, which are important economic benefits to rural communities, are often disregarded. This is extremely unfortunate. Including the economic value of local people's access to forest resources (which would be lost with the loss of the forest) can dramatically increase the total value of the forest. This valuation can consequently contribute to justifying the conservation of an area such as Mount Elgon, which is not a major money-maker in terms of tourism revenue.

The value of local use of non-timber forest products is between six and seven times that of the sustainable off-take of timber. This value cannot be included in an analysis at present as it is not formalised or legally permitted. Initiating a process of park-resource utilisation, such as collaborative management, formalises the communities' use of the park. The local-use values which will be lost under other forms of

land use – such as agriculture, grazing, and plantation forest – can then be included in a cost-benefit analysis of the conservation area.

Conclusions

This discussion about the feasibility and desirability of a collaborative approach to the management of Mount Elgon National Park is not exhaustive, nor does it paint a complete picture. There are many other issues, such as community cohesion, population dynamics and existing institutional capacity, which can be investigated when deciding whether or not a collaborative management approach is feasible and appropriate. It is indisputable, however, that dependence on the forest is an issue and that, regardless of “rules on paper”, it will continue to be an issue.

The activities of the UWA policing force have been increased in recent years, largely due to substantial financial and technical input from the Mount Elgon Conservation and Development Project. Although agricultural encroachers have been evicted and some of the illegal timber extraction (primarily external) has been halted, general community use of the forest has been only minimally affected. Dependence on the forest for the provision of day-to-day essentials is so high that it is unlikely that any amount of armed activity could prevent the people from collecting the resources they need to survive. The main impact of increased policing efforts has been heightened community hostility towards the management officials and intensified conflicts. In the long run, this can only serve to hinder the efforts of the management body.

It is clear that current strategies are not effective, and therefore that opening dialogue with the people and moving towards cooperation may be the best solution. There is a great opportunity, and it should be viewed as such, to make the most of the value of the forest to the local residents, and to bring them on-board in the management and conservation of the area upon which they are so dependent. The result should be a more effectively and sustainably managed park. According to Alcorn (1993):

“... conservation is a social and political process ... conservationists interested in achieving on the ground conservation have to choose among real options and not idealised academic options.”

If it is accepted that utilisation of the park is something the managers have to face, addressing it positively is far more constructive than ignoring forest dependence, heightening conflicts and losing control entirely. There is a wealth of human resources at the doorstep of the park in the form of locally resident caretakers. They have been disregarded for too long. There are signs that this fact is being realised by the park managers in Uganda and a variety of initiatives is under way to enhance community participation in park management.

8. The target population

The importance of identifying forest users was discussed in Section 5. Rather than trying to pigeonhole people into a particular user group, the assessment concentrated on identifying the key socio-economic-spatial characteristics of forest dependence. These characteristics should be taken into account when considering all areas of forest-use management, including the following:

- ensuring effective representation of all categories of forest users in the process of partnership management, for example, ensuring that there is representation from all distance and wealth categories, all generations, both genders and all specialists;
- identifying the impact of various regulations on the community, for example, restrictions on localised commercial collection, collection of firewood, or staying overnight in the forest to smoke bamboo shoots;
- streamlining the forest-resource substitution activities of the park and project to more effectively target members of the community who are most dependent on the use of controversial forest resources.

Identifying the most forest-dependent households and effective targeting of activities can best be achieved through a collaborative process. In such a process, management and the people work together to address the issue of future needs, based on the potentials and constraints faced by the people. Although preliminary assessment offers some initial ideas about the characteristics of forest dependence, which can serve as the foundation for future work, it should be viewed as a precursor to further investigation during the collaborative management process.

Targeting in terms of distance

The assessment identified the key forest-dependent population as extending at least throughout the forest-adjacent parish. However, when embarking on formalising forest use and community involvement in management, it would be most effective to concentrate efforts on the resource-collector population. These are the people who are most dependent on the forest, and therefore have the largest stake in a collaborative management process in terms of access rights. In addition, they are the most well-placed “caretakers”; seeing everything that goes in and out of their section of the forest.

Having said this, households in the half of the parish farthest from the boundary are also dependent on the forest in that they buy forest resources, primarily those for which there are no alternatives. A number of participants from the far villages expressed concern that if community-based forest management is embarked upon, they will not be given adequate consideration, and all interventions, both in-forest and on-farm, will be concentrated

in the villages closest to the forest. Activities should therefore be carried out throughout the parish, while at the same time paying special attention to households within park-adjacent villages. Information must be effectively disseminated throughout the parish, giving all residents the opportunity to participate in any discussions on access rights.

The assessment results also have important implications for targeting on-farm alternatives. Park and project resources, both human and financial, are limited and should be used effectively to maximise the reduction of unsustainable forest use. Substitution interventions should be limited to resources of greatest contention, and targeted at households who are dependent on the national park for them. It is clear that for these resources (i.e. wood resources such as poles, firewood, crop stakes and ropes), activities should be focused on the resource collector population – those nearest the forest. Unfortunately, initiatives often target those people who are most easily reached. In the case of Mount Elgon, there are very few parishes where an access route reaches the boundary. The steep and often muddy terrain is a major deterrent for park and project staff alike. Consequently, information often does not reach the boundary-adjacent households, and activities do not take place where the forest-user households are located.

Targeting in terms of wealth

Forest dependence is not confined to the poorest sector of the forest-adjacent population, but is virtually consistent throughout the economic spectrum. When initiating formalised forest use, it is important to ensure that people from all socio-economic strata are represented in the process, regardless of how small the differences between these strata may be. It is generally not difficult to enlist the support and participation of the wealthiest, who are often the most actively involved in new initiatives in their area. Poor households should be encouraged to participate actively in the process of decision-making. In addition, it is important to ensure that they get a fair portion of any user rights.

Information about the relationship between dependence and wealth is also valuable in planning on-farm development activities. In the design of many integrated conservation and development projects (ICDPs), there is a common assumption that decreased dependence on forest resources will be an automatic consequence of general increased economic well-being within the community. If the main forest dependants were the absolute poorest, targeting them with general development activities might result in their increased economic well-being and a corresponding decrease in their use of the forest, although even this assumption is disputable. With regard to Mount Elgon National Park, where even the wealthiest of the population demonstrate high levels of forest use, this assumption is brought heavily into question. Enormous inputs would be required to raise the general well-being of the whole population to a level at which forest use was no longer important.

Consequently, rather than spread valuable resources over a large number of development activities which are not clearly linked to forest use, but rather, geared towards general economic development, it would be more effective to concentrate on addressing a few controversial issues (e.g. development of alternative wood resources). These activities should respond to the specific issues on the ground. Interventions in a limited number of key activities enables more effective dissemination to a greater proportion of the population and is more likely to result in reduction in forest dependence for certain resources. A corresponding increase in economic well-being may also be achieved.

Targeting in terms of generation

The overall dependence on the forest for both domestic consumption and income generation is not, at this stage, decreasing with the younger generation, and is unlikely to do so in the near future. Consequently, it is vital to ensure that all generations are represented during the process of negotiation and decision-making. Very often the focus is on older, more knowledgeable community members. However, it is the youth who will be the future custodians of the forest. They should be fully involved in the process from the beginning. Furthermore, literate youth commonly hold positions of political influence. They are a very important target group for decision-making processes and for the development of alternatives. It is with the younger generation that future demand will lie - it is wise to begin preparing for the future together with them.

Targeting in terms of gender

Although women do not collect a large variety of resources, the frequency of their forest visits, primarily for firewood, makes them key forest users, and as such, they should be as involved in any process of partnership management. Naturally, they should be well represented in any local management unit/committee. However, this may not automatically result in their active and meaningful participation. Even as members of a decision-making forum, they may not feel free to express their needs and concerns. Very often, the 'token' women who are members of such committees are not in a position to challenge their male colleagues, who may be brothers, husbands or fathers and, in the cultural context, their 'superiors'. It may be advantageous to facilitate extra meetings with women alone to give them the opportunity to voice their opinions. If women's opinions are increasingly acknowledged, respected and acted upon, female members of committees may begin to feel more comfortable discussing their views in a mixed forum.

When negotiating rights to access, the issue of firewood collection must be considered very carefully. It consumes the greatest amount of the in-forest household labour economy (more than 25 per cent). If harvesting firewood is banned simply because it is a wood product, the greatest impact will be felt by women, who will be left with the responsibility for finding alternative sources.

Furthermore, promotion of on-farm sources of firewood should focus on the perspective of women; e.g. what species are preferred, how would they like to include tree planting within their farming system, major constraints in developing alternatives to in-forest firewood, cultural/social/tenure barriers to tree planting and harvesting, etc. It is not enough to promote woodlot establishment and assume that the firewood issue is being dealt with. In some instances, women do not have access to woodlots for firewood collection, as the lots are the property of the men. Only when a tree is harvested for use in house construction or sale are the women permitted to utilise the branches for firewood (Scott, 1996). The establishment of alternatives must be appropriate for women.

Targeting according to differences between areas

Cultural, tribal, socio-economic and environmental differences between areas result in variations in the nature and level of forest use. These variations will have an impact on the negotiation process and the terms of the agreement. Each area will have its own issues, values and priorities and a meaningful process of negotiation and agreement must take these into account.

In addition, the differences in the nature of dependency on the forest will influence who should be involved in the process. In areas where grazing is important, livestock owners should be well represented. If spiritual hunting is an issue, the spiritual hunters themselves should be involved in discussions and decision-making at all levels. Although a general framework approach to addressing the issues of forest use can be developed, as much flexibility as possible should be maintained in order to cater for variation between areas.

9. Zoning utilisation

The concept of zoning protected areas for various levels of utilisation is not new. The design of Biosphere Reserves (initiated by UNESCO in 1979) was one of the first strategies intended to bridge the gap between the interests of conservation and those of locally resident communities, thereby reducing the conflicts obstructing the successful management of protected areas.

UWA has adopted a zoning approach with a policy that specifies a sustainable community utilisation zone of up to 20 per cent of each park (commonly referred to as the multiple-use zone). While zoning has become a central component in the preparation of management plans for national parks throughout the country, it is often based on the ecological and tourism value of specific areas of the park. Areas which are not considered important for biodiversity conservation or tourism may be zoned as community-use areas. The process of delineating resource-harvesting areas does not always effectively address the needs of the people, and it is rarely carried out with the users themselves. It is very difficult to manage use zones which are inappropriately drawn up, and to enforce “no-use” regulations in an important utilisation area.

Ideally, identifying local resource-use zones would be an integral component of a collaborative management process, and would be based on discussions about the objectives and needs of both conservation and the local population. Unfortunately, even if a collaborative management approach is initiated by Mount Elgon National Park management in the near future, it will be many years before it reaches all park-adjacent parishes. At the time of conducting the survey, a management plan was due for preparation, and zoning was to be an important component of it. The information generated through this assessment could serve as the basis for designing an interim multiple-use zoning strategy based on some understanding of the needs of the local population and their patterns of forest use.

The proposed zoning strategy

The Man and Biosphere (MAB) strategy is intended to create protected areas (or redesign existing ones) with a central core exposed to minimal disturbance, and areas of increasing utilisation radiating out towards the periphery. The outermost ‘buffer’ area would be available for various forms of sustainable exploitation. Prior to Mount Elgon’s establishment as a national park, such a zoning approach was proposed, as detailed in the Interim Management Plan for the period 1992-94 (Forest Department, 1992). This zoning plan was developed without consultation with the local people and with minimal understanding of the nature of their use of the forest. A contiguous strip of land 500 metres wide running parallel to the entire boundary, was put forward as the community-use zone.

Although the MAB strategy is probably appropriate for many protected areas, particularly those that are relatively homogeneous (i.e. containing similar resources in the outermost and core areas), it is inappropriate in the case of Mount Elgon and most other mountain parks for a number of reasons:

- **The value of resources from the higher altitude areas** – although the forest area closest to the boundary is important for a large number of resources, this should not detract from the value of the higher altitude areas for the collection of some of the most important and least controversial resources. The proposed zoning strategy (i.e. restricting use to the first 500 metres of the park) would deprive people of the resources from the IZ and FZ, and greatly reduce the benefits flowing from the park to the community. In reality, it would also be impossible to enforce.
- **Importance of representation of all ecological zones in a “core” conservation area** – in designing a zoning strategy, it is important to ensure that all of the ecological/vegetation types are represented in the central “no-use” area. If the vegetation type nearest the boundary is also represented in the “no-use” zone, the proposed approach is likely to be sound from an ecological perspective. In the context of mountain parks, however, there is the additional factor of altitude to be considered. In the interests of biodiversity conservation, it is wise to demarcate “no-use” areas at the lower altitudes as well as the higher ones. By creating the community-use zone as a contiguous belt parallel to the boundary, the lower-altitude forest would be subjected to a greater share of utilisation pressure.
- **Difficulty in delineating a 500-metre strip** – it is advantageous for use areas to be clearly defined on the ground, so that everyone is aware of the boundaries. This can be done either by artificial delineation or by using natural boundaries such as streams or ridges. The second is preferable because it is cost effective, the borders are clear and permanent and they often correspond with existing locally recognised boundaries. In the case of Mount Elgon, most natural boundaries run in the direction of the slope (i.e. streams/valleys flow down from the top of the mountain). It would be very difficult to find enough clear natural boundaries to demarcate a strip of the forest running parallel to the boundary, and at right angles to the slope of the mountain.

A more appropriate approach

In order to address the problems associated with the proposed zones, different approaches could be adopted.

Zoning in strips that run up the mountain slope

People's patterns of forest use are already naturally zoned, according to accessibility, the availability of resources and historical social boundaries. The natural historical zoning of Mount Elgon is based on strips, generally along the ridges, that run from the boundary up the mountain slope. Main access trails commonly extend along the centre of these strips, and most resource harvesting is concentrated around them. There is a network of smaller access trails branching off the main trail, in particular in the higher areas where the search for bamboo shoots can take people deeper into the forest. The TRA has been estimated at 60 per cent of the park; this includes the entire area from the boundary to where people travel for resources such as bamboo shoots. However, people will not move farther from the trail than is necessary, which for most areas is around 500 metres. Consequently, there is a considerable area of this TRA which is essentially unused and could constitute a "no-use" zone.

Zoning in strips running up the mountain, rather than a strip running parallel to the boundary, would address all the problems mentioned above. People would have access to the resources they needed; all vegetation zones would be incorporated in both "no-use" and "multiple-use" zones (which would extend from near the boundary all the way up to the bamboo zone); and the utilisation strips could be easily delineated by streams and valleys. In many areas there are already well-recognised use zones, with clear physical boundaries, based on traditional systems of forest resource management. It is far easier to take advantage of systems already in place and work with existing boundaries, than to introduce new systems that may not be appropriate to the users themselves.

Specific use areas for each strip

Not all resources are collected from all areas within the TRA. The most intensively utilised area is understandably the one nearest the boundary. It is not necessary to open an entire strip to all forms of resource use. Certain activities that may be inappropriate in particular areas can then be regulated. For example, lighting fires may be inappropriate in forested areas but could be considered in the bamboo zone during the rainy season, for the smoking of bamboo shoots only; any form of wood resource harvesting, such as firewood and rope collection, may be carried out in the former encroached area near the boundary, but not in the forested area in

the intermediate zone or the bamboo of the far zone. A resource-use regime may include zoning of specific uses to specific areas as demonstrated in Table 22.

Table 22. Possible zoning of specific resource use

NZ = near zone IZ = intermediate zone FZ = far zone

This example does not take into account resources which are likely to be negotiated out of a forest-use agreement.

resource	collected from NZ	collected from IZ	collected from FZ
polewood	√		
firewood	√		
grazing	√		
crop stakes	√		
ropes	√		
thatching grass	√		
white ants	√		
saltlick	√		
vegetables	√		
fruit	√	√	
crafts		√	
hunting		√	√
mushrooms	√	√	√
medicine	√	√	√
honey	√	√	√
bamboo stems		√	√
bamboo shoots			√

10. Applying lessons learned to future research

This assessment exercise was the first of its kind in the context of Mount Elgon National Park. Although such detailed surveys will probably not be carried out in other parishes in the future, some of the exercises could be repeated as a rapid assessment, and as a component of moving towards including people in management and decision-making processes. A critical evaluation of the assessment in terms of the approach in general, and the specifics of each component of data collection, is important for future decision-making. The following lessons learned may also help people working with similar issues in the design and implementation of resource-use assessments.

Speed of the assessment

With limited resources available for assessment, particularly in the tropical realm, emphasis is often placed on how time-effective and cost-effective research can be, not only in terms of data collection, but also in processing data and presenting conclusions. This assessment was exceptionally efficient. After a short period in the field (one week per parish by a four-person team), an enormous volume of information was generated, offering good indications of forest use in its economic, historical, cultural and ecological context. Within a matter of days after the completion of data collection, a large part of the analysis had been completed and a detailed parish report had been prepared.

Speed is a double-edged sword, however. There were a number of consequences of such a rapid assessment.

- **Suspicion:** the assessment was to constitute the first stage of a relationship-building process. However, in the first days in each parish there was still a considerable degree of mistrust and suspicion on the part of the local participants about the possibility of a “hidden agenda”. With only one week available per parish for the assessment itself, some of the data collection had to be carried out within this climate of suspicion. There was not enough time to establish positive relationships with the people first.
- **Appropriate participants:** Although attendance at meetings was high, not enough time was available for advance planning to ensure that community members with knowledge about the nature of forest resource use were present. Most participants were summoned to a meeting through second- or third-hand messages with little explanation. Some of the older village members who had been invited decided to send representatives (e.g. sons) who did not necessarily have the same understanding of the forest.
- **Inflexibility of schedule:** When the schedule is tight, there is little time to explore interesting and relevant, but perhaps unexpected, issues. ‘Failed’ meetings cannot be

revisited. Major hurdles are encountered if respondents are not at home when the interviews are scheduled. Local events like a funeral in the village can result in a lost meeting; rescheduling necessitates squeezing subsequent activities.

When planning future work of this kind, there should be adequate time available between parishes. The Agricultural Extension Officer (AEO) or equivalent team member should be given at least two weeks prior to beginning the survey to familiarise him/herself with the parish and its residents. He/she will have more time to build rapport with the political leaders, elders and key resource users who should play the most active role in the assessment, and most likely in any processes of community-based management that result. Ideally, each participant would be approached in person by the AEO in advance. This not only ensures that all participants are given a full and accurate explanation of the aims of the assessment and the valuable role they could play, it also shows respect for the value of the participants' knowledge. Furthermore, this contact prior to the arrival of the research team gives participants the opportunity to ask some preliminary questions, which should reduce the time spent on clarification during the profile meetings. In working with a more carefully selected group, the quality of the meetings, and consequently the quality of the data, would be enhanced.

As well as becoming more familiar with the residents of the parish, the AEO could also compile information about the history of resource use and the key issues likely to arise during the assessment. This would assist the group in targeting their work to particular issues that may be specific to that area. Additional information regarding the day-to-day schedule of parish members (e.g. on-farm activities; harvesting activities; market day) can be useful in planning the assessment schedule. That way the schedule can be geared to the daily commitments of the people, rather than the convenience of the visiting researcher group.

As well as allocating more preparation time, it would be beneficial to extend the time of the assessment itself. The parish and village profiles, although very effective data-collection methods, were extremely rushed; it would have been less taxing on the assessment team and the parish participants if the assessment had been extended over two days. This would allow more time for discussion and reflection on the information.

It would be ideal to have twice as much time to prepare for and conduct such an assessment. However, there are always compromises to be made, and the trade-off for using less time and fewer financial resources is usually reduced accuracy and quality of data. The perfect balance between these two is always hard to find.

Accuracy of the information

Information was collected at a number of different levels (parish, village, household and through forest walks) in order to test its validity. This multi-faceted approach is known as triangulation. The resulting information was accurate enough to draw conclusions about the extent and nature of resource use. In a number of cases, there were inconsistencies between the different levels. These have been pointed out in the text and expanded upon in the more detailed evaluation of the methodology in Appendix 2. A number of general points can be re-emphasised about the assessment in general.

- Both qualitative and quantitative data were collected during the assessment. The ‘how much/how often’ data from the household interviews could consequently be placed within a broader historical, social and cultural context. This balance of ‘number’ and ‘word’ information is rarely achieved through either systematic household surveys or PRA approaches alone.
- Although the household interviews were few in number (sample size of 10-20 per cent), they were selected to reflect the socio-spatial distribution of each village as determined through the village profiling exercise. Furthermore, the parishes were chosen to be geographically and culturally representative. However, as the quantitative data from only 119 interviews have been used to comment on the general patterns of forest use by residents of all 58 forest-adjacent parishes, the results should be viewed as indicative rather than definitive. Further investigation into the issues identified through this work will be an essential element of future stages of utilisation management.
- As explained in Section 4, this assessment was more nuanced than others of its type in that a distinction was made between buyers and collectors¹⁸, with both being defined as forest users/dependants. In addition, within the household interviews, a distinction was made between quantities used/consumed (whether collected or bought) and quantities collected (including both for domestic use and for sale).
- Forest resource use was only assessed within the parishes bordering the forest without taking external markets into account. The results suggest, however, that forest use is primarily local and does not extend far beyond the forest-adjacent parishes (the sale of bamboo shoots and possibly bamboo stems in the form of baskets seem to be the main exceptions). Nevertheless, local market surveys may be worthwhile in the future.

“Interactive” rather than purely “extractive”

The assessment was not participatory in the true sense of the word. Participants were not involved in defining and developing the survey processes or their rationale. Fully participatory assessments are very time consuming. Time constraints on this survey resulted in an assessment that was not open-ended, but clearly focused on identifying trends in relation to factors specified previously. Although there was scope for progressive modification, the exercises were designed in detail before entering the parishes.

Nevertheless, the assessment approach was open and interactive. The agenda of the team, in terms of investigating potential future approaches to management, was on the table from the beginning. There were ample opportunities for open discussion at all levels, including household. The parish and village profiles, although clearly structured, stimulated considerable discussion and debate. Many of the meetings (e.g. specialist user meetings, elders meetings) were simply discussions, whereby both parties had the chance to expand on aspects of interest, offer information and ask questions.

Relationship-building

In moving towards a collaborative management approach, one of the first steps is establishing a relationship based on trust. To date, relations between the protected area staff and local people have been riddled with hostility. This was reflected in the initial suspicion regarding the team’s aims. One of the results of the assessment was the development of a positive relationship between the people and the research team. It was clearly stated that the team was there on behalf of the park and that the issues being discussed had originated from park management. It was one of the first occasions where representatives from the official management body had taken the time to listen to the concerns of the people. Upon revisiting these parishes, team members have been welcomed back as friends.

Unfortunately, due to the institutional transition – from Forest Department to Uganda National Parks – taking place at the time, park staff were not involved in the assessment. Furthermore, the Forest Department was only represented by one full-time team member. In future, to capitalise on the relationship-building opportunities of such an assessment, there should be maximum participation by the people who will constitute the link between the park and the community and will be carrying out day-to-day management on the ground.

Information gathering in isolation of a process

It is unlikely that any assessment, rapid or otherwise, can offer much more than an insight into the complex issues of the people/forest dynamics if it is carried out in isolation of a process of working together for future, mutual benefits. Carrying out the assessment in isolation of such a process has had a number of consequences.

- Participation of the real forest users: the information may not have been collected from a representative cross-section of resource users. Any new activity in the area, especially one that is associated with an external project, is likely to attract people with a political agenda. These are not necessarily the people who are the best informed about forest-use issues. Furthermore, they are less likely to have the greatest stake in a process which offers benefits in the form of access to forest resources, as opposed to a “sitting allowance”. It takes time working within the community to identify the real users and to secure their interest and participation.
- Appreciating the value of accurate information: As future agents of decision-making and monitoring, it is vital that the local people have a sound understanding of the importance of accurate and appropriate information. Since the parish participants were not involved in designing the assessment, they did not fully understand why accurate information was important and what it would be used for. Furthermore, there was little comprehension of the benefits that the assessment might offer them in the future. It is understandable that people consider their own agenda in answering; “what will be the consequences if I say this?”; “Is it more likely that I will gain access/be arrested if I say that?”. People have a tendency to either overstate their use of the forest, in order to stress its importance and gain access, or understate it in the fear that they will be arrested after being open about their activities. Through a process approach, with more time for the people to adjust to the new face of management and their new role, they would more readily become involved in making decisions about which information is important and why. This will lead to a more thorough understanding of the importance of having accurate information for decision-making.
- Ownership of the information: the information gained from such research is rarely returned to the community; it is not considered to be their property, and is therefore not used by them in the future. In most cases, its relevance is not even understood. If the assessment is an integral component of a process of moving towards partnership management, community partners should be fully involved in all stages, including design, implementation, analysis and interpretation. Information gathering becomes their responsibility, and the results belong to them as much as to the park or project. If the local users themselves have been fully

involved, there is no way to avoid sharing the results with them. They will demand it! If it is their information, they are more likely to use it when contributing to the decision-making process.

- **Local-level capacity building:** Although an assessment of this nature generates interesting information, that is not necessarily its only objective. Capacity building at the park staff level and within the local population can be equally important. Taking on a role in the management of the protected area – an area which has been out of their control for decades – requires considerable adjustment for local residents. The assessment would have provided a perfect opportunity to bring the community fully on-board if it had been a component of a partnership approach. It is irrelevant whether the full involvement of forest users in the information-gathering process results in different information being generated or a different negotiation outcome. The point is that, through full involvement, they gain understanding of, and respect for, the need to back up decisions with a sound information base. In addition, they become integral members of a research team, which can be very instrumental in strengthening the capacity of the local participants and park staff to work together towards common goals. In the future, components of data collection for monitoring and evaluation purposes will ideally be carried out by the resource users themselves. Their full involvement in the assessment is the perfect background to such future activities.
- **Follow-up:** Collaborative management has been initiated following the completion of this research. Despite the best intentions, however, it has only been initiated in two of the six assessment parishes. Any expectations raised in the remaining four have not yet been fulfilled. This is always the danger of carrying out research in isolation from an established and ongoing process.

Nevertheless, an important component of the assessment was to introduce the idea of collaborative management to the local community and to encourage participants to begin thinking as managers, rather than just users. With ample time in advance to discuss issues and formulate ideas about their future role in the management of the forest, community members may be more prepared to take a considered stand when and if an official process of negotiation is launched.

Use of complementary information

Adequate connections were not made between the assessment and a concurrent biodiversity inventory/land unit mapping exercise. Consequently, there is limited information available from this extensive biological research which relates to people's use of resources. Connections between the two research initiatives could, and should,

still be made. Establishing links between two sets of data as an afterthought is less effective than considering the links in their design and implementation. Nevertheless, the inventory data is expected to be useful in confirming the abundance of species, particularly those in high demand. The vegetation characteristics of each of the use zones can be more clearly defined and major user trails more accurately indicated. This step should be taken in order to make the best use of both studies and to further assess the sustainability of current levels of resource use.

Appendix 1

Summary and critique of survey activities

Introductory meeting

An introductory meeting was conducted in each parish approximately one week prior to the arrival of the assessment team. The meetings were led by the Technical Advisor of the Sustainable Development Unit of the project, with the assistance of one of the agricultural extension officers from the team. The meetings were conducted at parish level, with a selection of invited parish representatives (elders, youth and women). The main objectives were:

- to briefly introduce the concept of community-based forest management;
- to introduce the upcoming survey;
- to initiate a discussion on the main issues at stake; and
- to address questions arising during the meeting.

Day 1. Parish profile

Participants

After the introductory meeting, but before the team began activities in the parish, the Agricultural Extension Officers spent several days working in conjunction with the local leaders to identify and approach appropriate participants for the meeting. Guidelines for selecting participants were:

- at least one elder/representative from each village within the parish having a sound knowledge of the type and extent of forest use within his/her village;
- at least three women (if none of the above were women);
- parish level leaders, e.g. Local Council II Chairman;
- LCII Secretary for Information;
- LCII Secretary for Youth; and
- if necessary, a couple of additional key resource users.

Activities

1. Introduction

The general introduction included a discussion on the new approach to forest management and an explanation of the survey. Main points addressed were:

- introduction of team members and community participants;
- discussion of the fact that the government recognises their lack of success at managing forest resources alone and their need to involve those who have the most interest in the resources – the community;

- explanation that the new approach to management was being considered because of a commitment by the official management body to bring forest users into the decision-making process;
- explanation of the importance of understanding the ways in which local people depend on the forest;
- explanation of how and why the six sample parishes have been selected;
- outlining the proposed tasks for the day, pointing out the importance of having knowledgeable representatives from each village; and
- outlining the proposed agenda for the rest of the week.

2. Resource Discussion

This was a general discussion about the important resources of the forest (both extractive and non-extractive). A discussion about past uses was initiated followed by an examination of whether or not they were still taking place. The various uses of the forest were presented using flash cards. Some flash cards were made in advance; others were drawn by the community members during the meeting. This proved to be a very good icebreaker. A general discussion about trends and changes was also instigated where appropriate. User groups were identified clearly for each category of resource use (e.g. men/women/children; young or old; rich or poor; specialists or generalists; people close to the forest or everybody; local community or outsiders; commercial or domestic users).

3. Village Listing

Each village representative was asked to contribute on behalf of the members of their village. Villages and households were listed in order of distance from the forest boundary. Flash cards were laid on the ground and each village representative was given some beans and asked to put a certain number of them by each card indicating the following:

- **User ratios** – the proportion of user households, including collectors and buyers:
 - 1 bean = none/very few households collecting;
 - 2 beans = some households but fewer than half;
 - 3 beans = around half the households;
 - 4 beans = many households; and
 - 5 beans = almost every household.
- **Collector households** – the proportion of households which actually collect the resources (same categories as above).
- **Seller households** – the proportion of households which sell the resources and therefore rely on the forest for some income (same categories as above).

It was found to be easier and faster if representatives put beans for all categories for each resource at the same time, rather than starting at the beginning three times. Match sticks could also be used and might be easier if the ground is not even, as the beans tend to roll off the cards.

4. General Ranking

The following exercises were carried out by all participants. Discussions among villagers were encouraged.

- **General importance ranking:** the participants were asked to rank each resource according to its general importance (which should intrinsically incorporate the categories listed below, and any other values):
 - 1) very important;
 - 2) important; or
 - 3) least important.
- **Economic ranking:** the participants were asked to rank each resource with regard to its importance to the community for income generation. Each resource was assigned to one of the three categories:
 - 1) economically very important;
 - 2) of some economic importance; or
 - 3) of little or no economic importance.
- **Cultural importance ranking:** the participants were asked to place the resources into one of the following categories (details were explored and noted):
 - 1) of no cultural significance (purely utilitarian);
 - 2) of some cultural significance; or
 - 3) of major cultural significance.
- **Substitution ranking:** the participants were asked to place the resources into categories according to the availability of out-of-forest alternatives. The categories were as follows:
 - 1) absolutely no alternative;
 - 2) some alternative available but not adequate; or
 - 3) alternatives are available.
- **Damage ranking:** the participants were asked to place the resources into categories according to the level of damage that results from harvesting:
 - 1) negligible damage;
 - 2) some damage; or
 - 3) extensive damage.

- **Control requirements ranking:** the participants were asked to consider the level of control that would be necessary for the collection of each resource:
 - 1) should be legalised with minimum control;
 - 2) should be legalised with strict controls; or
 - 3) should not be legalised at all.

The issue of controls was carefully discussed prior to the exercise. It was pointed out that controls are not just a matter of collection or no collection. There may be controls over the following:

- who is permitted to harvest (e.g. only medicinal specialists);
- where they are permitted to harvest (e.g. special harvesting zones);
- when they are permitted to harvest (e.g. cutting of bamboo stems may not be allowed during the shoot harvesting season);
- which species are allowed and which are not (e.g. for polewood); and
- what kind of wood is to be collected (e.g. only dead/dry wood to be collected for firewood).

5. Mapping Exercise

The purpose of this exercise was to enable the parish representatives to map those areas which they use and/or over which they have de facto/traditional rights. The facilitator started off the exercise by roughly sketching the whole protected area on newsprint, showing the caldera at the top and the boundary. Key towns outside the protected area were shown so the participants could locate themselves. The map included a rough zoning of the vegetation type; forest, bamboo, moorlands, etc.

The more immediate area was then sketched. During this process a checklist of information was kept in mind:

- general information about traditional use of the forest;
- key landmarks (ridges, rivers, etc.) with their local names;
- rough location of vegetation zones;
- trails used for resource collection or transit, with local names;
- trails according to villages use and where they lead;
- historical tenure and management structures;
- current areas of use for each resource; and
- differences between villages.

Participants were encouraged to mark information on the map themselves. The checklist was not considered all-inclusive but it provided guidelines on the kind of information that could be collected. The main objective of the mapping exercise was to provide a relaxed forum in which to explore the various aspects of forest use, both

past and present. Discussions initiated by the resource users were followed through, regardless of whether they included information about the map. The sketch map was also used as the reference for in-forest walks.

6. Selection of survey villages and in-forest team members

At the end of the day, those present selected the two villages to be surveyed based on the information collected during the day. One of the villages selected was adjacent to the forest; the other was as far from the forest as possible within the parish. This provided information from the two extremes to assess the influence of proximity to the forest boundary. The extension workers worked with the village representatives, organising visits to both villages for the following day. The visits were intended to learn more about the villages, and to identify and approach members who would be the most appropriate participants in the village profile meeting (scheduled for Day 3).

In addition, the team asked if any of the participants would be interested in accompanying them on a forest walk the following day. During the meeting, the forest officer identified people who had been keen and active during the meeting, and displayed an extensive knowledge of the forest and its uses. These were among the first to be approached and asked if they would be prepared to work as members of the in-forest team.

Day 2. Forest Walk

Participants

- all team members with the exception of the Agricultural Extension Officer; and
- six to ten community members, who volunteered at the parish profile meeting of the previous day – preferably some who were clearly knowledgeable forest users, and including at least one woman.

Activities

The main objective was to continue general discussions about resource use in the more relaxed environment of the forest. Points that were overlooked during the parish profile could be brought to mind within the forest itself. In addition, information regarding the use of various parts of the forest was expanded upon.

Guiding questions for the team to explore included the following.

- Were there any forms of local management of forest resources in the past? How did they operate? Who were the principal participants?

- Is any use of the forest controlled today by people within the parish, either as individuals, local leaders, principal users, or traditional-rights holders? How does this differ from in the past?
- Given that a key objective of the new approach is to involve users as partners in managing the forest, how do community members themselves feel this involvement would best be organised? Who would be responsible? On what administrative level (parish, village, sub-county)?
- General information about resources themselves.

As with the mapping exercise, the forest walk was designed to provide a relaxing way to collect general information. Interesting points were followed up and community participants were given the opportunity to expand on points which they felt were important. The day usually involved a series of discussions, rather than questions and answers.

Where possible, the process of in-forest mapping was initiated during this first forest walk. The participants were asked to name the various areas through which the team passed, and, if applicable, to give some details of the history of the area. In addition, they were asked to assign a score of 1 to 6 according to the utility of the area for the collection of resources in general (including in-forest activities such as grazing and ceremonial site visitation). All areas (together with their scores) and trails were mapped. If time and weather permitted, specimen collection also began on this first forest walk. Collection often happened spontaneously, with resource users offering information about the use of particular species they came across. These more formalised objectives were not made the focus of the first forest walk, but were emphasised during the forest walks carried out after the village profile.

Day 3. Village Profile

Participants

The participants were a small group of approximately ten people. During the day, between the parish and village profiles (while most of the team was in the forest), the Agricultural Extension Officer went through both selected villages, together with a village leader, to identify and approach potential participants for the profile exercise to be carried out the following day. The invited group generally included the following:

- a village leader (e.g. LCI Chairman);
- several elders and/or respected key resource users;
- at least two to three female resource users (if none were included in the above); and
- at least two to three youths (if none were included in the above).

Although the invited participants were limited to approximately ten, in most cases other people gathered in the meeting area and took part in the assessment activities.

Activities

1. General Introduction

As with the parish profile, a general explanation of the approach and purposes of the survey was given. In addition, the work carried out with the parish group was summarised. At least one of the participants at the village level should have been involved in the parish profile. The fact that this particular village was selected by all the participants present in the parish profile meeting was explained. The procedure was explained, e.g. the intention to ask questions about each household (or every second or third according to how many households within the village), stressing that this was only to provide a good example of the trends of resource use and not to provide information about the identities of the households.

Participants were always given the opportunity to comment or to ask questions about the survey and the principles of collaborative management. Often the questions were requests for permission to carry out certain activities. It was stressed that the team held no decision-making powers, and that, as an independent body, it was only providing the first link between the official management body and the community. The process of negotiation to follow was intended to be the forum at which decisions could be made about which resources should be collected and the levels of control for them.

2. Household listing

Participants were asked to list all the households in the village, along with certain information.

- **Distance from the forest boundary:** the households were listed according to their distance from the forest boundary in the following categories. The easiest way to accomplish this was to ask the participants to divide the village into three parts, according to forest proximity. The households in each section could then be listed.
 - 1) forest adjacent (FA);
 - 2) forest near (FN); and
 - 3) forest far (FF).
- **Gender:** the gender of the head of household.

- **Wealth:** prior to beginning the listing, a discussion was initiated regarding the indicators of wealth in that particular village (e.g. a tractor, bicycle, donkey etc., number of livestock or plots; employment, etc.). With this in mind the participants were asked to divide the village according to wealth, and to rank each household accordingly. The categories were:
 - 1) rich;
 - 2) average – rich;
 - 3) average;
 - 4) average – poor; and
 - 5) poor.

3. Resource use discussion

Based on the information gained from the parish profile, a general discussion on resource use was initiated. If time permitted, the discussion included a confirmation of the ranking of the resources, user groups, general details about each use (for example, if the collection of medicinal plants was mainly a specialist's activity, were there plants/animals which most people collect, discussions about hunting, honey collection, etc.). Information about the marketing of each resource was requested at this stage, in addition to the local market value of each resource, if available. Additional points raised included the extent to which outsiders use the forest, whether people from the village had any traditional user rights over particular areas of the forest, and whether there was a system of traditional 'ownership' in the past or at present. Where possible at this stage, the species of interest for each of the resource categories were discussed, including reasons why they were preferred. The most important resources to the village were listed along the top of a large format business analysis book. All subsequent information was recorded in this book. It was kept open at all times, in order that everyone could see what information was being recorded.

4. Household information

Once resources had been discussed in general, the participants were asked to give details about each household. If there were enough households within the village (more than 50) it was only necessary to list information about every second household. This emphasised that the identity of the householder was not important. The names of the households (or every second household) were listed in the left-hand column of the analysis book. Each household was assessed with regard to whether or not they collected/bought/sold each resource. The following codes were placed in the column corresponding to each resource:

C	=	collects
CS	=	collects and sells
CB	=	collects and buys
B	=	buys only
Sp	=	is a specialist
E	=	employed in an activity (e.g. pitsawing)
GC	=	grazes cows in the forest
GG	=	grazes goats in the forest
GS	=	grazes sheep in the forest

There was some concern about discussing the activities of named households. However, this was generally overcome by offering to remove the names from the list after the exercise was completed. This made it clear that the team was not interested in identities. In only one parish (Benet) did the participants insist that this be done at the end of the listing.

5. Resource ranking

The participants were separated into three groups; older men, younger men and women. If there were enough women, they were also divided into younger and older; however, this was rarely the case. Each group was given a set of flash cards showing the resources that had been identified. They were asked to consider each resource and categorise it according to its overall importance. The three categories were:

- 1) most important;
- 2) important; and
- 3) least important.

6. Seasonal Calendar

When time permitted (which wasn't often), participants made a seasonal calendar with information about on-farm activities and forest-resource collection. Information about rainy seasons and the times of year when certain ceremonial activities were likely to take place were also included.

7. Selection of households for interviewing

At the end of the village profile meeting, ten households from the village were selected through a process of stratification. The stratification was based upon the following.

- **Distance:** the proportion of households interviewed within each distance category were chosen to correspond as closely as possible to the proportion within the village as a whole; i.e. if 20 per cent of the households were forest-adjacent, two respondents were selected from this category for interviewing.

- **Gender:** the proportion of female-headed households selected corresponded with the proportion within the village as a whole.
- **Wealth:** the proportion of poor/average/rich households selected reflected the proportion in the village as a whole.
- **Resource use:** various levels of resource use were represented.

Households were chosen to satisfy the above criteria to the greatest extent possible. The profile participants were involved in the final selection of households to be interviewed. If participants felt that any of the chosen respondents were not suitable for interviewing, or were not available at the time, another was selected from within the same distance/gender/wealth categories. After the selection had been agreed upon, an appointment was made with the LCI representative to assist the AEO in approaching as many of the ten selected households as possible prior to the interview. N.B. During the village survey, the participants were asked about the value of local labour (i.e. how much a person would earn per day working as a farm labourer).

Days 4-6. Household interviews

Participants

- team leader, social researcher, Agricultural Extension Officer (often from different villages); and
- one or two selected representatives of the village, generally one of the LC leaders.

The ten households selected during the village profile were interviewed over the following three days to gain detailed qualitative and quantitative information about the use, collection and sale of the resources/species identified. The interviews were semi-structured with general information (e.g. household size and structure, education/gender/origins of household head, land size etc.) and qualitative information collected on data sheets and quantitative information recorded for each resource in a large analysis book, with columns for the specific data required for each resource.

Each of the ten households selected were approached by the LC (or a respected village member) before being contacted by the interviewer. It was considered important that people be given the opportunity to refuse the interview if they did not feel comfortable about it.

The interviewers visited the respondents along with the village representatives who had agreed to work with the team for the last few days. Prior to beginning the interview, the respondents were asked if they were happy about being interviewed and

were offered another opportunity to refuse. As many members of the household as possible were included in the interview.

An introduction was given, explaining the meetings of the past days and the overall purpose of the survey. Interviewers stressed the fact that the ten respondents were only examples, as well as the importance of gaining a good understanding of the importance of the forest for both domestic use and income generation. Although the information required was clearly defined in advance, it was left up to the interviewers to interpret individual situations and judge the best time to ask each of the questions. Many of the answers came up during general conversation. The interview was kept as informal as possible, and if respondents appeared keen to give extra information, interviewers encouraged them to expand on qualitative aspects of various resources.

Female household members were involved in the interview and questions pertaining to their use of the forest were directed at them specifically. Separate interviews with women were not carried out.

Days 4-6. Focused forest walks

Participants

- a Forest Officer; and
- approximately six community members, specifically selected because of their knowledge of the forest and its uses, including at least one woman.

Activities

At the same time as the household interviews were being conducted, additional forest walks were carried out to obtain the more structured mapping information required, and collect more plant specimens. The walks were kept fairly unstructured, so that general topics of interest could be expanded upon where necessary. Efforts were concentrated on the following:

- **Mapping** the total resource use area used by local communities (TRA), including user trails, sub resource areas (SRAs) within the TRA as defined by the local community members (with local names), areas of specific interest (e.g. caves, ceremonial sites), and resources collected from each SRA;
- **Scoring** (by parish participants) of each SRA according to its value to the local community; and
- **Collection of herbarium specimens** for each species mentioned during the meetings and household interviews, together with information about its use, method of extraction, cultural value and the resource users' opinion of its rarity, method of reproduction, rate of growth, etc.

Day 6. Specialist interviews

When time permitted on the last day, one or more of the team members organised a discussion with a specialist forest user. These interviews were unstructured conversations that followed up on issues of interest as they arose. In addition, discussions were held with elders to gain some insight into the history of forest use in the area, as well as past and present forms of community management. Specialists interviewed included:

- traditional healers and birth attendants;
- hunters (where applicable, spiritual hunters in particular);
- pitsawyers;
- carvers;
- basket makers;
- traditional leaders/ceremonial leaders; and
- specialist mushroom collectors.

Appendix 2

Evaluation of the methods

One of the objectives of the assessment was to test the various components of the methodology and recommend any changes necessary for use in parishes to be approached in future.

Parish profile

1. Introduction

A thorough introduction was a crucial component of the meeting, and was paramount in establishing a positive atmosphere and explaining the purpose of the assessment. It was generally quite long, but necessarily so. Some of the initial suspicion was allayed, allowing the meeting to proceed openly, and with enhanced participation on the part of the community representatives. Allowing people to ask questions at the end was also worthwhile, thereby acknowledging, and to some extent addressing, their concerns.

2. Resource discussion

In general, the resource discussion was a useful icebreaker. The questions asked were not of a sensitive nature, and people offered information enthusiastically. The more formalised component of the discussion, which identified the “collector-groups” in terms of gender, age, wealth, specialist or generalist collection etc., was useful for background information about collection, although when this information was compared with the village profile data there were a number of inconsistencies, particularly with regard to wealth and distance.

Since this formalised component was quite time-consuming, and since it was felt that the information collected during the village profiles was more accurate, in the future this background work may be reduced to a more general discussion identifying the resources of importance. The gender and age of collectors (which can give an indication of possible future trends) was not collected during the village profile, but it is important to ensure that this information be included in the resource discussion at either the parish or village level (or both). A more detailed discussion of the trends and main collector groups could be initiated in a more informal format.

3. Village listing

The village listing, using beans and flash cards, provided a useful indication of the relative proportions of users/collectors/sellers for each resource. It not only offered a

comparison of the use of each resource, but also highlighted any variations according to distance from the boundary. It was an interactive exercise that the participants appeared to enjoy. The results were found to correspond well with the village listing and household interviews, suggesting that this type of opinion data can give a rapid but reliable account of relative levels of resource use within the parish.

Some logistical difficulties were encountered; for example, setting the cards on the ground in windy areas or in the rain. Practical modifications could easily overcome these problems. The flash cards could be pinned to a board and respondents could place a certain number of drawing pins in the board. This method would also open up the exercise to more interaction from the rest of the participants. They would be able to more clearly see what was going on and be in a better position for comment or disagreement.

4. Ranking exercise

The ranking exercise worked very well, although considerable explanation was required before participants clearly understood the difference between the various value categories. It was very important to stress that only forest resources were to be considered. When discussing firewood, for example, many people stressed how important firewood was, but firewood from the forest was evidently not as important if there were alternative sources available. Using a flash board divided into three sections for each of the categories of importance, and placing the cards on the board, would be helpful in displaying the results. It would also allow the participants to get an overview of the exercise and, if necessary, adjust the ranking of resources. At the parish level, if time permits and the group is large enough, it may also be useful to split the group into men and women, or alternatively into far villages and near villages, or even into all four categories. Since time was a major constraint during this assessment, the participants were addressed as one group.

5. Mapping exercise

The mapping exercise was very successful in providing a focus for discussions. It was originally planned as a ground-mapping exercise, but for convenience and to save time, newsprint and felt pens were used. If more time were available, a larger, more interactive exercise could be carried out on the ground, using stones, leaves, twigs, etc.

Village profile

1. Introduction

Many of the participants at the village profile had not attended the parish meeting, and therefore, a full introduction at the village level was also necessary.

2. Household listing

Generally, making a list of the household names within the village was an easy exercise. Participants were very active in discussing the order in which households should be listed with regard to distance from the boundary. There were some problems with regard to the wealth ranking exercise, primarily with the concept of “rich”. It was difficult to convey the idea of relative wealth, and images of permanent houses and pick-up trucks kept springing to mind. It is important to spend as much time as necessary clarifying the categories, and ensuring that participants are working under the same assumptions as the facilitating team.

With regard to the gender of the household head, female heads should have been divided into *de facto* and *de jure* categories. *De jure* female heads are usually widows, and are considered the true head of the household. *De facto* female household heads are often wives whose husbands spend a great deal of the time away from the household (usually doing wage work). Although the wife is not technically the household head, she is responsible for day-to-day decisions and for running the household for long periods while her husband is away. Unfortunately, during the survey this distinction was not made and only *de jure* female household heads were recorded. This gave an unrealistic view of differences between households according to the gender of the key decision-maker. Often in the situation of *de jure* heads of households, the woman is an elderly widow, and perhaps may not utilise the forest to a great extent due to limited physical capacity. Failing to consider *de facto* and female-headed households has severely limited the potential for using the household head gender information. Subsequent assessments should note this and ensure that the complete scope of gender information is taken into account.

3. Resource-use discussion

As with the parish profile, the general discussion was a relaxed way of collecting the information that fills out the resource-use story. It also gives the participants the opportunity to ask questions and put forward their opinions.

4. Household information on resource use

In subsequent assessments, other factors (such as education of household head, size/ stage of the household, whether the household head was born in the area) can also be collected during the village profile. This is particularly important as it has been recommended that household interviews not be conducted in subsequent rapid assessments, and an indication of the influence of these factors must be obtained through village profiles. Since this will make for a very long exercise, it is recommended that the village profile be conducted over two days, with the household listing carried out on the first day, and the resource assessment aspects completed on the second day. A number of points about the accuracy of the village profile can be made:

- Although in most cases, the village profile corresponded quite well with the information from the household interviews, there were a number of inconsistencies. As would be expected, respondents were less willing to discuss their own commercial activities and therefore the proportion of sellers was considerably higher in the results from the village listing.
- For many of the resources, particularly the 'minor' ones such as mushrooms, vegetables and sand, the village profile participants were not necessarily aware of whether households were collecting, buying or selling. Participants had a tendency to overstate the situation, listing someone as a collector even if they were not certain. In the future, the number of resources included in the village profile could be limited to those of greatest importance from the perspective of both the people and the park (for example, polewood, firewood and bamboo), and for which participants are likely to know the correct answer.
- The time-frame must be very carefully defined. Participants mistakenly mentioned a former hunter (from 10 or 15 years ago) as someone who was currently hunting. It must be made clear that the focus is current activities (or at least those activities that would be carried out if regulations permitted).
- Ideally, this exercise should be carried out with a small number of knowledgeable village representatives. Since meetings were usually held in rather public places, however, it was difficult to prevent a large group from gathering. This resulted in a slower, more tedious exercise. Although care must be taken to avoid creating suspicion among other village members, the meetings could be held in less public places (e.g. the home of a village leader) and the number of people participating kept to a minimum.
- Because of this slow pace, participants were tired by the time the exercise was completed, and the quality of the information was probably lower towards the end. If two days were used for the village profile, a more accurate assessment could be expected.

For these reasons, the quantitative analysis is based on the household interview data. Although few in number, the households were selected through a process of stratification and they can therefore be considered as representative of the community in terms of socio-spatial distribution.

5. Ranking exercise

The ranking exercise was very successful. Working in small groups encouraged participation, and lively discussions were common. Participants were able to make clear decisions and divide resources into categories rationally and fairly. This activity should be continued in subsequent assessments, as it is a refreshing break from the intensity of the household-listing exercise. If there is enough time, other importance ranking exercises (such as for cultural and economic value) could be added.

6. Seasonal calendar

Although there usually wasn't enough time to make a seasonal calendar, on the couple of occasions where time permitted, it was an enjoyable and interesting exercise. If the village meetings were conducted over two days, it might be possible to make a calendar. Seasonal calendars can provide very important information about the seasonality of various activities, and about the times of the year when the community is particularly vulnerable.

Forest walks

Forest walks provided an excellent forum for general discussions about past and present uses of the forest. Participants were relaxed and enthusiastic in an environment where they felt comfortable and knowledgeable. The atmosphere of team work was the beginning of a positive relationship between the local residents and management authorities. This was in spite of the fact that the team member leading the exercise was a Forest Department Officer. Detailed mapping was carried out effectively and has resulted in a thorough understanding of patterns of use of the forest. The participants quickly picked up the idea of scoring, and took the exercise very seriously, engaging in lengthy discussions about the relative value of each area. While information about species was freely given, the participants placed too much emphasis on collecting and providing information about medicinal plants.

Although such information is interesting, collecting specimens is time-consuming. Without dampening the enthusiasm of the resource users, it was therefore necessary to limit the species collected to those used for other purposes, such as polewood and firewood.

Household interviews

Household interviews were necessary to collect quantitative information on the consumption of resources. They were, however, time-consuming for both the researchers and the respondents. In the future, if household interviews are conducted it would be advisable to scale them down considerably and concentrate on collecting quantitative information for only those resources in contention (e.g. polewood, firewood, bamboo). Nevertheless, the format of the interviews was effective and facilitated rapid analysis of the data. Although the information requirements were clearly defined in advance, the open-ended and informal nature of the interview approach generally fostered a relaxed atmosphere. Although most respondents were initially suspicious about the intention of the researchers, they gave information freely and even volunteered information for which they had not been asked.

Appendix 3

How financial value was assessed

To arrive at a net monetary value, the average labour cost/unit¹⁹ was subtracted from the average market value/unit for each resource. This was then multiplied by the average number of units used annually per household to give the net annual value for the use of each resource. For each sample parish, this household value was multiplied by the total number of households within the parish (see example box 1).

Example 1. Steps for financial valuation of resources

1	market value/unit or trip for each sample parish (A)	–	labour cost/unit or trip for each sample parish (B)	=	net value/unit or trip for each sample parish
2	net value/unit or trip for each sample parish	X	av. no. units/HH/yr for each sample parish (C)	=	av. net value/HH/yr for each sample parish
3	av. net value/HH/yr for each sample parish	X	no. HH in area represented by that sample parish	=	net value for each forest-adjacent area
4	sum of net value for all forest-adjacent areas			=	net value for all HH in all forest-adjacent parishes

Three pieces of information (i.e. A, B and C), which formed part of the equation, were collected during the assessment. A summary of how this information was acquired is given below.

A: Determining market values

Information about the market value of resources was collected during the household interviews. Where possible, calculations for each parish were made using average values for that parish. But unless there were a number of buyers for various resources, the local market value was often not established. This was particularly pertinent for primarily domestic resources such as saltlick and firewood, which do not play a significant role in the local market economy. In cases where the information gathered was inadequate (less than six independent values per parish) an overall average for the forest-adjacent community was used, based on data from all six sample parishes combined.

For some resources, it was easiest to assess value by **unit** (e.g. per shoot, per bag). In cases where the units per trip varied considerably (e.g. polewood, where some units are stems and others are pieces of a mature tree; or bamboo stems, where stems used for construction are much larger and heavier than those used for staking) the **trip** value was used.

B: Determining labour cost

Labour expended during collection could be utilised in another manner, and therefore is a cost in the collection of the resource, even if merely in terms of the additional food consumed to compensate for the effort. The labour cost was considered to be the number of hours used in resource collection multiplied by the value of the labour hour within the local area. The number of hours spent collecting each resource was known from the household interviews. Initially, the value of labour was assessed as being equivalent to the amount that could be earned from alternative sources. On-farm labour is one of the few alternatives available to the rural communities of this area. Through discussions with profile participants and respondents, a figure of approximately US\$ 100 per hour was estimated. There was an assumption that a cash wage value intrinsically reflects the opportunity cost of using labour on a person's own farm.

Calculations using this figure resulted in extremely high negative values for some of the resources, since, at that rate, the cost of labour far outweighed the market value of the resources collected. Labour is generally the most valuable resource to the rural community. Households must make an economic choice in using labour, and so will tend to take part in activities that will bring the greatest benefit. The initial calculations suggest that many people choose to collect certain forest resources at a net cost and could, in fact, earn more by taking on cash wage work. Unless there is a very high non-financial benefit (e.g. social/cultural or enjoyment), however, it is inconceivable that people would expend their labour on collecting resources if the net benefit was negative.

On-farm wage labour is seasonal, with the greatest demand during the short harvesting periods. Respondents mentioned that in-forest activities decrease considerably at these times. The figure of US\$ 100 therefore reflects labour value during a very limited time of the year. For the rest of the year cash work is simply unavailable. Therefore, for the majority of the year, the opportunity cost of using labour for forest resource collection is, in real terms, much lower than US\$ 100.

It is unreasonable to use an unrealistically high value that escalates the cost of labour and undermines the net economic gain of using the forest. For each parish, therefore, the value of labour was lowered to a level that brought the most extreme negative value to approximately zero. Although the real value of labour is more than likely even lower than that which has been used here, it is unlikely to be higher than that which produces a US\$0 benefit for collection of the resource offering the lowest return for labour. These figures therefore represent the absolute minimum monetary value of the forest. The process of readjusting the labour cost from 100 to a more realistic number is shown in Example 2.

Example 2. Reducing the cost of labour to remove the most extreme negative value

Original calculations using a labour value of USh 100/= per hour

resource	market value/unit or trip	labour, unit or trip	X 100/= labour cost	net value/unit or trip
bamboo shoots	14/= per shoot	0.27 hrs per shoot	27/= per shoot	-13/= per shoot
polewood	750/= per trip	5.90 hrs per trip	590/= per trip	160/= per trip
ropes	500/= per trip	6.30 hrs per trip	630/= per trip	-130/= per trip

Bamboo shoots show the most extreme negative value per hour. Collectors actually lose 48/= per hour ($-13 \div 0.27$). Collectors of ropes lose almost 21/= per hour ($-130 \div 6.3$). To remove the most extreme negative value – that of bamboo shoots – the value of labour must be reduced to 51/= . This is a closer approximation of the real value of labour for most of the year (when on-farm work is not available). Lowering this labour value also increases the net value for other resources.

Adjusted calculations using a labour value of USh 51/= per hour

resource	market value/unit or trip	labour, unit or trip	X 51/=labour cost	net value/unit or trip
bamboo shoots	14/= per shoot	0.27 hrs per shoot	14/= per shoot	0/= per shoot
polewood	750/= per trip	5.90 hrs per trip	301/= per trip	449/= per trip
ropes	500/= per trip	6.30 hrs per trip	321/= per trip	179/= per trip

An additional calculation was carried out using a labour value of USh 0/= . The value of labour was taken as zero and was therefore not subtracted as a cost. This can be considered the maximum monetary value. The most realistic value, in monetary terms, will most likely fall in the range between the minimum and maximum values.

C. Quantification of use

It is important to clarify who the resources are being valued for. This analysis is concerned with the value of the forest to the collectors. Access to the forest offers opportunities to collectors that would otherwise not be available. They bear the cost of collecting, primarily through their labour, but they also derive benefits, either through selling resources or by not having to purchase alternatives. Although buyers do not directly gain the same benefit, since they have incurred the cost of buying the resource, it can be assumed that there is someone within the parish who is in fact collecting the resource and, while incurring the labour cost, is amassing a net financial benefit from the collection and sale. Therefore, the value of the resources to the collectors has been equated with the amount that is consumed within the parish in question:

$$\begin{aligned} \text{value of resources to collectors} &= \\ \text{value of resources collected} &= \\ \text{value of resources consumed} \end{aligned}$$

For some resources (e.g. honey, baskets) a few collectors supply many users. In some parishes the collectors were not represented in the limited number of interviews that were carried out. The resulting information about quantity actually collected is consequently too sparse to be extrapolated. Information on the consumption of resources is more complete, since there are many more users than collectors. Therefore, rather than base calculations on collection data (i.e. amount collected per household), consumption data (i.e. amount used per household) has been used.

This assumes that all the resources collected from the forest are consumed within the parish, and are consequently accounted for in the “use” data. The vast majority of resources remain within the parish economy, and therefore the quantity collected should correspond to the quantity consumed. There is, however, a market beyond the parish for a few resources (bamboo shoots in particular). The value of resources that flow to this extended market has not been included in this calculation, and the figures offered here are therefore likely to be underestimates of the real monetary value.

Appendix 4

Example of species conservation status

Mutushet Parish

species	form	growth rate	habitat	rarity	harvest impact	level of demand	impact assesment
Tobomwet	T	1	3	1	3	4	3
Borokapmoi	T	1	2	2	2	4	3
Kamuruk	T					4	3
Kelyangpok	S	1	3	1	2	4	3
Kaptolongit	T	3	2	3	3	3	3
Chebakwet	T	1	2	2	3	3	2
Lulyondet	T	1	2	2	3	2	2
Kuriondet	T	3	2	1	3	2	2
Biyonwet	T	3	1	1	3	2	2
Kamulwet	S	1	2	1	2	3	2
Cheptonget	T					3	2
Chenywet	T					2	2
Letewet	V	2	2	1	3	2	2
Koroshondet	T	3	2	3	3	1	2
Sokorwet	T	2	3	2	3	1	2
Sitetet	T	3	3	2	3	1	2
Serwet	T	1	2	1	3	1	1
Toboswet	T	3	2	1	3	1	1
Kuruk	T					1	1
Torokyondet	T	2	2	2	3	1	1

This table is an example of the parish-level assessment of each species mentioned, including information from the in-forest assessment and the level of demand as ascertained through the household interviews. Based on this information a subjective score, indicating the likely impact of harvesting, was assigned to each species. Where no specimen was collected, only demand information was included.

Key to table

form	T	tree
	S	shrub or bush
	V	vine or climber
growth rate	1	fast growing
	2	intermediate
	3	slow growing
habitat	1	found in many different habitats
	2	found in only some habitats
	3	habitat-specific
rarity	1	common
	2	intermediate
	3	rare
harvest impact	1	little impact
	2	some impact but not totally destructive
	3	totally destructive
demand	1	low demand
	2	intermediate demand
	3	high demand
	4	very high demand
impact	1	unlikely to be a conservation issue
	2	possibly an issue and should probably be investigated further
	3	most likely a conservation issue and should definitely be investigated further

Endnotes

1. In the mid-1990s a merger between Uganda National Parks (UNP) and the Game Department (GD) took place. The resulting institution is a parastatal known as the Uganda Wildlife Authority (UWA). This parastatal is under the Ministry of Tourism, Wildlife and Antiquities.
2. The first two sections of section 2 were written by Miriam van Heist.
3. Figures are from the 1991 Population Census and have been compounded at an annual increase rate of 2.5 per cent (national average at time of census) to give an estimated figure for 1994.
4. Although this area is occupied by people and is heavily cultivated, official de-gazette-ment had not been carried out at the time of writing.
5. Results were obtained by adding all ranking scores and dividing by six. If a resource was mentioned in only four parishes, its overall importance to the population was less than one that was mentioned in all six parishes. Only resources mentioned in at least four parishes were included.
6. One parish was selected from each forest-adjacent sub-county. Each parish was consequently used as a representative example for the sub-county in which it was located. The data from the sample parishes were extrapolated to the other forest-adjacent parishes within the sub-counties.
7. The parishes of Bungokho County, which border the forest of Nkokongeru Arm, have not been included in this extrapolation. The forest area accessible to them is small and depleted and it is not felt that any of the sample parishes are representative of the use and value of resources from this area.
8. The levels of harvesting used in these calculations have not been assessed in detail with regard to sustainability.
9. The term “user community” has been avoided in this text for reasons pointed out by Gilmour and Fisher (1991): “‘Community’ has a number of connotations: it suggests a group of people who share a set of common interests (residence, kinship, religious affiliation, etc.). It is implied that members of a community may act jointly in respect of these common interests. Individuals may be in a number of communities, depending on which set of interests are relevant in a given situation. Thus, a community of residence does not, necessarily, share common interests in terms of forest use-rights. Further, a community of residence is unlikely to be homogenous in terms of wealth, land ownership, occupations and religion...the word ‘community’ can obscure a variety of group affiliations.”

10. It was difficult for people to ascertain the source of timber, since most people buy ready-made furniture from carpenters in the area. Most assumed that the timber had come from inside the park.
11. Only the results from the nearest and farthest villages have been included in Table 9. Results from the average distance category have been omitted to avoid confusion; the table is intended to portray the difference between the extremes.
12. The collection of vegetables and mushrooms commonly occurs while people are in the forest for other purposes (e.g. collection of bamboo stems or shoots).
13. Only data from the near villages have been included. The proportion of collectors and sellers from the far villages is generally too small; if this small proportion is further divided into wealth categories, the numbers would be too low to be reliable.
14. The main exception is bamboo for the use of crop stakes (i.e. for beans, tomatoes, etc.) when large numbers of stems are harvested indiscriminately.
15. This demand has been broken down by species; the information is available in the more detailed project reports.
16. Almost half the stem demand is for ropes, for which coppicing branches of *Dombeya mukole* are selected.
17. It was emphasized that this was not a decision-making exercise, and that in the future, a process of negotiation between the community and the official management body would be the forum for making decisions.
18. Although the words “collectors” and “resource collection” are often used, they generally refer to both the extraction of resources and on-site uses such as grazing and visitation of ceremonial sites.
19. Apart from labour, there are a number of other minor costs involved, such as wear and tear on equipment (pangas) and occasional bribes that must be paid to forest workers. Due to the difficulties in assessing such costs, they have not been taken into account in this analysis.

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